TESTIMONY OF THE INTERNATIONAL DAIRY FOODS ASSOCIATION WITH RESPECT TO THE BASE CLASS I SKIM MILK PRICE PROPOSALS 13, 14, 15, 16, 17, AND 18
AUGUST-SEPTEMBER 2023 FEDERAL MILK ORDER HEARINGS
DOCKET NO. 23-J-0067; AMS-DA-0031

This testimony is submitted on behalf of the International Dairy Foods Association (IDFA) with respect to proposals relating to the Base Class I Skim Milk Price, which I will also sometimes refer to as the Class I Mover.

IDFA represents the nation's dairy manufacturing and marketing industry, which supports more than 3.2 million jobs that generate $49 billion in direct wages and $794 billion in overall economic impact. IDFA's diverse membership ranges from multinational organizations to single-plant companies, from dairy companies and cooperatives to food retailers and suppliers, all on the cutting edge of innovation and sustainable business practices. Together, they represent most of the milk, cheese, ice cream, yogurt and cultured products, and dairy ingredients produced and marketed in the United States and sold throughout the world.

As buyers and processors of milk, the members of IDFA have a critical interest in these hearings. Most of the milk bought and handled by IDFA members is purchased under the Federal milk marketing orders promulgated pursuant to the Agricultural Marketing Agreement Act of 1937 (the "AMAA").

I am Mike Brown, Chief Economist for IDFA since January 2023. I have testified on other proposals earlier in this hearing, and at that time described my professional and educational background. My testimony now will address the reasons why USDA should adopt IDFA Proposal 14, which would amend the current Class I mover, and should reject the Class I mover amendments proposed in Proposals 13, 16, 17, 18 and 19. While IDFA

prefers its own Class I mover proposal, the MIG Class I mover Proposal 15 would also be acceptable should USDA prefer it.

A. IDFA Proposal 14 Would Both Preserve Hedging and Farmer Income.

IDFA proposes an alternative to NMPF Proposal 13 — IDFA Proposal 14, which IDFA is calling "the Floored Class I Mover." This "Floored Class I Mover" will increase the Class I milk price over the current "average of plus $0.74 Class I mover" and usually more than NMPF Proposal 13's proposed "higher of Class I mover," while preserving the critical goal of enabling hedging. And this is true even including the anomaly of 2020.

Here is how the IDFA "Floored Class I Mover" would work. First, under this IDFA proposal, $0.74 will be the *minimum* amount added each month to the simple average of the Class III and Class IV advanced price. This will be the case even in those months in which the Class I skim milk price (and thus payments to dairy farmers) would have been *lower* if based on the old "higher of" system — which the NMPF proposal would reinstate — that sets the Class I mover as the higher of the Class III or Class IV advanced price. *In these months, the IDFA proposal will result in a higher Class I milk price over time than NMPF Proposal 13.*

Second, under this IDFA "Floored Class I Mover" proposal, there will be a "look back and make whole" process. If over the two prior twelve month periods from August through July adding $0.74 to the simple average of the Class III and Class IV advanced price resulted in a lower Class I skim price than would have resulted had the Class I skim price been based upon the old "higher of Class I mover" (the higher of the Class III or Class IV advanced prices), then the Class I mover will increase to be equal to the difference between the simple average of the advanced Class III and Class IV price over those two prior twelve month periods.

In other words, the Class I skim milk price paid over time will never fall below the Class I skim milk price that would have adhered upon the old "higher of Class I mover" (which NMPF seeks to reinstate). But the Class I skim milk price over time will be higher when the "higher of Class I mover" would have been less than the simple average of the Class III and Class IV advanced price plus $0.74.

I will now explain further exactly how the IDFA Floored Class I Mover would work, using January 2023 as my first example. Like the current Class I mover, the Floored Class I Mover would begin by calculating the average of the Class III and Class IV advance prices for January 2023. And there would be an adjustment on top of that. which would be no lower than $0.74, and potentially significantly higher than the base.

The potentially higher calculation is based on the following calculations, using data from the 24-month period from August 2020 through July 2022. For each of those 24 months, (1) one first selects the higher of the Class III or IV advanced prices, and then calculates the simple average of the 24 prices so selected. One then (2) calculates for each of those 24 months the average of the Class III and IV advanced prices, and then the simple average of the 24 averages. One then determines the difference between (1) and (2). If that difference is greater than $0.74, then that difference is the adder used, instead of $0.74.

Actual examples for the calculations for the 2023, 2024, and 2021 calendar year Floored Class I Mover follow below at the end of this testimony. These examples outline how the calculations work when the higher-of difference is both greater than, and below, the $0.74 minimum established under this proposal.

Chart 1 to this testimony shows the Floored Class I Mover adjuster calculation for calendar year 2023. In Chart 1 to this testimony, Columns A and B are the actual Class III and Class IV advanced prices over the 24-month period from August 2020 through July 2022. Column C is whichever of those two advanced prices is higher each month, with the simple average of those prices set forth in the last row. Column D is the average of the Class III and Class IV advanced prices by month, and the simple average of those prices appears in the last row.

The simple average in Column C is $12.90, while the simple average in Column D is $11.38. The difference is $1.52. Because $1.52 is greater than $0.74, the adder to the Class I mover in all months in calendar year 2023 will be $1.52.

This math takes a few steps, but the result can be stated simply: dairy farmers are, through this higher adjustment, being "made whole" over time for the extra amounts they would have received had the Class I mover been based upon the "higher of" the Class III or Class IV advanced price.

Chart 2 to this testimony shows the Floored Class I Mover adjuster calculation for calendar year 2024. In Chart 2, Columns A and B are the actual Class III and Class IV advanced prices over the 24-month period from August 2020 through July 2023. Once again, Column C is whichever of those two advanced prices is higher each month, with the simple average of those prices set forth in the last row. Column D is the average of the Class III and Class IV advanced prices by month, and the simple average of those prices appears in the last row.

The difference between Column C and Column D is $0.95. Because $0.95 is higher than $0.74, the Floored Class I mover in all months in calendar year 2024 would

be the average of the Class III and Class IV advanced prices plus $0.95. Once again, dairy farmers are, through this higher adjustment, being "made whole" over time for the extra amounts they would have received had the Class I mover been based upon the "higher of" the Class III or Class IV advanced price.

Chart 3 to this testimony shows the Floored Class I Mover adjuster calculation for calendar year 2021. This is an example where the floor exceeds the actual difference between higher of and the average of the Class III and Class IV advanced prices. The difference between Column C and Column D is $0.70. Because $0.70 is lower than the $0.74 floor, the Floored Class I mover in all months in calendar year 2021 would be the average of the Class III and Class IV advanced prices plus $0.74. Dairy farmers would not be required to "give back" the extra $0.04.

In short, over time, dairy farmers will always be paid at least as much as they would have earned under the NMPF "higher of the Class III or Class IV advanced price" proposal. But in years in which they would receive more money if the Class I mover were based on the average of the Class III and Class IV advanced prices plus $0.74, that is what they will be paid.

For this reason, IDFA's Floored Class I Mover as set forth in Proposal 14 puts more dollars into farmers' pockets over time than either the current Class I mover or NMPF Proposal 13.

Table 4 shows how IDFA proposal 14 and NMPF proposal 13 compare over time. The proposal compares how the advanced Class I mover calculation proposed by IDFA compares historically with NMPF higher of proposal. Overall, the IDFA proposal has out paid the higher of formula 13 out of the past 21 years.

Why does IDFA support this approach, recognizing that it will raise the minimum Class I prices paid by its Class I processor members? Because, unlike the NMPF "higher of Class I mover" proposal, the IDFA "Floored Class I Mover" proposal will preserve the purposes that underlay the original decision to switch away from the "higher of Class III or Class IV advanced price" approach: by providing greater price predictability and allowing both farmers and Class I processors to engage in hedging with little basis risk, to the benefit of all participants in the dairy industry.

The IDFA proposal will do so because in advance of any calendar year, both dairy processors and dairy farmers will know that the Class I price during each month of that calendar year will be the average of the Class III and Class IV advance prices plus a fixed amount (plus the Class I differential). That fixed amount in each month of that calendar year will either be $0.74 or a higher number, with that higher number equal to the difference between the average Class III and Class IV advance prices over the previous two August through July time periods.

One might ask why IDFA Proposal 14 bases the "make whole adder" upon Class I skim milk prices over the two most recent August through July twelve month periods, rather than over the two most recent calendar years. The answer is that long term Class I product sales contracts between processors and retailers are often negotiated and entered during the months immediately prior to the beginning of each calendar year. In order to engage in effective hedging in connection with those contracts, Class I processors need to know at the time of those contract negotiations the amount of the "make up adder" that will be in effect during the calendar year for which Class I product sales prices are being negotiated. If the "make whole adder" that will be in effect during

the calendar year for which Class I product sales prices are being negotiated were to be based on regulated Class I prices in effect during the prior calendar year, Class I processors would not yet know at the time of contract negotiations the amount of that "make up adder," because the Class I prices during the last months of that prior calendar year would not yet have been set. The use of an August through July period solves that problem.

