



Dairy Margin Coverage – the new margin protection plan for dairy producers

Briefing Paper 18-2

Updated 11 December 2018

Andrew M. Novakovic*

Mark Stephenson*

The Legislative Changes to MPP-Dairy

The Agriculture Improvement Act of 2018 completes a legislative process that began over a year ago with a recognition that the Margin Protection Program for Dairy Producers launched with great hope four years earlier did not live up to the expectations of either dairy farmers or its authors and sponsors. Earlier this year, the Bipartisan Budget Act of 2018 included revisions to the original MPP-Dairy that created a unique opportunity for dairy farmers to retroactively reconsider their 2018 enrollment decision under much more favorable premiums. Indeed, the market situation combined with retroactive enrollment guaranteed that all but the largest dairy farms could receive a net cash benefit in 2018.

While this second version of MPP-Dairy was unfolding, the House and Senate agriculture committees continued to work on a more permanent redesign of the Margin Protection Program. Although the two committees came up with slightly different versions, from the beginning a couple things were clearly in agreement:

1. To continue with a policy based on the general concept of providing cash subsidies to dairy farmers when they experienced a squeeze between the price of milk and the cost of buying the feed to produce that milk

**Andrew M. Novakovic is the E.V. Baker Professor of Agricultural Economics in the Charles H. Dyson School of Applied Economics and Management at Cornell University.*

Mark W. Stephenson is the Director of Dairy Policy Analysis at the University of Wisconsin.

The Briefing Paper series is intended to provide logical and/or empirical analysis of dairy market economics or policy. The authors reserve all copyrights on this paper, but permission is granted to quote from the paper or use figures and tables, provided appropriate attribution is made.

2. An approach that would continue to require farmers to pay for the privilege of coverage (like an insurance program) - higher coverage, higher premiums - but to:
 - a. Increase the highest coverage threshold for farms of about average size and smaller, and
 - b. Lower the cost of coverage for those same farms

This briefing paper summarizes the new Dairy Margin Coverage program and begins to review the possible implications of the changes. As is common with any agricultural program legislation, USDA will need to review the law, make a few decisions about how to implement the changes, and issue new or modified regulations that provide specific instructions about what farmers can do and when they can do it. It is anticipated that this process will happen fairly quickly.

While we will not examine other risk management programs for dairy farmers, keep in mind that 1) the funding changes that allow farmers to access the Livestock Gross Margin for Dairy year around and 2) the independently created Dairy Revenue Protection program remain in place and are not altered or affected by the Agriculture Improvement Act of 2018. One very significant change, however, is that dairy *farmers will now be able to simultaneously use the new Dairy Margin Coverage (DMC) and LGM-Dairy or Dairy RP*. The logic behind this is that crop producers can simultaneously use income subsidy programs administered through the Farm Services Agency (such as ARC/PLC) and insurance programs administered through the Risk Management Agency (such as Revenue Protection).

Basic Features of DMC and Comparison to the Original MPP-Dairy

First, keep in mind that when Congress decides to modify or "fix" a piece of legislation, it typically starts with the language of the old law and says: replace this with that, delete that, insert this, etc. Thus, unless the Agriculture Improvement Act of 2018 specifically changes something originally authorized by the Agricultural Act of 2014, the provisions of the original program will simply continue. For example, Congress changed the premium structure under the new law but left alone the method for determining a producer's Production History.

Second, also remember that there are numerous details in how USDA administers the program, details that are not specified by the legislation. USDA can change its regulations, following required administrative procedures, at any time, as long as the proposed regulations are consistent with the legislation. These regulations do not impact the basic design of the new program, discussed below.

Production History

Under the original Agricultural Act of 2014, farmers who wished to enroll had to establish an amount of milk that qualified for the MPP-Dairy program. This amount is called the Production History (PH). For most farmers, this amount was based on the highest annual milk production marketed in either 2011, 2012, or 2013. For dairy farms businesses that did not exist before early 2013, alternative rules treated them as new farms.¹ Moreover, once

¹ For additional details on how Production History is established, see Information Letter IL 14-02 at: <http://dairymarkets.org/PubPod/Pubs/IL14-02.pdf>

the original Production History was set, it was increased in following years by the national annual increase in production.

Under DMC, any farm that has an established Production History will maintain that amount as it was determined for 2018. Any new registrant will establish a Production History based on the original rules. In other words, those new registrants have to go back to the 2011-2013 years or whenever their farm first started producing milk. However, there will be no future adjustments to Production Histories based on increases in US production or any other factors, for any farm.

Coverage Election

First, a bit of MPP/DMC glossary:

1. Actual Dairy Producer Margin (ADPM) – this is simply the name for the margin value that USDA calculates each month using the prices for All Milk, Corn, Soybean Meal and Alfalfa Hay.
2. Coverage Level Threshold – this is the dollar value of the ADPM that the farmer chooses as the trigger or threshold at which benefit payments will be made. If she elects \$7.50 coverage, benefits are paid when the ADPM goes below \$7.50.
3. Coverage Level Percentage – this is the percentage of a producer's Production History that he chooses to enroll in the program. A 50% Coverage Level means that 50% of the producer's PH is enrolled in the program. Note that this is not the same as 50% of their current actual marketings.
4. Covered Production History (CPH) – this is the quantity of milk enrolled in the program. It is simply the Production History (hundredweight) multiplied by the Coverage Level Percentage.

As before, farmers have two basic decisions to make: 1) how much milk to cover and 2) the level of margin at which a benefit will trigger. Under the original program, farmers could cover no less than 25% of their production history and no more than 90%, in increments of 5 percentage points.

