

Risk Management and Depooling

Previous issues of National All-Jersey's (NAJ) Equity Newsletters, along with many articles in the dairy press, have addressed the impact that negative Producer Price Differentials (PPDs) and the subsequent massive depooling of Class III milk have had on Federal Milk Marketing Order (FMMO) announced uniform prices and producer pay prices. While the effect on producer milk checks is the most obvious impact of depooling, it also has profound effects on risk management strategies. This issue of the Equity Newsletter will look at a case study of a producer in the Mideast Order that utilized three USDA-sponsored risk management programs: Dairy Margin Coverage (DMC), Dairy Revenue Protection (DRP) and Livestock Gross Margin – Dairy (LGM Dairy) during 2020 and how depooling negated their effectiveness.

Table 1 shows:

- The federal order Class III price for each month.
- The dairy's Class III value at the dairy's actual component levels.
- Order 33's PPD
- Order 33's uniform price
- The dairy's resulting price is calculated by adding/subtracting the PPD from the dairy's Class III price.
- NAJ estimated what the PPD would have been without depooling by combining the 2020 month's pooled volume and price of Class I, II and IV milk with that month's volume of 2019's pooled Class III milk at 2020 prices. Months with negative PPDs would continue to have negative PPDs even

- without depooling, but because significantly more Class III value would be pooled, the PPDs would be substantially less negative.
- Then an estimated uniform price is calculated using the revised PPD.
- Finally, the resulting federal order price to the dairy is estimated.

Depooling and Dairy Margin Coverage

When the DMC program became available in 2019 the dairy enrolled for five years at the \$9.50 income-over-feed-costs (IOFC) level for their first five million pounds of annual production. DMC uses the U.S. all milk price for milk's value. The all milk price is defined as the gross price farmers received in the given month for milk sold at average butterfat test.

A cursory comparison of federal order uniform prices and the U.S. all milk price shows that negative PPDs are likely not factored into the all milk price. Months with positive PPDs have all milk prices approximately \$0.50/cwt. higher than a weighted average of federal order uniform prices, and most of the difference can probably be attributed to the fact that FMMO uniform prices are reported at 3.5% butterfat which is lower than the average butterfat test included in the all milk price. This year from June through October, the months with negative PPDs, the all milk price averaged \$2.40 more than the uniform price, \$1.90/cwt. more than the typical price relationship.

If depooling causes the all milk price to be overstated, then DMC IOFC margins will also be overstated resulting in indemnities being less than they should be, or not paid at all. For example, June's all milk price was \$18.10.

When combined with DMC's calculated feed price of \$8.11, that month's IOFC was \$9.99/cwt., and no indemnities were paid to producers who were insured for \$9.50. However, if depooling caused that month's all milk price to be overstated by \$1.90, DMC would have paid a \$1.41 indemnity for milk insured at \$9.50 (\$16.20 all milk price - \$8.11 feed cost = \$8.09 IOFC). Using the same assumptions for July through October finds that DMC payments would have been \$0.57/cwt. in August, \$2.00/cwt. in September and \$0.27/cwt. in October for producers insured for \$9.50 IOFC.

Depooling and Livestock Gross Margin – Dairy

LGM-Dairy also insures income over feed costs by simultaneously buying both a call option to limit higher feed costs and a put option to set a floor on milk prices. Because the dairy produces over five million pounds of milk annually, they occasionally utilize LGM-Dairy as a risk management tool. In 2020 the dairy purchased LGM-Dairy contracts for March and October. Because depooling only impacts revenue, this analysis will look at that side of the equation. For the March contract, the Class III price declined from \$17.83/cwt. when it was purchased to \$16.23 at settlement, providing an indemnity of \$1.60 on lost revenue. For the October contract the Class III price increased from \$15.87/cwt. at purchase to \$21.61 at settlement, a gain of \$5.74, resulting in no indemnity payment. The increase in milk prices should be viewed as a positive development for producers, but let's look at the end result.