B. A. The Class I Mover Should Facilitate Hedging, Which IDFA Proposal 14 Does.

IDFA's proposal 14 incorporates the core concept of the NMPF "higher of" proposal but adjusts it in a manner that: (a) preserves the purposes that led to the Class I mover being changed to its present language on May 1, 2019, (b) encourages increased sales of Class I products, which have been in steady decline for many years, and (c) will by design put more dollars into the pockets of dairy farmers over time than either the current Class I mover or NMPF proposal 13.

While fluid milk sales have been on a steady decline for decades, many fluid milk processors continue to market milk in the same traditional ways with the same results. But a subset of the fluid milk industry is innovating and adding value to milk in ways we have not previously seen. Those manufacturers are marketing value-added milk products against a growing array of sophisticate beverage competitors. A critical tool that has played a material role in the success of these value-added products is hedging. When retailers demand flat pricing for a period of time (6 or even 12 months) fluid milk bottlers need to be able to provide that service, because their competitors selling other beverages can and do. Retailers demand – and receive – 1-to-2-year pricing contracts with suppliers

on most, if not all of the alternative beverages to milk that compete in the dairy case or the coffee shop.

The most common way to offer a flat price for a period of months in an industry where costs change materially on a monthly basis requires locking in forward-looking costs using futures markets. For example, in the second half of one calendar year, retailers are contracting their beverage purchases for the following calendar year. Under the current Class I pricing structure and under the IDFA proposal the bottler would convert their volume commitment to hundredweights of milk and go to the futures markets to purchase futures contracts for 50% of their volume in each of the Class III and Class IV futures markets. They can then use the average of those futures prices as the base price for their pricing offer to the retailer. Each month of the calendar year they would purchase their physical milk in the market at the Class I price using the Class III and Class IV as a base. At the same time, they would be settling their futures contracts at those same (or roughly the same since futures use announced prices and physical purchases will be based on advanced prices). The gain or loss on the hedge positions each month would offset any favorability/unfavorability in the physical milk price relative to the contract price with the retail customer. This is a very straightforward process under the current pricing structure as well as IDFA proposal 14.

Absent this ability to hedge, the bottler's choice is between missing out on the sale to avoid taking the margin risk or building in sufficient margin to cover the expected risk over the longer term and risk being uncompetitively priced on the shelf causing sales to suffer.

Forward price hedging is especially important in today's world because in growing segments of the fluid milk product market — including those segments that are demonstrating the greatest growth and potential future growth, customers are demanding that processors provide long-term fixed price contracts, rather than contracts with prices that fluctuate month to month to reflect changes in the Class I regulated milk price. This is especially prevalent with respect to extended shelf life (ESL) products, higher value-added products and food service. Meaningful access to risk management tools such as hedging are important today and will become even more important going forward as demand for more dairy product price stability represents a disproportionately large percentage of the growth opportunities in the fluid space.

To meet these growing customer demands, a processor must offer a competitive, fixed price for its fluid milk products over an extended period, at a point in time when the processor does not yet know the regulated price it will have to pay for the raw milk used to make that product. The processor cannot enter into a fixed purchase price for that raw milk with their milk supplier. The FMMO program requires that the processor pay at least the minimum Class I price in effect during the month of purchase. Hedging is what allows a fluid milk processor to take on the risk of entering into a fixed sales price for its finished products, without jeopardizing its financial well-being if raw milk prices rise during the period covered by the contract. All other classes of milk can manage price risk through futures, direct producer contracts, or depooling. But Class I milk located within or distributing over 25% of its sales volume in any one FMMO must participate in the Federal Order Pool.

While all of this is true for proprietary bottlers, the same cannot be said for cooperatively owned bottlers that make up a large and growing share of fluid milk bottling capacity in the US. The ability of bottling cooperatives to sidestep minimum payment regulations to their member-owners by re-blending their pay price is a tremendous advantage in the sale of packaged fluid milk. When customers request flat forward pricing of finished product, cooperatively owned bottlers have the luxury of providing the pricing structure without actually taking positions in the futures markets because if the regulated price exceeds the cost they estimated in providing the flat price, they can simply withhold a few cents from all producers in their milk checks to cover the risk. While it would be unwise for a cooperatively owned bottler to do this on all their packaged fluid milk sales it can be a tremendous advantage in securing particular pieces of business when competing against proprietary handlers. This issue is always present in the market where proprietary bottlers compete with cooperatively owned bottlers, but it is less impactful in a world where proprietary bottlers have the ability to hedge. If any of the higher of based proposals were to be implemented, it would mean that only cooperatively owned bottlers would be able to provide the type of flat forward pricing that is increasingly demanded by retail and foodservice buyers.

C.   NMPF's "Higher Of" Proposal Would Substantially Curtail If Not Eliminate Hedging for Class I Milk and Products.

How does "the higher of Class I mover," as was in effect before May 1, 2019, and which NMPF Proposal 13 seeks to reinstate, impact hedging? A system that re-sets Class I raw milk prices each month based upon the "higher of" the Class III or IV advanced price for the month (plus a Class I differential) makes effective hedging extremely difficult, with far more basis risk than under the current Class I base price system. When it may

be available, it is more costly due to the unpredictability of a base class I price based on the moving target of the base price – which can be either the Class III or Class IV advanced price.

- Use of "the higher of Class I mover" increases Class I price volatility, meaning additional risk, as the "higher of mover" switches back and forth between Class III and IV, causing the Class I price to fluctuate more wildly. Increased cost volatility equates with greater price risk and that increased risk increases the cost of the hedge.

- Increased hedge costs result in higher consumer prices, and reduced consumption, because the increased cost of the hedge must be built into the processor's product pricing.

- Price risk management (hedging) for Class I generally involves direct participation in CME Class III and IV futures, or over-the-counter fixed price agreements, usually backed with the sell side using CME futures. However, in a "higher of Class I mover" world, the utility of hedging with futures/options is severely limited, given that which "higher of" mover (Class III or Class IV) will be in effect at the expiration of the right to exercise the futures/options is not known in advance. This creates insurmountable chaos:

- Which contract do you use to hedge: Class III or Class IV? You cannot know in advance which will be relevant.

- One cannot effectively switch mid-hedge whenever the expected mover changes. Class III and Class IV futures markets are simply not liquid enough to simultaneously buy/sell significant volumes of Class III/Class IV futures at identical prices precisely as the higher of the futures prices is switching.

- Once the hedges are placed, if the higher of Class I mover switches from Class III to Class IV, or vice versa, so that the hedger is protected with the wrong contract, the result is an unexpected loss to the long-hedger (the processor) and an unexpected gain to the short-hedger (the counterparty). The following example demonstrates this phenomenon:

Handler's Loss

- In December:
  - March - Class III futures = $16.00
  - March - Class IV futures = $18.00
  - **Buy Class IV futures at $18.00**

- In March:
  - Class III announced at $18.00
  - Class IV announced at $16.00
  - **Settle Class IV hedge – buy $18.00 / sell $16.00 for net loss of $2.00**
  - **Buy physical Class I milk at announced mover of $18.00**
  - **Net = $18.00 + $2.00 or $20.00 against expectation of $18.00**

Producer's Gain

- In December:
  - March - Class III futures = $16.00
  - March - Class IV futures = $18.00
  - **Sell Class IV futures at $18.00**

- In March:
  - Class III announced at $18.00
  - Class IV announced at $16.00
  - **Settle Class IV hedge – sell $18.00 / buy $16.00 for net gain of $2.00**
  - **Sell physical Class I milk at announced mover of $18.00**
  - **Net = $18.00 + $2.00 or $20.00 against expectation of $18.00**

- Hypothetically, the processor could take option positions in both Class III and Class IV. However, that is cost prohibitive since it requires paying double the options premium.

During the period when the "higher of Class I mover" was in effect, some processors, retailers and restaurant chains did attempt to use over the counter (swaps) instruments to hedge Class I milk purchases. Specifically, they looked to the markets for derivative contracts that settled to the Class I mover to avoid the issues with exchange based hedging strategies. However, the sellers of such products realized the potential for extra gains to the seller in the event that the higher of mover switched while the contracts were in place, and merely added those anticipated gains into the cost of the Class I mover settled hedges. This rendered the hedges under higher-of pricing cost prohibitive and less precise.

Earlier in 2023, at the StoneX Agriculture Outlook Conference in Las Vegas, Director of Dairy Market Insight Nate Donnay reviewed the Federal Order reform discussions at the time and displayed chart showing the greater reliability of hedging Class I prices under the current program versus a return to the "higher of " Class I move, using a 48-month rolling average r square statistic to represent the reliability of the Class I hedge under an average vs. Higher-of mover base. The upper line shows very high correlations between a hedged and actual 50:50 weighted average mover base. The

Class I Hedge Effectiveness
(48 Month Rolling R-square)
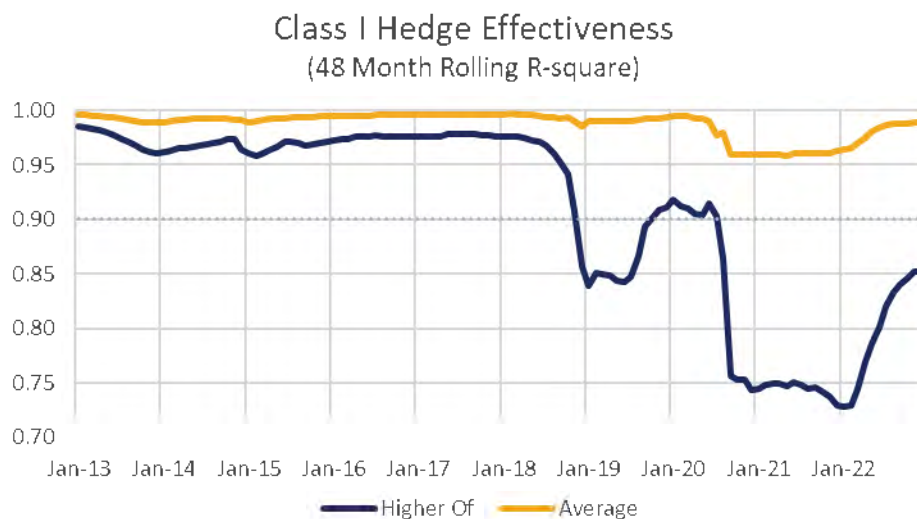
lower line shows the difficulty of hedging the higher-of mover base, particularly in times

of volatile markets.