Under DMC, the Coverage Level Percentage is expanded, on both ends, from 5% of Production History to 95%. The much lower minimum makes the program more accessible to very large farms that want to take advantage of the low Tier 1 premiums and not be exposed as much to the higher Tier 2 premiums. This is especially important for the high levels of Coverage Level Threshold, for which the Tier 2 premiums are much larger than Tier 1. For example, a producer may determine that \$8.00 coverage is attractive for the coming year but that the very high Tier 2 premiums negate or severely diminish the potential benefit. If 25% of his Production History puts a large share of his total Covered Production History into Tier 2, then he may, sensibly, decide not to participate at that Coverage Level Percentage. The reduction in the minimum amount of PH milk that must be covered from 25% to 5% means that a farm having 100 million pounds of PH, or about 4,000 cows, can now fully participate in Tier 1 without any Tier 2 exposure. Of course, it only applies to 5 million pounds of milk, but it is something that wasn't possible before.

Changes in Calculation of the Margin and Payment Triggers

The Agriculture Improvement Act of 2018 allows Tier 1 enrollment at \$8.50, \$9.00 and \$9.50 Coverage Level Thresholds. Tier 2 continues to peak out at the \$8.00 threshold established in 2014. The lowest threshold level, referred to as “catastrophic coverage”, continues to be \$4.

In allowing the higher thresholds, the DMC compensates for a change made to MPP-Dairy late in the legislative negotiations prior to passing the original bill. Before 2014, the National Milk Producers Federation originally proposed a margin calculation that used the US All Milk Price and prices of three feedstuffs that represented the bulk of the value of a dairy ration. The original margin calculation was based on the cost of feeds to make 100 pounds of milk and the feed supporting the rest of a normal herd - young stock and dry cows. Although the prices of corn, soybean meal and alfalfa hay are fundamental to calculating that cost, the other necessary component is how much of each feedstuff does a farmer need to buy to make 100 pounds of milk. Every dairy farmer knows that there is not one ration, any more than there is only one price for corn or hay. Nevertheless, the objective was to come up with a simple formula that uses readily available, reported prices and provide a reasonable representation of an average cost of feed.

One fundamental part of the legislative process is to estimate how much a new program or revisions to an existing program will cost the US government. This calculation is done by the Congressional Budget Office and is called "scoring". Once a bill has been scored, the number becomes a fact of Congressional life. If the score requires more money than the budget allows, some way must be found to make the proposed program cheaper. This situation came into play in 2014. The simple but not particularly sophisticated solution that was used was to simply multiply the feed cost formula by 90%. In effect, it took the old margin calculation and said that it would only cover 90% of the cost of feed. The simple arithmetic of this is illustrated in Table 1.

Table 1. Sample Implications of the 2014 Adjustment to the Proposed Margin Calculation (dollars per cwt.)

Margin Scenario	Milk Price	Original Proposal		Agricultural Act of 2014	
		Feed Cost	Margin	Feed Cost	Margin
High Price – High Cost	\$18	\$10	\$8	\$9	\$9
High Price – Low Cost	\$18	\$6	\$12	\$5.40	\$12.60
Low Price – High Cost	\$14	\$10	\$4	\$9	\$5
Low Price – Low Cost	\$14	\$6	\$8	\$5.40	\$8.60

From January 2007 to December 2014, the Actual Dairy Producer Margin that would have been calculated from the original formula averaged \$7.38. The adjustments that were made for the Agricultural Act of 2014 changed the average to \$8.50. In the first case, a farmer would have received a benefit payment at \$8 coverage, but not in the second case, even though all the milk and feed prices are identical in both scenarios. It is this sort of calculation

that led to the simplified, approximate conclusion that the new calculation was "off" by about \$1.00. Congress chose to fix this by increasing the highest threshold, as opposed to altering the formula.

Using the original, proposed formula, since January 2000 58.7% of the months (not 2-month averages) had a margin below \$8.00. Using the 2014 formula, there are 57.8% of those months when the margin fell below \$9.50, the new high threshold. Approximately the same sensitivity to market conditions...Problem solved.

The Agricultural Act of 2014 specified that the Actual Dairy Producer Margin would be calculated monthly but that payment triggers would be based on two-month averages: Jan-Feb, Mar-Apr, and so on. The Bipartisan Budget Bill of 2018 changed the payment trigger to one month. This had the effect of increasing how quickly a benefit payment could be received but also eliminated the possibility that a higher margin in one month might pull up a lower margin in the adjacent month and thereby result in a 2-month average that no longer qualified for payment or payment at a particular threshold.

The Agriculture Improvement Act of 2018 continues to calculate benefit payments on a monthly basis.

Changes in Premiums

Given the experience of the original program, a very important goal was to raise the upper limits at which a benefit could be paid, i.e., to make it pay out more frequently, as was just discussed. Arguably an even greater objective was to make it more affordable, i.e., to lower premiums. How these changes were finally implemented is illustrated in Table 2, which shows basic premiums under the original program (MPP-Dairy) and the new program (DMC, shown in green). In addition to the structure of the basic premiums, there are a couple of other new wrinkles, which will be discussed in part 3 below.

Part 1: New Premiums

Table 2 illustrates premiums under three versions of margin protection: 1) the Agricultural Act of 2014, 2) the Bipartisan Budget Act of 2018, and 3) the Agriculture Improvement Act of 2018. It shows the basic premiums for Tier 1 and Tier 2. There are several changes to observe:

1. The quantity threshold that separates the lower priced Tier 1 premiums from the higher Tier 2 was increased from 4 million pounds to 5 million pounds under the Bipartisan Budget Act. This change was maintained in the new DMC. Based on US average production per cow just before the 2014 and 2018 bills were passed, the old threshold of 4 million pounds per year equates to a herd size of about 190 cows. The new numbers equate to a herd of about 220 cows.
2. The lowest Coverage Level Threshold, sometimes referred to as catastrophic coverage, has been and continues to be \$4. This level of coverage is available by only paying the \$100 enrollment fee and is automatically applied to the maximum Coverage Level Percentage – 90% in 2014 and 95% in 2018.
3. The highest Coverage Level Threshold was raised to \$9.50 under DMC but only for Tier 1 production. It remains at \$8.00 for Tier 2.