When the LGM-Dairy contract was purchased, Class III futures were \$15.87. The Order 33 PPD typically averages \$0.60/cwt. when normal Class price relationships exist. Therefore, when the contract was purchased the producer was expecting a uniform price of around \$16.47. However, even though the Class III price ran up to \$21.61, due to depooling and the subsequent -

\$6.87 PPD, the uniform price was \$14.74, wiping out more than the entire \$5.74 gain in the Class III price. The dairy missed out on both receiving an indemnity payment and receiving the value of the large gain in the Class III price. Without depooling the PPD would have been in the range of -\$1.81. The uniform price would have been \$19.80, \$3.33 higher than the anticipated uniform price when the LGM-Dairy contract was purchased, which is a more effective hedge.

Depooling and Dairy Revenue Protection

Dairy RP has three primary differences from DMC and LGM-Dairy. First, it only hedges revenue. Feed costs are not part of the equation. Second, it is based on calendar quarters instead of individual months. Third, producers can base their expected revenue on Class III and IV or pounds of butterfat and protein, whereas DMC and LGM-Dairy are based strictly off of the standard Class III price calculated at 3.5% butterfat and 2.99% true protein.

The dairy purchased two separate DRP contracts for the second quarter, April to June. Having high component Jerseys, the dairy opted to insure their butterfat and protein value at 5.0% fat and 4.0% protein. The two contracts floored the dairy's Class III value at an average of \$21.64/cwt. That quarter's federal order settlement prices valued milk with 5.0% butterfat and 4.0% protein at \$20.55/cwt., and the dairy received a \$1.09/cwt. indemnity payment. However, the dairy's actual Class III value for the quarter averaged \$19.77, but Order 33's PPD averaged -\$1.77 for the quarter due to massive depooling of Class III milk in June. That brought the dairy's pay price down to \$18.00/cwt., which was \$3.64/cwt. less than the floor they set with DRP. The \$1.09 indemnity payment closed the gap to \$2.55/cwt., but far below the floor the dairy intended to set.

If Order 33 had as much Class III milk pooled in June 2020 as was pooled in June 2019, the

average PPD for the quarter would have been \$0.05, an improvement of \$1.82/cwt. In that scenario the dairy's realized pay price, including the \$1.09 DRP indemnity, would have been \$20.92/cwt., much closer (within \$0.72) to their target price of \$21.64.

The opposite scenario happened in the third quarter. The dairy purchased three different DRP contracts for July through September. One was a basic Class III contract for \$15.75, and the other two were component contracts (5.0% F and 4.0% P) that averaged \$20.05/cwt. Following those purchases the average Class III price for the quarter skyrocketed to \$20.25, a gain of \$4.50. The value of the component contracts jumped to \$27.36, a gain of \$6.96/cwt. Obviously the dairy didn't receive indemnity payments, but did they realize the gain in Class III value?

The order's PPD averaged -\$3.74 during the third quarter, which eroded the \$4.50 gain in the basic Class III price down to \$0.76. The dairy's pay price of \$22.23 was \$2.18/cwt. more than the floor they set at \$20.05, but nowhere near the \$6.96 runup in the value of their components following the contract purchases. Without depooling, the order's PPD would have averaged -\$2.29, an improvement of \$1.45.

As this case study shows, depooling, which in turn exacerbates negative PPDs, severely impacts the effectiveness of risk management programs. While federal orders have occasionally experienced negative PPDs previously, they have never been of the magnitude that happened this year. Of course, 2020 has been an unprecedented year on many fronts, including dairy commodity price volatility. The Farmers to Families Food Box program helped to rally cheese prices to record levels, providing price relief to producers, while also assisting families in need. However, the cheese price rally also led to record differences between the Class III and IV prices, resulting in the higher-priced Class III milk to be depooled.

Looking ahead to 2021 the Food Box program is not expected to be continued, and if it is, not on the scale seen in 2020. In addition, significantly more cheese production capacity will be coming online next year. Both developments are expected to bring Class III and IV prices into a more normal relationship. However, the potential exists for negative PPDs accompanied by depooling to continue to occur. Dairy industry stakeholders are contemplating options to limit depooling, as well as analyzing other aspects of the FMMO system. As concepts are developed into proposals NAJ will analyze them for their potential effectiveness.