Other hedging experts have made similar observations. Marin Bozic, Agricultural

Economics professor at the University of Minnesota, co-authored an article, Fluid Milk, A

Better Hedge that observed:

> Under the previous formula, the "higher of" factor meant either of the two advanced milk prices —Class III or Class IV— could end up driving the Class I skim milk price each month. A minority of organizations with Class I price exposure chose to hedge by using the highest-priced futures contract –Class III or Class IV – and accepted the basis risk. By the time USDA announced the Class I price, the driver of milk costs may have changed. If so, the hedge under-performed. For many Class I hedgers, the strategy of using futures failed to adequately reduce price risk. Another small number of hedgers chose to hedge Class I milk exposure by utilizing futures and options. These participants would hedge with the higher-priced futures contract and also pay the premium for an option on the other futures contract. While the strategy was effective at reducing price risk, for many fluid milk buyers it was also cost-prohibitive.
>
> Lastly, a few manufacturers and end-users utilized the OTC markets to hedge Class I price risk. But risk premiums in these markets tended to be prohibitively expensive. In 2018, just 26 million lbs. of the 44 billion lbs. (0.0006%) of packaged milk produced were hedged using OTC Class I milk contracts.
>
> In summary, with the previous Class I formula in place, basis risk was often too high or too expensive to mitigate.

Fluid Milk: A Better Hedge (Aug. 26, 2019) (Attachment B to this testimony), available at:

https://www.cmegroup.com/education/articles-and-reports/fluid-milk-a-better-

hedge.html.

However, Dr. Bozic concluded that under the "average of" Class I mover that went

into effect May 1, 2019, "[t]he newly reformed Class I skim milk formula dramatically

improves the effectiveness of hedging Class I price risk with already available futures contracts."

D.   Hedging Is Increasingly Important to the Sale of Class I Products.

The absence of realistic opportunities to hedge under the "higher of Class I mover," both when that mover was in effect, and if NMPF proposal 13 were adopted, negatively impacts the fluid milk sector and the dairy industry as a whole. Value-added milk products (flavored single-serve, lactose-free, protein enhanced, organic, etc.) represent one of the few growth opportunities in the fluid milk arena. Retailers of these products demand flat pricing from their suppliers for an extended period (often an entire year).

The primary competitors to these products: bottled waters, soft drinks, plant-based beverages, etc., all offer stable pricing (often an entire year) to retailers, which allows those retailers in turn to (a) provide the stable shelf pricing preferred by consumers, and (b) maintain predictable margins to the retailer. The value-added milk bottler's choice is not between offering stable pricing or moving prices monthly. But rather, the choice increasingly is between offering stable pricing or losing their space in the beverage case or the restaurant menu to other products.

Dr. Oral Capps will be presenting results from a new and updated study by Texas A&M University. In their last study, Professors Dr. Ariun Ishdorj and Dr. Oral Capps found both high "own price" elasticity of demand for most of these value-added dairy products (*i.e.*, a 1% price increase results in greater than a 1% decline in volume sales), and high "cross price" elasticity with their non-dairy alternatives. Ishdorj and Capps, *A Deeper Look at Milk and Competing Beverage Price Elasticities,* summary available at: *https://www.idfa.org/resources/a-deeper-look-at-milk-and-competing-beverage-price-elasticities.* Without the necessary tools to manage flat pricing of fluid milk products,

bottlers must either forgo the business or accept the margin risk. Offering flat fluid milk product pricing with fluctuating input costs typically leads to additional margin being built into pricing to cover the risk of fluctuating input costs, resulting in less competitive shelf pricing leading to declining sales. Declining sales mean less producer milk sold at Class I prices, more milk forced into Class IV channels, and declining blend prices for producers.

All these concerns and motivations were fully recognized by both IDFA and NMPF in 2017 and 2018 when they successfully lobbied Congress to replace the old "higher of Class I mover" with the new average of Class III and Class IV plus $0.74 mover. In their joint "NMPF and IDFA Dairy Price Risk Management Recommendations" (Attachment A to this testimony), IDFA and NMPF explained that "changing the Class I Mover to the [simple average of the Class III and Class IV advanced price *plus* $0.74] would:

> …
>
> • allow the use of existing Class III and Class IV futures and options to manage Class I price risk with minimal changes to the FMMO system.
>
> • provide several benefits that can result from the ability to hedge longer-term costs for fluid milk products.
>
> • allow processors to manage price risk for dairy beverage ingredients, as they currently can for non-dairy ingredients.
>
> • allow dairy producers to effectively hedge the Class I portion of their producer milk payments, as they currently can for the other portion of their payments.
>
> • encourage and promote the use of dairy ingredients in new fluid milk and dairy-based beverages that meet Class I specifications."

When USDA adopted the new Class I mover effective May 1, 2019, it similarly recognized that "[t]he dairy industry has calculated that applying the 'higher of' provisions to skim milk prices has returned a price $0.74 per hundredweight above the average of the two factors since the pricing formulas were implemented in 2000," and that "the inclusion of the $0.74 in the calculation should make the change roughly revenue neutral." USDA likewise recognized that "[a]t the same time, it is anticipated that using the average of the Class III and Class IV advanced pricing factors in the Class I skim milk price formula will allow handlers to better manage volatility in monthly Class I skim milk prices using Class III milk and Class IV milk futures and options. Until now, uncertainty about which Class price will end up being higher each month has made effective hedging difficult." USDA, Agricultural Marketing Service, *Federal Milk Marketing Orders— Amending the Class I Skim Milk Price Formula*, 84 Fed. Reg. 8590, 8591 (Mar. 11, 2019).

Since May 2019, multiple fluid processors have been using the risk management tools such as hedges that the current Class I mover facilitates. Some food service companies buying fluid milk products have also used such tools, independently of their fluid milk product suppliers. For example, during the pre-May 1, 2019 period when the Class I skim mover was set at the "higher of" the Class III or Class IV advanced price, Nestlé, the world's largest food company, and an active dairy processor in the United States, was unable to use hedging for its Class I product purchases. The unpredictability as to which class would end up setting the mover made hedging a practical impossibility and posed a significant business risk. Now that the Class I mover is based upon the average of the Class III or Class IV advanced prices plus a fixed amount, Nestle is able

to hedge a significant portion of its Class I milk purchases and mitigate that risk. Nestle will be testifying on use of Class I hedging at this hearing.

Notwithstanding the previous consensus between dairy farmers and processors to support the adoption of the current "average of Class I mover," and its adoption by processors and end-users of Class I dairy products, NMPF has submitted Proposal 13, which would repeal the Agriculture Improvement Act of 2018 revision to the Class I mover formula, and return FMMOs to the prior approach that relies upon the higher of the Class III or Class IV advanced price to set the Class I skim price each month. This NMPF proposal would discard the benefits achieved from the 2018 legislative changes, as it will, for the reasons detailed above, eliminate any realistic ability to engage in Class I hedging. Both dairy processors, their customers and the entire dairy supply chain would suffer.

The principal stated justification for NMPF proposal 13 is that the economic shocks in 2020 resulting from the Covid pandemic caused anomalous impacts on Class III and Class IV prices, such that the use of the simple average of the Class III and Class IV advanced price plus $0.74 produced a Class I skim price materially less than would have resulted under the previous "higher of" approach and resulted in substantial depooling.

No one questions the serious nature of that pandemic. But IDFA disputes that a single, anomalous year resulting from a worldwide catastrophe means that we should abandon the principle that the Class I mover should be designed so as to facilitate hedging. Dairy farmers were far from unique in experiencing serious but temporary dislocations resulting from Covid. Dairy processors themselves also faced material dislocations, as school milk, food service, and educational institution sales evaporated.

Recognizing the temporary but material dislocations suffered by dairy farmers, the federal Government stepped in. The United States Government paid producers $400 million ($300 million in the first tranche and another $100 million recently) to compensate dairy farmers. And while its results were perhaps not evenly felt by all, dairy products were a key component of the COVID-era Farmers to Families Food Box Program which distributed more than 173 million food boxes to Americans across the country, at a cost of over $5 billion, and led to booming cheddar cheese sales, which greatly benefitted cooperatives and independent farmers supplying milk to, or owning, those cheese plants.