4. Tier 1 premiums are much lower under DMC than for the original version of MPP-Dairy.² The relative differences are illustrated in Figure 1. For levels up to \$6.50, the DMC premiums are not much different from the 2014 program. After \$6.50, the premiums are dramatically lower.
5. As shown in Figure 2, Tier 2 premiums under DMC are quite a bit lower for the lowest Coverage Levels compared to MPP-Dairy – below \$5.50. However, they increase significantly at \$6 coverage and higher. Thus, prices near the "catastrophic" level are much more accessible to larger farmers but coverage above that, even in the mid-range, is more expensive. As noted above, coverage at the new levels, greater than \$8, is not available at any price.

Table 2. Premia for Margin Programs, exclusive of \$100 Administrative Fee (dollars per cwt.)

Coverage Level Threshold	Tier 1 MPP-Dairy, 2016 to 2017	Tier 1 MPP-Dairy, 2018	Tier 2 MPP-Dairy	Tier 1 DMC	Tier 2 DMC
<i>Qualifying Production</i>	4 M lbs. or less	5 M lbs. or less	above 5 M lbs.	5 M lbs. or less	above 5 M lbs.
\$4.00	\$-	\$-	\$-	\$-	\$-
\$4.50	\$0.0080	\$-	\$0.0200	\$0.0025	\$0.0025
\$5.00	\$0.0190	\$-	\$0.0400	\$0.0050	\$0.0050
\$5.50	\$0.0300	\$0.0090	\$0.1000	\$0.0300	\$0.1000
\$6.00	\$0.0410	\$0.0160	\$0.1550	\$0.0500	\$0.3100
\$6.50	\$0.0680	\$0.0400	\$0.2900	\$0.0700	\$0.6500
\$7.00	\$0.1630	\$0.0630	\$0.8300	\$0.0800	\$1.1070
\$7.50	\$0.2250	\$0.0870	\$1.0300	\$0.0900	\$1.4130
\$8.00	\$0.4750	\$0.1420	\$1.3600	\$0.1000	\$1.8130
\$8.50	n.a.	n.a.	n.a.	\$0.1050	n.a.
\$9.00	n.a.	n.a.	n.a.	\$0.1100	n.a.
\$9.50	n.a.	n.a.	n.a.	\$0.1500	n.a.

Although there were quite a number of specific changes, the main results are that premiums and Coverage Level Threshold options are much improved for Tier 1, which will apply to the first 5 million pounds enrolled regardless of how big a farm is, and DMC is more accessible to large farms at the more modest coverage levels under Tier 2.

² The Agricultural Act of 2014 provided premium discounts for farmers who enrolled in 2014 and/or 2015. The levels shown in the table were the undiscounted premiums that applied in 2016 and thereafter.