Despite the anomaly of 2020, the IDFA proposal still results in an average price above the higher-of calculation over time, as shown in Chart 4. IDFA's goal for Proposal 14 was to produce an alternative that would preserve the hedging attributes of the current pricing formula while guaranteeing farmers at least as much money as they would have received under the "Higher of" Class I mover to which NMPF wishes to return.

E.   NMPF's Criticisms of IDFA Proposal 14 Are Not Valid.

The additional rationales advanced by NMPF for returning to the "higher of" Class I mover do not warrant returning to that mover.

1.   The "higher of" does not better reflect the value of milk. NMPF contends that basing Class I on the higher of Class III or Class IV would more accurately reflect the value of milk in the different categories of use in a four-class system. But the value of Class I products are not necessarily related to the value of Class III or IV products. This is obvious in the fact that the markets for butter and cheese have been growing, while the market for Class I products has been falling. The Class I differential is a regulatory construct, not a reflection of the relative value of the products that fall within it as compared to other classes.

2. The "higher of" does not necessarily reduce volatility. NMPF contends that using the higher of Class III or Class IV to move Class I prices will help to reduce the volatility in milk prices. Yet a Class I mover like the NMPF proposal, which routinely and unpredictably switches between Class III and Class IV, creates, rather than reduces, volatility. The joint "IDFA-NMPF Dairy Price Risk Management Recommendations" (Attachment A) itself recognized "the uncertain basis that occurs when the mover shifts between Class III and Class IV" under the "higher of" Class I mover. And the more volatile the price, the higher the price a retailer needs to charge to protect against margin loss, resulting in diminished sales.

3. The "higher of" formula does not help address class price inversions and depooling. NMPF contends that the "higher of" formula helped address class price inversions and depooling. Producer Pay Differential (PPD) is the difference between total handler obligations to the pool and the total component value of milk. Negative PPD (plus lax pooling requirements) are the leading causes of depooling, *i.e.*, when it is more advantageous for a non-Class I handler to be out of the pool than in it.

An extensive economic analysis by Marin Bozic and Chris Wolfe, Agricultural Economics professors at the University of Minnesota and Cornell respectively, indicates the beneficial impact on PPD of adjusting make allowances accurately to reflect actual dairy processing costs. This is the very purpose of the make allowance amendments that IDFA has already submitted to USDA for inclusion in a milk order reform hearing: to adjust make allowances to reflect real processing costs more accurately. As the economists explain:

> Orderly marketing must also include incentives to direct milk
> to dairy products where the milk adds the most value. That in

turn means incentives for production capacity utilization to be low enough to allow flexibility in dairy product production in response to changes in demand. **One step toward that realignment might be to adjust make allowances to accurately reflect dairy processing costs.** Our models show that adjusting make allowances can reduce the spread between the value of skim solids in cheese and dry milk products, and thus increase PPD [producer pay differential] both directly, and indirectly through incentives to augment aggregate cheese making capacity. **The "average-of" approach [to setting the Class I mover] results in a higher PPD when the value of skim solids is sufficiently similar in cheese and milk powder markets, and thus should perform more advantageously to dairy producers if the underlying drivers of wide spreads between class III and class IV milk prices are properly addressed.**

Bozic and Wolf, *Negative Producer Price Differential in Federal Milk Marketing Orders: Explanation, implications, and policy options*, J. Dairy Sci. 105:424:440 at pp. 438-39 (2022), available at https://doi.org/10.3168/jds.2021-20664.

These authors also noted that an underlying problem leading to depooling is the general decline in Class I product sales:

> On the issue of depooling, it is important to note that, historically, equalization in producer prices was driven by large revenue transfers from beverage milk class to manufactured milk classes. With waning of fluid milk sales and growth in domestic and export demand for manufactured products, in most market orders class I revenue is no longer sufficient to provide even short-term equalization of mailbox prices for producers whose milk is used in powder versus cheese production. *Id.*

IDFA's "Floored Class I Mover" is designed to foster the very fluid milk sales growth that these economists rightly identify as serving as the bulwark against depooling. And of course, if depooling is deemed undesirable, tightened pooling obligations, as already exist in some orders, are the obvious solution.

F. Alternative Approaches.

Several other amendments to the Class I mover have been proposed. IDFA's positions on them are as follows.

a. MIG Proposal 15. MIG Proposal 15 provides an alternative approach to the Class I mover, an approach that, like IDFA's, is designed to facilitate hedging. It uses a somewhat different look back period, and a rolling adjuster that would change monthly (rather than annually under the IDFA proposal) and would ensure that famers over time received as much as they would have under the "higher of" approach, without containing a floor.

While IDFA prefers its proposal, MIG proposal 15 would be an acceptable alternative should USDA prefer it.

b. Edge Proposal 16. Edge proposal 16 would set the Class I mover at the Class III skim price plus an adjuster. The adjusted would be equal to the 36-month average difference between the higher of the advanced Class III skim price or advanced IV skim price, and the Class III skim milk price. The Edge proposal would create a predictable and hedgeable Class I price, because it would be based off a hedgeable Class III price plus a knowable adjuster. That is an important positive attribute (and something the IDFA proposal itself achieves).

However, Edge Proposal 16 would also use the announced rather than advanced price, thus delaying the announcement of the Class I price until after the pricing month ends. Under the current system, the Class I price that will be in effect in a given month is announced by the 23rd day of the previous month, based upon the advanced Class III skim price or advanced IV skim price. 7 C.F.R. 1000.53(b). So unhedged Class I handlers will know what their milk cost will be before the start of the pricing month. This is an important part of marketing planning for customers of fluid milk, particularly grocery stores, who use the advanced price as part of their marketing efforts for the following

month. Not knowing that price of course increases uncertainty. Increased uncertainty of cost generally will lead to higher prices to protect an uncertain margin.

Under Edge Proposal 16, the Class I price for a given price would be the Class III price for that month (plus an adjuster). The Class III price of a given month is not announced until the 5th day of the following month. 7 C.F.R. 1000.53(a). Class I handlers would not know that cost until after the month was already over.

As I have discussed in detail, for several very important segments of the fluid milk industry, such as ESL products, higher value-added products and food service, entering longer term fixed price sales contracts before the price of the raw milk is known is becoming an essential part of their business. That is why Class I pricing that facilitates hedging, as set forth in IDFA Proposal 14 (as well as MIG Proposal 15) is so critical, because hedging is what makes such longer-term price contracts feasible.

But for other important segments of the business, including many Class I sales to grocery stores, longstanding business practice has been to change prices monthly, so that the prices charged in a given month reflect the actual raw milk costs for that month. Edge proposal 16 would eliminate the ability to do that, because as noted, the price of the raw milk would not be known until after the month was over. This change would represent something of an upheaval to established practice, even though hedging would be available.

IDFA opposes Edge Proposal 16.

c. Edge Proposal 17 and Farm Bureau Proposal 18.

These two proposals would re-instate the "higher of" approach to setting Class I prices that existed before May 1, 2019. This would have the very harmful impact of

eliminating any practical ability to engage in hedging, for all the reasons I have already explained in opposing NMPF's Proposal 13 (which does the same thing). .

Edge Proposal 17 is made even worse because it substitutes the use of actual Class III and IV prices to set the Class I price in a given month, in place of the current use of advanced Class III and IV prices that are announced before the start of the month. As I have already described in discussing Proposal 16, the actual Class III and Class IV price for a given month are not known until the 5th day of the following month. Thus, Edge Proposal 17 would mean that Class I handlers everywhere would always have to price their milk at a time they did not yet know their raw milk costs. But unlike Edge Proposal 16, Edge Proposal 17 would, for the reasons I have just explained, also have eliminated hedging. As a result, Class I handlers could not use that tool to mitigate the pricing risks created by the use of actual versus advanced Class III and IV prices to set the Class I price.

For these reasons, IDFA opposes Edge Proposal 17.

AFBF Proposal 18 would eliminate the advanced pricing of Class I milk and components, and Class II skim milk and components. The Class II skim milk price would be equal to the announced Class IV skim milk price plus the Class II differential; the Class II nonfat solids price would be equal to the Announced Class IV nonfat solids price plus one-hundredth of the Class II differential; the Class I skim milk price would be the "higher of" the Announced Class III or Class IV skim milk prices plus the Class I differential; and the Class I butterfat price would be equal to the butterfat price plus one-hundredth of the Class I differential.

AFBF Proposal 18 is even worse than Edge Proposal 17.

Like Edge Proposal 17, AFBF Proposal 18 would re-instate the "higher of" approach to setting Class I prices that existed before May 1, 2019. This would have the very harmful impact of eliminating any practical ability to engage in hedging, for all the reasons I have already explained in opposing NMPF's Proposal 13 and Edge Proposal 17 (both of which do the same thing). IDFA Proposal 14 is far superior, as it preserves the ability to engage in hedging, while putting more dollars into farmers' pockets.

Like Edge Proposal 17, AFBF Proposal 18 would make things even worse by basing Class I prices on actual Class III and IV prices to set the Class I price, in place of the current use of advanced Class III and IV prices. As I have already described in discussing Edge Proposal 16, the actual Class III and Class IV price for a given month are not known until the 5th day of the following month. Thus, as with Edge Proposals 17, all Class I handlers would always have to price their milk at a time they did not yet know their raw milk costs. But as with Edge Proposal 17, AFBF Proposal 18 would, for the reasons I have just explained, also eliminate hedging. As a result, Class I handlers could not use that tool to mitigate the pricing risks created by the use of actual versus advanced Class III and IV prices to set Class I.

Finally, AFBF Proposal 18 would extend most of these defects to Class II, by basing the Class II skim price on the actual Class IV price, rather than the current use of the advanced Class IV price. As I have just explained, actual Class IV prices for a given month are not known until the 5th day of the following month. Thus, all Class II handlers would always have to price their products made during a given month at a time they did not yet know their raw milk costs for those products.

For these reasons, IDFA opposes AFBF Proposal 18.

For all of these reasons, USDA should adopt IDFA Proposal 14, which provides for the following revisions to the current federal milk order provisions relating to the Class I mover:

Amend 7 C.F.R. § 1000.50(b) to provide as follows: (no deletions; additions appear in red font):

§ **1000.50(b)** *Class I skim milk price.* The Class I skim milk price per hundredweight shall be the adjusted Class I differential specified in § 1000.52, plus the adjustment to Class I prices specified in §§ 1005.51(b), 1006.51(b) and 1007.51(b) of this chapter, plus the simple average of the advanced pricing factors computed in paragraph (q)(1) and (2) of this section rounded to the nearest cent, plus the higher of: (a) $0.74 per hundredweight or (b) the result reached in sub-paragraph (iii) of the following calculations:

(i) for each month in the twenty-four-month period through July of the previous calendar year, select the higher of the advanced pricing factor computed in paragraph (q)(1) versus paragraph (q)(2), and determine the simple average of the twenty-four factors so selected, rounded to the nearest cent;

(ii) for each month in the twenty-four-month period through July of the previous calendar year, calculate the simple average of the advanced pricing factors computed in paragraph (q)(1) and (2) of this section rounded to the nearest cent, and determine the simple average of the twenty-four factors so selected, rounded to the nearest cent; and

(iii) calculate the difference between the amount determined in (i) and the amount determined in (ii).

CHART 1

Proposal Example: 2023 Mover Adjuster - Effective January 2023				
Base Period for 2023	**Class III**	**Class IV**	**Higher of III-IV**	**Simple Avg. III-IV**
August-2020	18.08	7.12	18.08	12.60
September-2020	17.43	7.13	17.43	12.28
October-2020	11.01	7.45	11.01	9.23
November-2020	16.07	8.00	16.07	12.04
December-2020	20.07	8.21	20.07	14.14
January-2021	10.25	8.33	10.25	9.29
February-2021	10.68	8.57	10.68	9.63
March-2021	11.10	8.66	11.10	9.88
April-2021	10.19	8.33	10.19	9.26
May-2021	10.75	8.88	10.75	9.82
June-2021	12.73	9.42	12.73	11.08
July-2021	10.59	9.83	10.59	10.21
August-2021	10.04	9.67	10.04	9.86
September-2021	9.68	9.75	9.75	9.72
October-2021	9.90	9.93	9.93	9.92
November-2021	11.45	10.53	11.45	10.99
December-2021	11.40	11.52	11.52	11.46
January-2022	10.73	12.21	12.21	11.47
February-2022	10.43	12.97	12.97	11.70
March-2022	10.59	13.71	13.71	12.15
April-2022	11.97	14.51	14.51	13.24
May-2022	13.68	14.82	14.82	14.25
June-2022	15.04	14.80	15.04	14.92
July-2022	13.07	14.72	14.72	13.90
24 Month Average *(Rounded to two Decimals)*	**$12.37**	**$10.38**	**$12.90**	**$11.38**

Difference Between the 24 Mo. Average Higher-of III-IV and the 50:50 III-IV				
		Higher-Of	**- Simple Avg**	**=Difference**
		$12.90	- $11.38	$1.52
2023 Class I Skim Mover Adjuster =	**Greater of:**	**Minimum Base**	**-or-**	**Higher of vs Average Of**
2023 Class I Skim Mover Adjuster =	**Greater of:**	$0.74	-or-	$1.52
Class I Skim Mover Adjuster for 2023 = 50:50 Advance III:IV Skim plus				**$1.52**

CHART 2

Proposal Example: 2024 Mover Adjuster - Effective January 2024				
Base Period for 2023	**Class III**	**Class IV**	**Higher of III-IV**	**Simple Avg. III-IV**
August-2021	**10.04**	**9.67**	**10.04**	**9.86**
September-2021	**9.68**	**9.75**	**9.75**	**9.72**
October-2021	**9.90**	**9.93**	**9.93**	**9.92**
November-2021	**11.45**	**10.53**	**11.45**	**10.99**
December-2021	**11.40**	**11.52**	**11.52**	**11.46**
January-2022	**10.73**	**12.21**	**12.21**	**11.47**
February-2022	**10.43**	**12.97**	**12.97**	**11.70**
March-2022	**10.59**	**13.71**	**13.71**	**12.15**
April-2022	**11.97**	**14.51**	**14.51**	**13.24**
May-2022	**13.68**	**14.82**	**14.82**	**14.25**
June-2022	**15.04**	**14.80**	**15.04**	**14.92**
July-2022	**13.07**	**14.72**	**14.72**	**13.90**
August-2022	**11.19**	**14.83**	**14.83**	**13.01**
September-2022	**8.84**	**13.82**	**13.82**	**11.33**
October-2022	**7.04**	**12.67**	**12.67**	**9.86**
November-2022	**9.17**	**12.61**	**12.61**	**10.89**
December-2022	**9.63**	**11.78**	**11.78**	**10.71**
January-2023	**9.54**	**11.62**	**11.62**	**10.58**
February-2023	**10.28**	**11.00**	**11.00**	**10.64**
March-2023	**8.49**	**9.60**	**9.60**	**9.05**
April-2023	**8.46**	**9.37**	**9.37**	**8.92**
May-2023	**10.37**	**9.08**	**10.37**	**9.73**
June-2023	**7.17**	**8.78**	**8.78**	**7.98**
July-2023	**5.33**	**8.94**	**8.94**	**7.14**
24 Month Average *(Rounded to two Decimals)*	**$10.15**	**$11.80**	**$11.92**	**$10.97**

Difference Between the 24 Mo. Average Higher-of III-IV and the 50:50 III-IV				
		Higher-Of	**- Simple Avg**	**=Difference**
		$11.92	**- $10.97**	**$0.95**
2024 Class I Skim Mover Adjuster =	**Greater of:**	**Minimum Base**	**-or-**	**Higher of vs Average Of**
2024 Class I Skim Mover Adjuster =	**Greater of:**	**$0.74**	**-or-**	**$0.95**
Class I Skim Mover Adjuster for 2024 = 50:50 Advance III:IV Skim plus				**$0.95**

CHART 3

IDFA Proposal Example: 2021 Mover Adjuster - Effective January 2021				
Base Period for 2021	**Class III**	**Class IV**	**Higher of III-IV**	**Simple Avg. III-IV**
August-2018	5.39	5.46	5.46	5.43
September-2018	5.92	5.73	5.92	5.83
October-2018	7.71	6.11	7.71	6.91
November-2018	6.81	6.26	6.81	6.54
December-2018	5.85	6.42	6.42	6.14
January-2019	5.16	6.52	6.52	5.84
February-2019	5.47	6.80	6.80	6.14
March-2019	4.97	7.25	7.25	6.11
April-2019	6.35	7.05	7.05	6.70
May-2019	7.14	7.02	7.14	7.08
June-2019	7.74	7.56	7.74	7.65
July-2019	7.09	7.78	7.78	7.44
August-2019	8.27	7.87	8.27	8.07
September-2019	8.49	7.76	8.49	8.13
October-2019	9.26	7.84	9.26	8.55
November-2019	10.42	8.32	10.42	9.37
December-2019	13.01	8.73	13.01	10.87
January-2020	12.65	9.28	12.65	10.97
February-2020	9.90	9.54	9.90	9.72
March-2020	10.47	9.68	10.47	10.08
April-2020	10.04	8.85	10.04	9.45
May-2020	8.93	7.03	8.93	7.98
June-2020	6.68	5.99	6.68	6.34
July-2020	13.29	6.46	13.29	9.88
24 Month Average *(Rounded to two Decimals)*	**$8.21**	**$7.39**	**$8.50**	**$7.80**

Difference Between the 24 Mo. Average Higher-of III-IV and the 50:50 III-IV			
	Higher-Of	**- Simple Avg**	**=Difference**
	$8.50	- $7.80	$0.70
2021 Class I Skim Mover Adjuster =Greater of:	**Minimum Base**	**-or-**	**Higher of vs Average Of**
2021 Class I Skim Mover Adjuster =Greater of:	$0.74	-or-	$0.70
Class I Skim Mover Adjuster for 2021 = 50:50 Advance III:IV Skim plus			**$0.74**