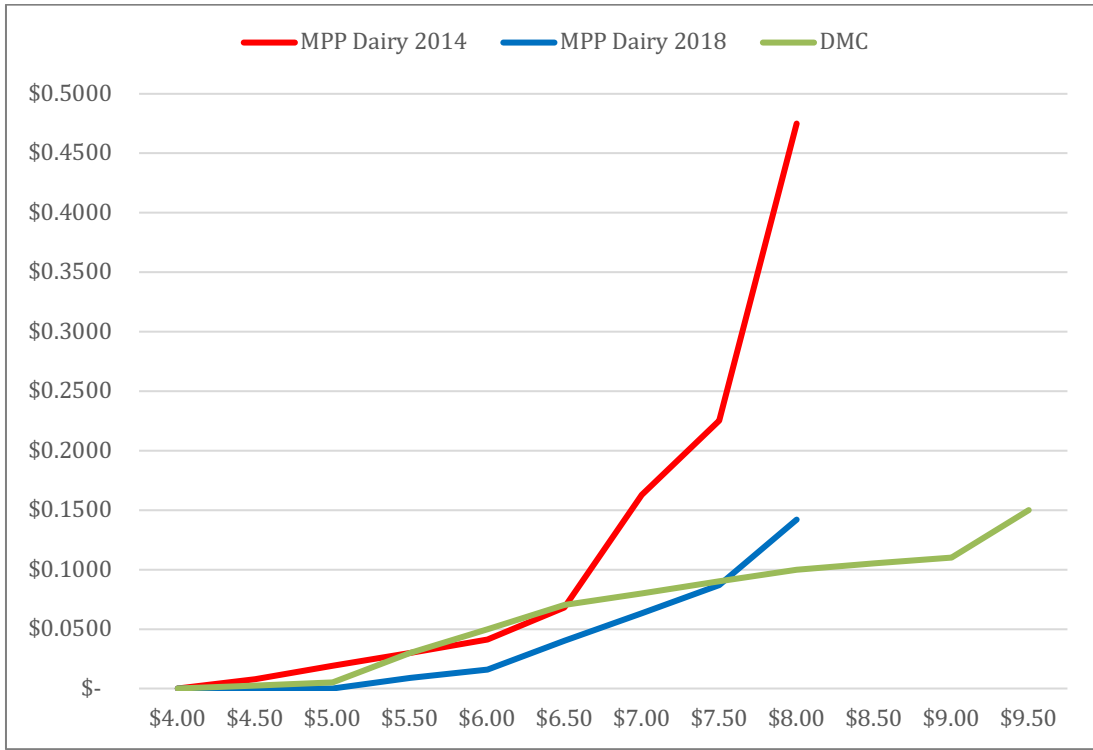


Figure 1. Tier 1 Premiums under three versions of margin protection

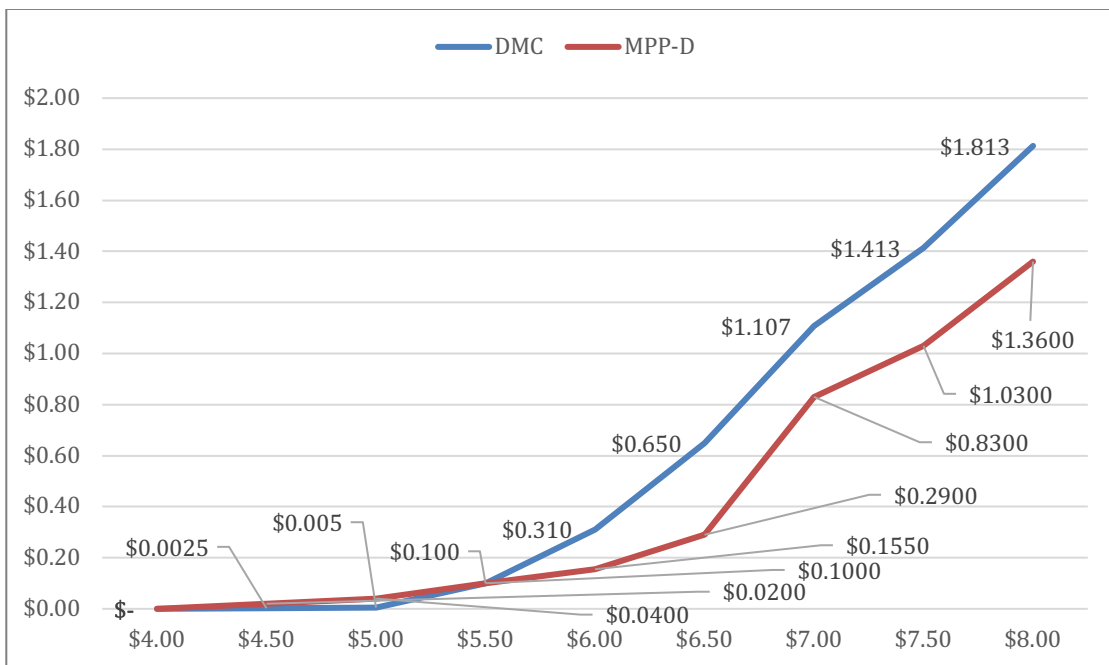


Figure 2. Tier 2 Premiums under two versions of margin protection

Part 2: Separate Coverage Level Threshold Elections by Tier

As was true with MPP-Dairy, a farm can enroll a Production History of more than the Tier 1 maximum (5 million pounds for DMC), but any milk in excess of 5 million pounds is priced at Tier 2 premiums.

Unlike MPP-Dairy, farmers have an opportunity to select a different Coverage Level Threshold in Tier 2.

1. If a farmer elects \$8 coverage or less, then he must select the same coverage level in Tier 2, but
2. If a farmer elects \$8.50 or more, then he may select any different coverage level in Tier 2.

What this allows is a large farm to elect a high coverage level on the first 5 million pounds enrolled in the program but a lower, and therefore much cheaper, coverage in Tier 2. Of course, as long as 5% of the farm's total PH is no more than 5 million pounds, the farmer doesn't have to elect "buy-up" coverage at any level in Tier 2. Regardless, 95% of his PH is covered at the \$4 level simply by virtue of enrolling. Consider the examples in Table 3.

Table 3. Examples of Coverage Election for three farms.

	Medium	Large	Very Large
Current Marketings (lbs)	5,000,000	16,500,000	75,000,000
Cows	250	750	3,000
Yield (lbs/cow)	20,000	22,000	25,000
Production History (lbs) - an example	4,750,000	15,500,000	69,000,000
Buy-Up Coverage - an example			
Coverage Level Percentage	95%	75%	50%
Tier 1			
Covered Production (lbs)	4,512,500	5,000,000	5,000,000
Coverage Level Threshold - 1	\$9.50	\$9.50	\$9.50
Tier 2			
Covered Production (lbs)	0	6,625,000	29,500,000
Coverage Level Threshold - 2	n.a.	\$5.00	\$5.00
Catastrophic Coverage			
Covered at \$4 (lbs)	n.a.	3,100,000	31,050,000
Current Marketings Not Covered (lbs)	487,500	1,775,000	9,450,000

In the example above, the Medium sized farm has current marketings of 5 million pounds per year but his Production History is 4.75 million pounds. Of that PH, he can enroll up to 95%, or a maximum of 4.5125 million pounds. If he chooses to enroll the maximum at a buy-up Coverage Threshold Level of \$9.50, his margin coverage will be as follows:³

1. If ADPM is above \$9.50, he receives no benefit payment
2. If ADPM falls below \$9.50 in a particular month (let's say its \$7.23), then his results for that month are:
 - a. $\$9.50 - \$7.23 = \$2.27$ per cwt.
 - b. $\$2.27$ per cwt times $1/12$ of 4,512,500 pounds or .0227 times 376,041.7, which equals \$8,536
3. If ADPM falls below \$4 in a particular month, then the farm gets a bigger payment but the pounds of milk on which the margin difference is calculated remains the same as above because the farm enrolled 95% - the maximum allowed.
4. No matter what the ADPM is during the year, 487,500 pounds of his current annual production is not covered by DMC.

Now consider the Large farm illustrated in Table 3. In this example, the farm has current marketings of 16.5 million pounds per year and a Production History equal to 15.5 million pounds. Let's suppose this farmer decides she wants to take full advantage of Tier 1 but only cover about 30% of her total marketings under Tier 2. She selects a Coverage Level Percentage of 75%. She further decides to select \$9.50 coverage for 5 million pounds in Tier 1 and the remaining enrolled PH at \$5.00 in Tier 2. An example of her possible results is illustrated as follows:

1. Regardless of what happens to ADPM during the year, 1,775,000 pounds of her current marketings are not covered under DMC.
2. If ADPM falls below \$9.50 in a particular month, but is above \$5 (let's say its \$7.23), then her results for that month are only for Tier 1 milk:
 - a. $\$9.50 - \$7.23 = \$2.27$ per cwt.
 - b. $\$2.27$ per cwt times $1/12$ of 5,000,000 pounds or .0227 times 416,666.7, which equals \$9,458.
3. If ADPM falls below \$5.00 in a particular month, but is above \$4 (let's say it's \$4.65), then her results for that month are:
 - a. In Tier 1: $\$9.50 - \$4.65 = \$4.85$ per cwt.
 - b. $\$4.85$ per cwt times $1/12$ of 5,000,000 pounds or 0.0485 times 416,666.7, which equals \$20,208.