CHART 4

Comparison of IDFA and NMPF Base Skim Price Formulas

Year	IDFA Proposal 14 Formula with Floor	NMPF Proposal 13 Higher Of Mover	IDFA vs NMPF Difference
2003	$7.39	$7.47	-$0.08
2004	$8.04	$8.44	-$0.41
2005	$8.67	$8.54	$0.13
2006	$8.29	$7.47	$0.82
2007	$13.59	$13.47	$0.12
2008	$12.42	$12.94	-$0.52
2009	$7.68	$7.40	$0.28
2010	$9.79	$9.26	$0.53
2011	$11.90	$12.02	-$0.13
2012	$11.79	$11.82	-$0.04
2013	$13.71	$13.50	$0.21
2014	$15.48	$15.57	-$0.10
2015	$8.58	$8.91	-$0.33
2016	$7.07	$6.75	$0.32
2017	$7.82	$7.60	$0.22
2018	$6.56	$6.23	$0.32
2019	$8.40	$8.31	$0.09
2020	$11.13	$12.89	-$1.76
2021	$10.83	$10.75	$0.08
2022	$14.01	$13.64	$0.37
2023F	$10.15	$9.39	$0.75
Pre Covid 2003-2019	$9.83	$9.75	$0.08
20 Years 2004-2023	$10.29	$10.25	$0.05

Data Source: Hearing Exhibit USDA 37

From: Dave Carlin <dcarlin@idfa.org>
Sent: Friday, September 29, 2017 2:53 PM
To: Fischer, Bart <Bart.Fischer@mail.house.gov>; Knigge, Mary <Mary.Knigge@mail.house.gov>;
troy.phillips@mail.house.gov
Cc: Michael Dykes <mdykes@idfa.org>; Jim Mulhern <jmulhern@nmpf.org>
Subject: Corrected Concept Paper on Dairy Price Risk Management

Good afternoon,

At our meeting on Wednesday, I inadvertently handed out an earlier version of our concept paper that
describes our dairy price risk management agreement. The final version is attached above. Most of the
differences between the two versions are stylistic, but the final version does clarify that the agreement
would remain in effect unless modified by amending the orders at a national hearing.

My apologies for any confusion this has caused.

Regards,

Dave

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MAKING A DIFFERENCE FOR DAIRY

NMPF and IDFA Dairy Price Risk Management Recommendations

for the Upcoming Farm Bill

Goal: **Provide tools needed to allow processors, cooperatives and dairy producers to better manage price risk on all Classes of milk regulated under Federal Milk Marketing Orders (FMMO).**

Both IDFA and NMPF support changing the Class I mover from the higher of Class III and Class IV to the simple average of Class III and Class IV, with an adjustment in Class I differentials based on historical relationships between the current and proposed mover.

Changing the Class I mover to the above referenced price format would:

- balance processor desire for better price risk hedging with cooperative and dairy producer desire to maintain FMMO integrity.
- eliminate the uncertain basis that occurs when the mover shifts between Class III and Class IV.
- allow the use of existing Class III and Class IV futures and options to manage Class I price risk with minimal changes to the FMMO system.
- provide several benefits that can result from the ability to hedge longer-term costs for fluid milk products.
- allow processors to manage price risk for dairy beverage ingredients, as they currently can for non-dairy ingredients.
- allow dairy producers to effectively hedge the Class I portion of their producer milk payments, as they currently can for the other portion of their payments.
- encourage and promote the use of dairy ingredients in new fluid milk and dairy-based beverages that meet Class I specifications.

Both IDFA and NMPF support:

- changing the formula for the Class I price from the higher of Class III or IV to the average of Class III and IV plus $0.74 per cwt. for determining the price of Class I skim milk (equivalent to $0.71 per cwt. for the Class I price at 3.5% fat), and

- implementing this change legislatively in the Farm Bill and maintaining it in effect thereafter unless modified by amendment through formal rulemaking under the Agricultural Marketing Agreement Act.

Both IDFA and NMPF support extending the current FMMO forward pricing program for Class II, III and IV milk, recognizing that:

- the use of risk management is now a widely-accepted practice for these classes of milk.
- the FMMO Risk Management Program use would continue to be reported to USDA.

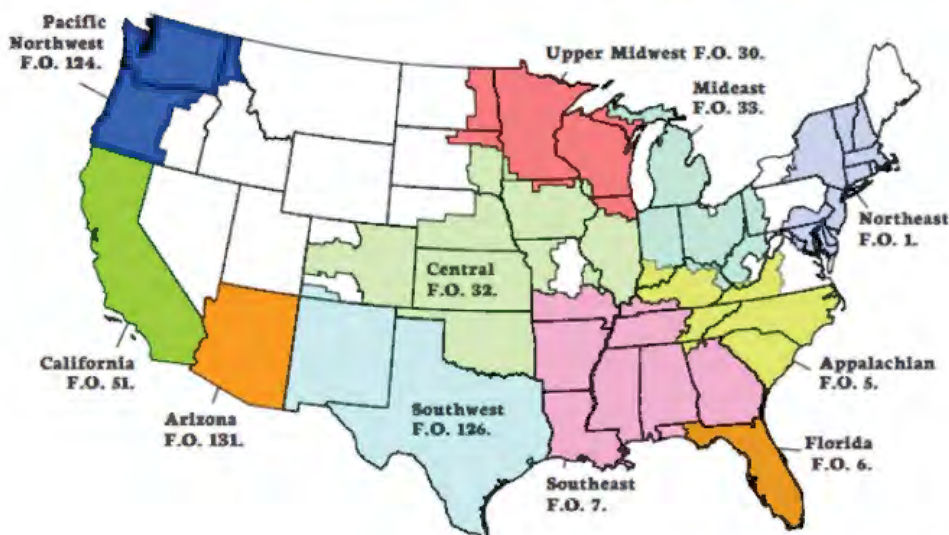**Both IDFA and NMPF agree that effectuating these changes will improve price risk management for Class I milk.**

Fluid Milk: A Better Hedge

26 Aug 2019 // By Marin Bozic and Matthew Gould

Most of the packaged milk manufactured in the USA is under the jurisdiction of federally regulated milk marketing orders which dictate minimum prices paid by fluid milk manufacturers each month for raw milk including the minimum price of milkfat and skim milk. There are 11 Federal Milk Market Orders in the USA which cover approximately 92% of total fluid milk sales.[1]

11 Federal Milk Marketing Order Areas

Pacific Northwest F.O. 124.
Upper Midwest F.O. 30.
Mideast F.O. 33.
Northeast F.O. 1.
California F.O. 51.
Central F.O. 32.
Appalachian F.O. 5.
Arizona F.O. 131.
Southwest F.O. 126.
Florida F.O. 6.
Southeast F.O. 7.

Source: USDA Agricultural Marketing Service

On 20 December 2018, the Agriculture Improvement Act of 2018 (Farm Bill) was enacted which included changes to the pricing formula for the skim milk portion of milk costs regulated by Federal Milk Marketing Orders.

Before this amendment, the base Class I skim milk price was calculated each month as the higher of the advanced pricing factors for Class III and Class IV skim milk.

Under the newly amended pricing formula, the base class I skim milk is the simple average of the monthly advanced pricing factors for Class III and Class IV skim milk, plus $0.74 per cwt.[2]

The first Class I milk price calculated by the new formula was the May 2019 advanced skim milk price which was announced on 17 April 2019.[3]

Prior to May 2019: Advanced Skim Milk Price = MAX(Advanced Class III Skim Milk Price, Advanced Class IV Skim Milk Price)

NEW: Base Advanced Skim Milk Price = Average(Advanced Class III Skim Milk Price, Advanced Class IV Skim Milk Price) + $0.74

Prior to May 2019: Base Class I Milk Price =0.965 *MAX(Class III Skim Milk Pricing Factor, Class IV Skim Milk Pricing Factor) + 3.5 * Advanced Butterfat Pricing Factor

NEW: Base Class I Milk Price = 0.965 * ((Advanced Class III Skim Milk Price + Advanced Class IV Skim Milk Price)/2 + $0.74) + 3.5 * Advanced Butterfat Pricing Factor

Why change the Class I milk pricing formula?

The industry desired to more effectively, and simply, manage Class I milk price risk using existing futures contracts. The stated industry objectives for the price change were as follows:[4]

- Balance processor desire for better price risk hedging with cooperative and dairy producer desire to maintain the integrity of Federal Milk Marketing Orders.

- Eliminate the uncertain basis that occurs when the Class I mover shifts between Class III and Class IV.

- Facilitate the use of existing Class III and Class IV futures and options to manage Class I price risk with minimal changes to the Federal Milk Marketing Order system.

- Provide several benefits that can result from the ability to hedge longer-term costs for fluid milk products.

- Help processors to manage price risk for dairy beverage ingredients, as they currently can for non-dairy ingredients.

- Help dairy producers to effectively hedge the Class I portion of their producer milk payments, as they currently can for the other portion of their payments.

- Encourage and promote the use of dairy ingredients in new fluid milk and dairy-based beverages that meet Class I specifications.