³ Please note that these examples are illustrations. Actual benefit payments will be slightly different as USDA applies a greater degree of precision (decimal points) to its calculations than we use for this illustration.

- c. In Tier 2: $\$5.00 - \$4.55 = \$0.45$ per cwt.
 - d. $\$0.45$ per cwt times $1/12$ of 6,625,000 pounds or 0.0045 times 552,083.3 pounds, which equals \$2,484.
 - e. This yields a total benefit payment of \$22,692.
4. Now suppose the ADPM falls below \$4.00 in a particular month (let's say its \$3.25), then the results for that month are:
- a. In Tier 1: $\$9.50 - \$3.25 = \$6.25$ per cwt.
 - b. $\$6.25$ per cwt times $1/12$ of 5,000,000 pounds or .0625 times 416,666.7, which equals \$26,042.
 - c. In Tier 2: $\$5.00 - \$3.25 = \$1.75$ per cwt.
 - d. $\$1.75$ per cwt times $1/12$ of 6,625,000 pounds or 0.0175 times 552,083.3, which equals \$9,661.
 - e. In the Catastrophic category, $\$4.00 - \$3.25 = \$0.75$
 - f. $\$0.75$ per cwt times $1/12$ of 3,100,000 pounds or 0.0075 times 258,333.3, which equals \$1,938.
 - g. This yields a total benefit payment of \$37,641.

Of course, the results for the Very Large farm would be calculated in the same manner as was shown for the Large farm. At the numbers shown in this illustration, if this Very Large farm chose to enroll 5% of its PH, it would have 1.55 million pounds of unused space in Tier 1. If it chose 10%, it would have 1.9 million pounds that would have to be enrolled in Tier 2.

Part 3: Discounts and Credits

Certain discounts and credits can also be applied to premium payments. There are two motivations behind these features.

First, some people thought that a kind of reward ought to be provided to farmers who consistently participate in the program. This was reflected in the language of the original bill from the House of Representatives that locked all farms into one decision that applied to each year of the 5-year program. The Senate proposed discounts based on the size of the farm instead. The two concepts were more or less merged under DMC into a discount for a long-term enrollment that locks-in coverage levels. Thus, if a farmer commits to an enrollment that spans the full five years of the new program at the same Coverage Threshold (\$/cwt) and percent of historic production (pounds) each year, she will get a 25% discount on premiums in each of those years. Otherwise, Coverage Threshold and Coverage Level decisions can be made annually, including to not enroll at all.

Secondly, everyone recognizes that the original MPP-Dairy collected a lot more money in premiums than it paid out in benefits (2014-2017), and at a time when getting a benefit felt warranted despite the official calculation of the ADPM. As a kind of compensation for that unexpected outcome, the DMC creates a credit for each farmer that is equal to 75% of the total premiums paid under MPP-Dairy minus the total benefits received. That amount of money can be used to pay new premiums under enrollments made in 2019 or afterwards.

Alternatively, a farmer can request that 50% of that difference in old premiums and benefits be refunded in cash now. Owners of farms that have ceased operations are also eligible for a refund, based on their ownership share during the time when premiums were paid. This is apart from what happened to the Production History for the herd after the sale. USDA will no doubt have more specific rules for how this will work in due course.

Enrollment Period

The Act specifies that USDA must open enrollment no more than 60 days from the date the Act becomes effective. This means they must write and publish the more detailed rules about how DMC will operate. It is likely that many of these rules will be the same as were developed for MPP-Dairy, but there obviously are some changes that must be made and perhaps they will make some changes that are not strictly required but which they think are both beneficial and consistent with the new law. The Agriculture Improvement Act of 2018 becomes effective on 1 January 2019. Thus, the enrollment period should begin somewhere around, or at least not later than, March 1.

The Act further requires that USDA hold the 2019 enrollment period open for at least 90 days. Thus, the enrollment period must extend at least until about 30 May. Farmers may enroll at any time during the enrollment window. Obviously, they can't receive payments until they have made their coverage decisions. Waiting to the last minute gives one the maximum time to predict what will happen, but postpones getting benefits. At the current expected prices for 2019, it appears that there is a strong possibility of receiving benefit payments for \$9.50 coverage through the entire year, certainly the first 10 months.

If a farmer elects to make a decision in 2019 to which she will commit for the next five year, annual enrollment thereafter is automatic. Otherwise, future enrollment and coverage decisions will be made annually, with enrollment probably occurring at the end of the previous year. In other words, 2020 enrollment decisions will be made in the last few months of 2019.

Special, One-time Retroactive Enrollment for 2018

As noted earlier, the Agriculture Improvement Act explicitly allows a dairy farmer to simultaneously enroll in DMC and one of the RMA dairy risk programs – either LGM-Dairy or Dairy RP. With this in mind, Congress decided to allow farmers to retroactively enroll in MPP-Dairy who were ineligible to enroll in MPP-Dairy during 2018 because they had an LGM-Dairy contract for at least part of 2018. In other words, USDA has to open the 2018 enrollment for any such farmer who was prevented from enrolling in any month or months of 2018 under the old rules. USDA is instructed to open enrollment that ends no later than the end of March (90 days). There won't be many farms in this category, but it will be a very simple decision for all of them.

Other Dairy Provisions of the Agriculture Improvement Act of 2018

Federal Milk Marketing Order Class I Price Mover

Federal Milk Marketing Orders establish minimum prices that processors must pay for farm milk. The prices vary with the product the milk is used to make. Four product classes are identified. Class III prices are set each month based on benchmark prices for cheese and dry whey. Class IV prices are set based on benchmark prices for butter and nonfat dry milk.