Hedging the previous Class I skim milk pricing formula proved too unwieldly for many Class I manufacturers[5]

Under the previous formula, the "higher of" factor meant either of the two advanced milk prices —Class III or Class IV— could end up driving the Class I skim milk price each month.
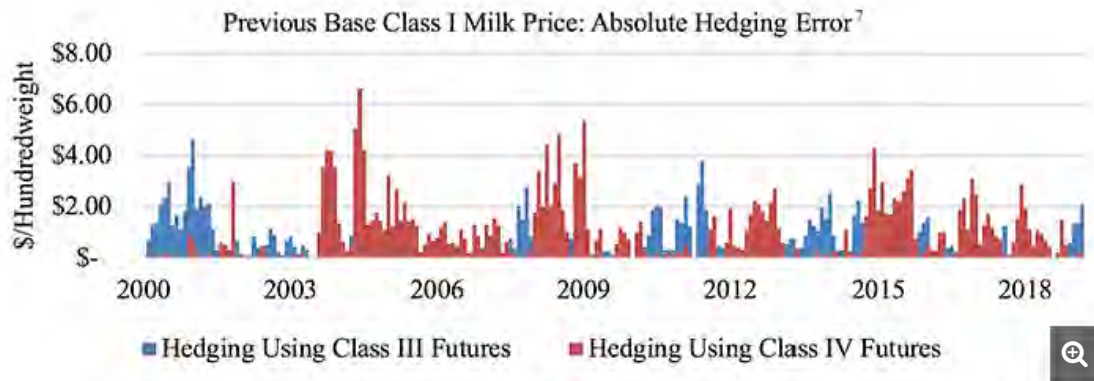
A minority of organizations with Class I price exposure chose to hedge by using the highest-priced futures contract –Class III or Class IV – and accepted the basis risk. By the time USDA announced the Class I price, the driver of milk costs may have changed. If so, the hedge under-performed. For many Class I hedgers, the strategy of using futures failed to adequately reduce price risk.

Another small number of hedgers chose to hedge Class I milk exposure by utilizing futures and options. These participants would hedge with the higher-priced futures contract and also pay the premium for an option on the other futures contract. While the strategy was effective at reducing price risk, for many fluid milk buyers it was also cost-prohibitive.

Lastly, a few manufacturers and end-users utilized the OTC markets to hedge Class I price risk. But risk premiums in these markets tended to be prohibitively expensive. In 2018, just 26 million lbs of the 44 billion lbs (0.0006%) of packaged milk produced were hedged using OTC Class I milk contracts.[6]

In summary, with the previous Class I formula in place, basis risk was often too high or too expensive to mitigate.

Previous Base Class I Milk Price: Absolute Hedging Error [7]

■ Hedging Using Class III Futures   ■ Hedging Using Class IV Futures

The newly reformed Class I skim milk formula dramatically improves the effectiveness of hedging Class I price risk with already available futures contracts.

The newly reformed skim milk pricing formula is the average of the advanced Class III and Class IV skim milk pricing factors plus $0.74/cwt. That means that each of the advanced Class III and Class IV skim milk prices have equal, and stable, contributions to the updated pricing formula.
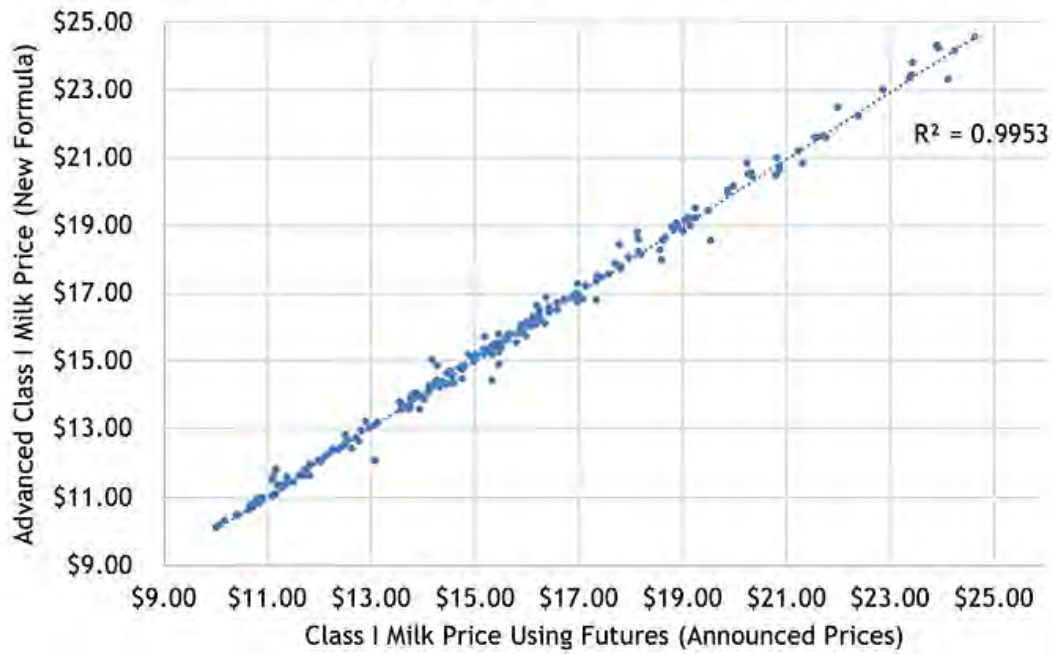
Under the newly reformed pricing system, basis is greatly reduced, but not eliminated.

Basis risk remains because the Class I milk price is calculated from two weeks of price surveys while CME futures contracts settle to announced prices that include data from those same two weeks but also data from another two or three weeks for a total of four or five weeks of survey pricing data.

The basis between advanced and announced-equivalent Class I milk prices averaged $0.01/cwt over the last 15 years; 61% of the time the difference has been $0.03/cwt or less; 80% of the time, $0.11/cwt or less.[8]

Historical Hedging Performance for New Class I Formula[9]

$R^2 = 0.9953$

(Y-axis: Advanced Class I Milk Price (New Formula) — $9.00 to $25.00)
(X-axis: Class I Milk Price Using Futures (Announced Prices) — $9.00 to $25.00)

## Will the new formula raise the price of Class I milk?

The new pricing formula was designed to produce similar historical values as the previous "higher of" formula.[10] Industry lobbyists first proposed the new pricing formula in October 2017. At that time, the "higher of" advanced skim milk pricing formula had exceeded the simple average of advanced Class III and Class IV prices by between $0.73/cwt and $0.75/cwt over 5-year, 10-year and 15-year timeframes. This was the rationale behind the formula being the average of the advanced Class III and IV skim milk prices plus $0.74/cwt.

Higher of Advanced Class III and Class IV vs. Simple Average of Advanced Class III and IV		
	As of October 2017	As of April 2019
5-Year Average Difference	$0.74 /cwt	$0.71/cwt
10-Year Average Difference	$0.75 /cwt	$0.66/cwt
15-Year Average Difference	$0.73 /cwt	$0.72/cwt[11]

Difference Between New and Old Advanced Class I Milk Prices[12]

New Advanced Skim Milk Prices vs. Old 'Higher of'
5-Year Moving Average
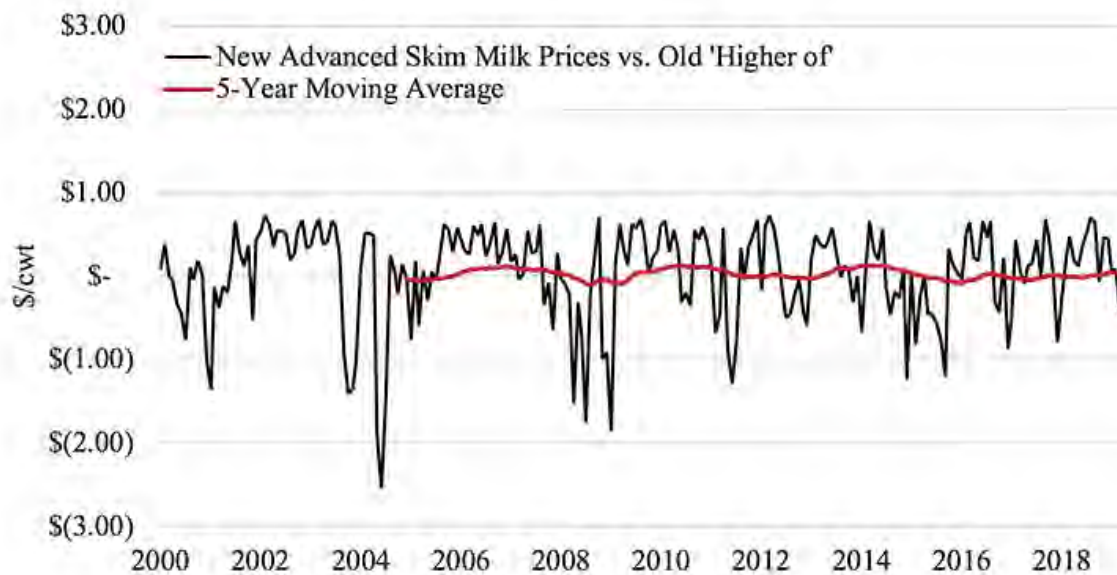
Will more farmers hedge their Class I milk exposure?

Dairy farmers in regions of the USA with high Class I utilizations are believed to have used CME futures and options at lower rates compared to parts of the country with the lowest levels of Class I utilization.[13]

This is partially because of the basis risk and complexity involved with hedging Class I milk pricing under the previous formula.[14] The previous formula made forecasting hedging error difficult. For farmers located in high Class I utilization states like Florida, Class I milk prices represent more than 70% of milk check values for most months and, up until now, the price risk was too challenging to manage.[15]

With the new formula in place, more dairy farmers are likely to better understand and hedge their milk revenue risk associated with Class I prices, especially in the Southeastern United States.

Mechanics of hedging Class I milk price risk under the new pricing formula

Choosing the right contract month

Class I milk prices are announced during the prior month. For example, the May 2019 base Class I milk price was announced in April 2019. The futures contract month with the lowest amount of basis risk will be the one settling in the same month as the date of the Class I price announcement. In other words, a hedger would use April futures to hedge May milk.