Since this method was established in 2000, Class I prices are set based on whichever of the applicable Class III or Class IV skim milk prices are higher. While this was originally seen as a way to ensure a fair but higher value to farmers, over time it was recognized that this made it harder to use futures markets tools to hedge average farm milk prices. This is because there is no futures market for Class I milk (or all milk in general) and one had to somehow predict whether the future Class I price would be driven by Class III or Class IV in future months. This created an added degree of "basis risk". To mitigate this problem, it was proposed to change the Class I price mover to the average of the monthly Class III and IV prices used in the formula. To offset the fact that the average would always be less than the "higher of", 74 cents per hundredweight will be added to the average of the two classes.

This revision to Federal Order provisions is mandated in the Agriculture Improvement Act of 2018. The legislation will require USDA to amend all Federal Milk Marketing Orders to conform with the new requirement, and it waives the requirements of the Administrative Procedures Act. The latter will allow USDA to amend the underlying regulatory language without a hearing or without even an invitation for comments. It does not prevent USDA from requesting comments or having a hearing to consider how this new provision might entangle or impact other aspects of Order operations or any other Federal Order issue. Whether it chooses to invite proposals for a hearing on another or even a related topic, there is no question that USDA will change the procedure by which Class I prices are calculated will be implemented by no later than the end of March.

Reauthorize Forward Pricing by Non-Cooperative Handlers

Federal Orders establish minimum prices that must be paid by processors to suppliers of milk. Futures contracts enable buyers and sellers to agree to a forward or future price that is underwritten by the futures contract. Forward pricing, backed by futures contracts, has the benefit of reducing uncertainty about future prices, but they may end up being higher or lower than the cash market at that future point in time. Of course, there is no Federal Order problem if the forward contract price ends up being higher than the minimum cash price, but the original legislation and federal order language did not allow regulated handlers who are not cooperatives to pay a lower price than the monthly minimum, even if a seller agreed to it in a forward price contract. Since 2008, the Dairy Forward Pricing Program allows non-cooperative, regulated handlers to enter into forward pricing contracts with interested suppliers on milk that is regulated as Class II, III, or IV. The Agriculture Improvement Act of 2018 reauthorizes the Dairy Forward Pricing Program through 2023.

Charitable Donations of Milk

The Agricultural Act of 2014 included a Dairy Product Donation Program that authorized USDA to purchase dairy products for donation to public and private not-for-profit organizations that provide food assistance to low income individuals and families. The program could only become active if the ADPM fell below \$4 for two months in a row. The program never came close to kicking in since 2014.

Many farmers, processors and analysts have felt that doing something to stimulate usage would be a positive way to assist farmers when profits are low and that this also has the salutary effect of bolstering sales, especially for populations that do not have sufficient incomes or are food insecure. The new legislation includes a Milk Donation Program that

does not authorize USDA to purchase dairy products for donations but rather tries to provide financial incentives to encourage the dairy sector to make donations. Under this program, dairy organizations could be reimbursed for costs incurred for donating consumer-packaged, beverage milk. The reimbursement is based on the difference between the Federal Order minimum Class I milk price and the lowest classified price for the applicable month (either Class III milk or Class IV). Thus, a processor would buy milk that normally will incur the Class I price but, by means of a reimbursement, will face an actual cost equal only to the lowest Class price. The milk would remain pooled at its Class I value and farmers would see the same minimum blend price.

A maximum of \$5 million per year will be made available for this program, but any unspent funds would roll over and be available for subsequent years. This program focuses on beverage milk product donations in no small part to bolster sales of a flag ship dairy product that has suffered declining per capita and total sales.

What Will or Should Dairy Farmers Do?

As a result of the changes made in the DMC, many more dairy producers will have new choices with regard to their marketing strategy. The new range on the percent of Production History from 95% down to 5% means that more, larger farms can take advantage of the lower Tier 1 premiums on their milk production. With the Tier 1 cap of 5 million pounds of enrolled Production History, farms with 100 million pounds of milk or less can qualify for only Tier 1 coverage on a portion of their milk ($5,000,000 \div 5\% = 100,000,000$). This is a farm of approximately 4,000 cows. Under the original program, the same farm would have to enroll at least 25% of its Production History, which means a much more expensive coverage cost.

There are several approaches that could be taken to examine the impact of the changes in the DMC. One of them is to look back at the actual margins over the life of the Agricultural Act of 2014 to see what the new rules would have meant. Over those 60 months, Figure 3 and Table 4 show the months when the margin calculation would have been below coverage levels.

Historic Reference

Although historic calculations are no guarantee of future performance, it is clear that the increases in Coverage Levels from \$8.00 to \$9.50 make the DMC more sensitive to potential indemnity payments. Over the last 5 years, \$9.00 protection would have triggered a payment slightly more than half of the time, and a \$9.50 level of protection would have provided payments about two-thirds of the time. The expected payout would have averaged from 1¢ to \$1.00 per cwt of covered milk from the \$6.00 level of coverage to the \$9.50 level. At Tier 1 premia, \$7.00 coverage would have been about breakeven, and there would have been positive, and increasing, net benefits at all levels above that.

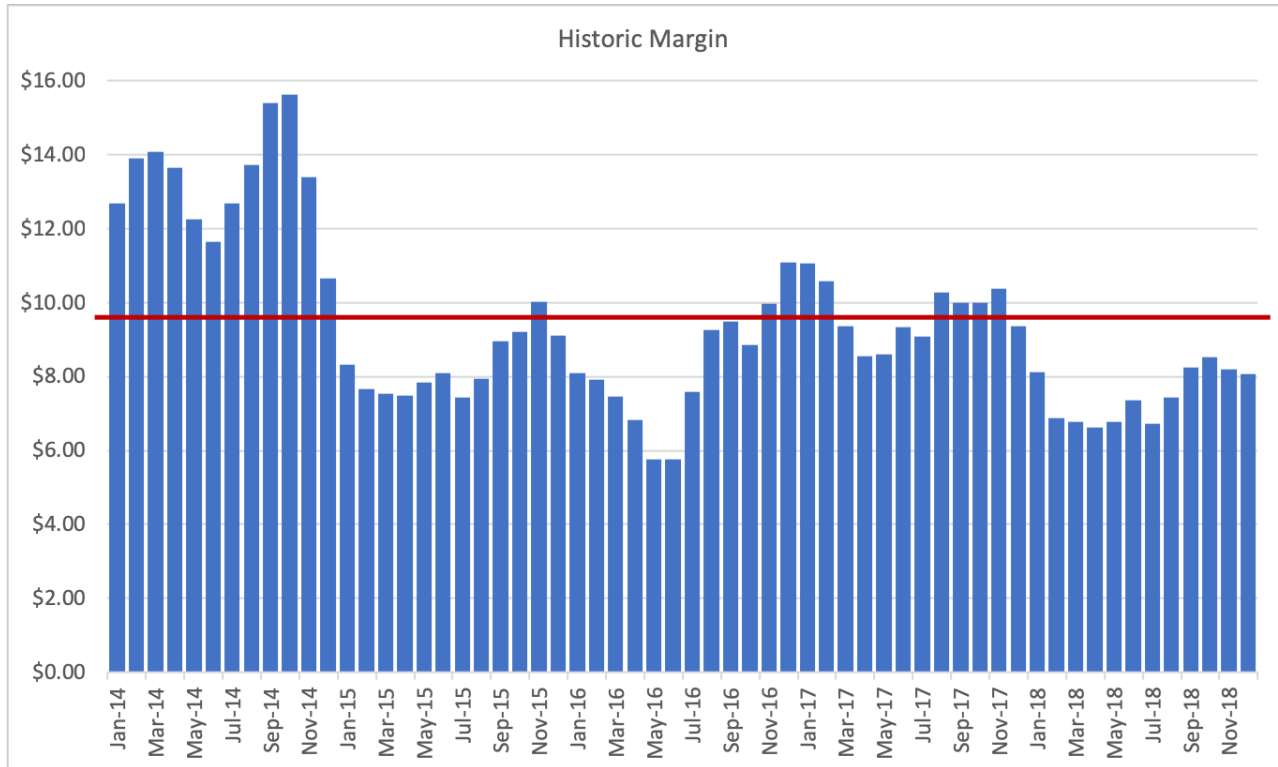


Figure 3. Monthly Milk-Feed Margins, January 2014 through December 2018

Table 4. Historic Number of Months That MPP Margin was Below Coverage.

For First 5 Million Pounds of Milk						
Coverage Level	Months Below	Percent of Months Below	Expected Payout	Premia	Net Benefit	Net with Discount
\$ 6.00	2	3%	\$ 0.01	\$ 0.050	\$ (0.04)	\$ (0.03)
\$ 6.50	2	3%	\$ 0.02	\$ 0.070	\$ (0.05)	\$ (0.03)
\$ 7.00	8	13%	\$ 0.06	\$ 0.080	\$ (0.02)	\$ 0.00
\$ 7.50	13	22%	\$ 0.14	\$ 0.090	\$ 0.05	\$ 0.07
\$ 8.00	19	32%	\$ 0.27	\$ 0.100	\$ 0.17	\$ 0.20
\$ 8.50	26	43%	\$ 0.47	\$ 0.105	\$ 0.36	\$ 0.39
\$ 9.00	31	52%	\$ 0.71	\$ 0.110	\$ 0.60	\$ 0.63
\$ 9.50	39	65%	\$ 1.00	\$ 0.150	\$ 0.85	\$ 0.89

Value of the Long-Term Enrollment Discount

Based on the calculations above, the 25% discount on premia for signing up at the same coverage for the entire life of the program would have increased net benefits at most by less

than 4¢ per cwt. ($\$0.150 \times 25\% = \0.0375). For future enrollments, farms would be expected to evaluate that discount against the benefit of selecting alternative coverage levels for the upcoming year.

The MPP Decision Tool⁴ uses futures and options markets to estimate margins as seen in Figure 4 at the time of annual signup. The example in Figure 4 shows the first year of signup under the old program with a forecast for 2014 as of a signup date of December 13, 2013. Actual margins in 2014 were much higher than forecast, but the tool would have correctly forecast that an annual decision for 2014 would have been to select catastrophic coverage at the \$4.00 level as there would not be an expected net benefit at any level above that (including \$9.50).

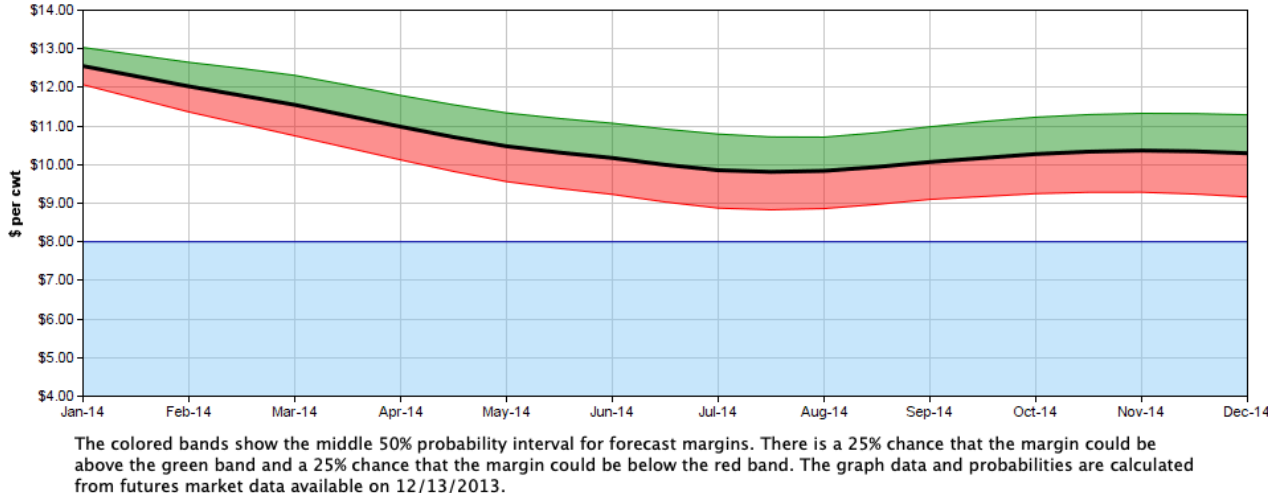


Figure 4. Example Margin Forecast for 2014 as of December 13, 2013.

Looking at this same kind of data and decision process for the remaining years of the last Farm Bill, the Decision Tool would have correctly forecast that an optimal annual decision for producers would have been catastrophic coverage in 2014 and 2017 but a selection of \$9.50 for Tier 1 coverage in the other 3 years. Had a producer followed this strategy, the average net benefit would have improved marginally by an additional 2.3¢ per cwt. at coverage levels up through \$8.50, been of no additional benefit at \$9.00, and would have diminished the value of \$9.50 coverage by 2.3¢ per cwt. (Table 5.)

There are a few factors at play in the enrollment discount example. One is that there are a few months of indemnities in 2017 at the two highest threshold levels that would have been missed if selecting coverage annually using the futures forecast tool. Another factor is that absolute value of the discount is larger on the more expensive premiums.

⁴ <https://DairyMarkets.org/MPP/Tool/> or <https://www.fsa.usda.gov/programs-and-services/farm-bill/farm-safety-net/dairy-programs/mpp-decision-tool/>

Table 5. Tier 1 Historic Value of the Discount. 2014 Through 2018.

Threshold	Net Benefit per cwt.		
	5-Year Commitment with Discount	Annual Choice Using Futures Forecast	Difference
\$ 6.00	\$ (0.105)	\$ (0.082)	\$ 0.023
\$ 6.50	\$ (0.088)	\$ (0.065)	\$ 0.023
\$ 7.00	\$ (0.048)	\$ (0.025)	\$ 0.023
\$ 7.50	\$ 0.024	\$ 0.046	\$ 0.023
\$ 8.00	\$ 0.158	\$ 0.180	\$ 0.023
\$ 8.50	\$ 0.355	\$ 0.378	\$ 0.023
\$ 9.00	\$ 0.597	\$ 0.606	\$ 0.009
\$ 9.50	\$ 0.886	\$ 0.863	\$ (0.023)

The Decision for Large and Very Large Farms

Many farms with more than 5 million pounds of Production History can benefit from the DMC. For example, a 1,000 cow farm with a PH of 25 million pounds can select a Tier 1 Coverage Percentage of 20% and cover 5 million pounds of their milk at the highest Threshold. This would have provided 89¢ net benefit with the 5-year purchase discount on 20% of their milk which amounts to a net benefit of about 18¢ on all milk production.

Farms with a PH up to 100 million pounds (about 4,000 cows) could have followed a similar strategy to cover 5% of their historic production to net 89¢ benefit on 5 million pounds Tier 1 coverage or an average net benefit of 4.4¢ on all milk.

Very large farms cannot avoid some Tier 2 coverage, given the 5% minimum Coverage Percentage. For example, a farm with a PH of 250 million pounds (about 10,000 cows) could choose 5% percent and would have 5 million pounds of \$9.50 coverage at Tier 1 and could cover the remaining 7.5 million pounds at a Tier 2 level of say \$5.00. This would still provide a net benefit of about 1.8¢ on all milk production. Recall, large farms can only employ this strategy if their Tier 1 threshold selection is \$8.50 or above.

Thus, the DMC is especially appealing for average and smaller sized farms, but it does provide reasonable, affordable opportunities for virtually all farm sizes. The ability to use Dairy Revenue Protection or Livestock Gross Margin insurance in addition to DMC makes for reasonable risk management options at all size levels.

Using the MPP-Dairy Credit

Farmers who have MPP-Dairy net premiums are able to take 75% of that value as a credit towards future DMC premiums (regardless of any benefit that may subsequently be paid) or receive 50% of that amount as cash. This is a decision many farmers will have to make. Either method can be a sensible choice. Factors to consider are 1) how much net premium do you have, 2) the extent to which you want to participate in DMC, and 3) the tax implications of taking a cash payment in 2019.

Summary

Congress has incorporated the basic ideas of the old Margin Protection Program in the new Dairy Margin Coverage program, but it has made significant changes which make the program more responsive to market conditions and which better match farmer's perceptions of a down market. Most notably, increasing the maximum Coverage Level Threshold from \$8.00 to \$9.50 in Tier 1 will allow more indemnity triggers over time. Lowering the premia on Tier 1 coverage makes the insurance investment all the more attractive. Tier 2 premia are still much more expensive than Tier 1 above the \$5.00 coverage level, but Tier 1 volumes have been increased from 4 million to 5 million pounds of Production History and the Coverage Level Percentage has been lowered to as little as 5% of PH. Although farms larger than about 4,000 cows will have to purchase some Tier 2 protection, the new DMC allows the Tier 2 Threshold Level to be different (lower) than the Tier 1 selection if Tier 1 is at \$8.50 or above. Coverage at \$5.50 or below is attractively priced in Tier 2.

Producers will have the option of electing coverage annually, or they can choose to elect coverage once for the life of the Farm Bill and receive a 25% discount on their premium costs. Based on historic values, there may be a small benefit to a more flexible annual selection, but the discount can be tempting for the simplicity of a one-time choice. The lack of annual flexibility may have minimal costs at the highest threshold levels. Farmers however should be wary of locking in a low Coverage Threshold that would require some premium but seldom kicks in.

The new higher Coverage Level Thresholds have the potential to trigger indemnities more frequently than was the case with MPP-Dairy. Because of this and the new lower costs of the Tier 1 premiums, in most years the optimum annual choice will either be to purchase at the highest level of protection for Tier 1 or at the catastrophic level.

The new program should provide a good level of risk protection for smaller farms at a very reasonable price. It will also provide a basic level of protection for larger farms. However, larger farms may also wish to employ a more complete risk management program by using of LGM-Dairy, Dairy-RP, futures, options or cash forward contracting as there are no restrictions for joint use of DMC with other programs.