Choosing the right futures contracts

The CME offers six different futures contracts which can be used to hedge price risk for Class I milkfat and Class I skim milk: Announced Class III, Class IV, Cheese, Dry Whey, Nonfat Dry Milk and Butter futures.

For hedging base Class I milk with components equal to 3.5% milkfat and 96.5% skim milk, the hedging strategy with the lowest amount of basis risk will utilize 50% Class III futures contracts and 50% Class IV futures contracts. Both futures contracts are for milk with the same components, 3.5% fat and 96.5% skim milk.

The Class III and Class IV futures contracts are for 200,000 lbs of milk meaning Class I milk would be fully hedged in increments of 400,000 lbs.

Hedging Milk that is 3.5% Fat and 96.5% Skim Milk

	Milk (lbs)	Skim Milk (lbs)	Milkfat (lbs)
Target to Hedge	400,000	386,000	14,000
1 Class III Contract Equals	200,000	193,000	7,000
1 Class IV Contract Equals	200,000	193,000	7,000
Total Hedge	400,000	386,000	14,000
Total lbs Remaining	–	–	

For Class I price exposures that are markedly different from increments of 400,000 lbs of milk, or with different components than 3.5% milkfat and 96.5% skim milk, hedgers may consider two different hedging strategies:

Strategy 1: Hedging skim milk price exposure with equal amounts of Class III and Class IV futures; hedging remaining net milkfat exposure with appropriate number of butter futures.

Below is an example for hedging 10 million lbs of milk with 2.0% milkfat (200,000 lbs) and 98% skim milk (9,800,000) using Class III, Class IV, and Butter futures.

Class III and Class IV futures contract sizes are 200,000 lbs of milk with components equal to 3.5% milkfat and 96.5% skim milk. Therefore, each futures contract covers 193,000 lbs of skim milk and 7,000 lbs of milkfat.

Out of 9,800,000 lbs of skim milk, 50% (4,900,000 lbs) would be hedged using Class III futures, and the same amount would be hedged with Class IV. It will take about 25 contracts of Class III futures and 25 contracts of Class IV futures to fully hedge the Class I skim milk price exposure.

The original milkfat exposure totaled 200,000 lbs. However, each Class III and IV contract hedge 7,000 lbs of milkfat – the total of 50 contracts hedges 350,000 lbs of milkfat. The hedger originally had 200,00 lbs of milkfat exposure and has over-hedged and will need to offset that price risk with an opposite position in butter futures.

The original milkfat exposure of 200,000 lbs was over-hedged by 150,000 lbs. Each butter futures contract covers about 16,515.28 lbs of milkfat. which means to offset the exposure, the hedger will need to enter into a short position of about 9 butter futures contracts.[16]

Strategy 1: Hedging with Class III, Class IV, and Butter Futures			
Number of Class III Contracts	25	Number of Butter Futures Contracts	(9)
Number of Class IV Contracts	25		
Total lbs of Class III Skim Milk Hedged	4,825,000	Total lbs of Milkfat Hedged from Class III and Class IV	350,000
Total lbs of Class IV Skim Milk Hedged	4,825,000	Total lbs of Milkfat Hedged with Butter Futures	(148,637)
Total lbs of Skim Milk Hedged	9,650,000	Total lbs of Milkfat Hedged	201,363
Total lbs of Skim Milk Remaining	150,000	Total lbs of Milkfat Remaining	(1,3...)

Strategy 2: Hedge 10 million lbs of Class I with components equal to 2% milkfat and 98% skim milk by utilizing futures contracts for cheese, butter, nonfat dry milk and dry whey.

Below is an example for 10 million lbs of milk with 2.0% milkfat (200,000 lbs) and 98% skim milk (9,800,000).

Out of 9,800,000 lbs of skim milk, 4,900,000 lbs would be hedged using Class III commodities (Cheese, Dry Whey and Butter), and the same amount would be hedged with Nonfat Dry Milk, which drives the advanced Class IV milk pricing factor.

Per Federal Milk Marketing Order pricing formulas, there are nine pounds of nonfat solids in 100 lbs of skim milk. Thus, in 4,900,000 million lbs of skim milk there are 441,000 lbs of nonfat solids.

Per FMMO pricing formulas, manufacturing yield for nonfat dry milk is 0.99, i.e. 100 lbs of nonfat solids yields 99 lbs of nonfat dry milk. Multiplying 441,000 lbs by 0.99 we get 436,590.00 lbs of nonfat dry milk.[17]

Since the NFDM futures contract size is 44,000 lbs, it takes about 10 contracts to fully cover the price exposure to the Class IV skim milk pricing factor. In similar fashion, using FMMO pricing formulas, we find the following hedging profile:

Strategy 2: Hedging with Cheese, Butter, Nonfat Dry Milk, and Dry Whey Futures[13]				
	Cheese (lbs)	Butter (lbs)	Nonfat Dry Milk (lbs)	Dry Whey (lbs)
Target to Hedge	489,458	48,500	436,590	297,773
Number of Futures Contracts	24	2	10	7
Total lbs Hedged	480,000	40,000	440,000	308,000
Total lbs Remaining	9,458	8,500	(3,410)	(10,2

Execution of trades & legging risk.

Each hedge for Class I products will require the utilization of multiple futures contracts. In the simplest example of using just Class III and Class IV futures contracts, a hedger will need to execute trades for two separate contracts at the same time.

However, dairy markets can, at times, be illiquid. This is especially relevant for Class IV futures contracts which currently trade less frequently and at wider bid-ask spreads than Class III futures contracts. There is a very real risk that one side of a two-part hedge is filled or that the hedge occurs at worse-than-expected prices. This is called legging risk.

To minimize legging risk, hedgers will need to work closely with their brokers to identify appropriate strategies. For example, at times it may make sense to work orders for Class IV futures contracts and as those orders trade, the broker will then trade the second leg of the hedge in the more-liquid Class III futures.

For product-based hedges that utilize cheese, butter, nonfat dry milk, and dry whey contracts, the legging risk is higher given the complexity of four separate commodities that need to trade simultaneously.

Beginning in June 2019, CME began offering the ability to simultaneously buy or sell Class III and IV options electronically, which reduces the legging risk for options-based strategies.

Hedging Horizons

Dairy processors who desire to stabilize their expenses should consider hedging using more distant contracts.

The chart below compares the standard deviation of unhedged Class I milk prices to the net price of milk hedged in 30-day intervals from 30 to 360 days.

For milk prices hedged 270 days in advance of expiration, the standard deviation equaled $1.82/cwt under the old formula and $1.42/cwt under the new formula. In other words, hedging 270 days in advance reduced price risk by 36% (old formula) and 48% (new formula), respectively.

The reason distant horizons work better for reducing Class I price oscillations is because price shocks in the dairy sector tend to last 5-9 months.[19] Having a short hedging horizon will expose milk buyers to higher prices as futures prices will have already increased by the time they attempt to open the hedging position.

Reduction in Volatility of Class I Price from Different Hedging Horizons[20]
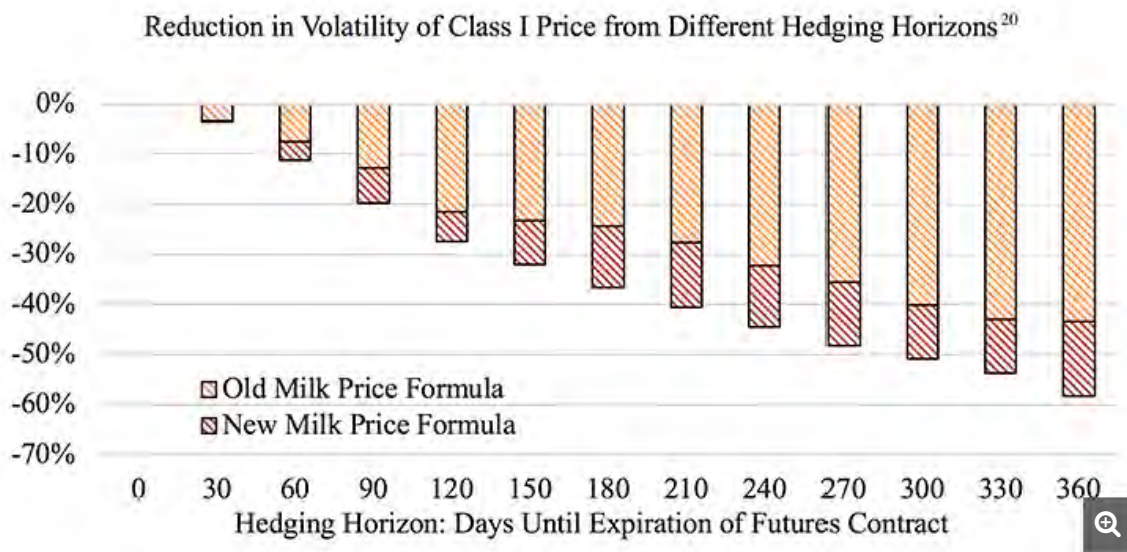
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20. The Net Milk Price equals the Base Class I Milk Price calculated using the old and new Class I formulas plus any gains or losses from hedging. Gains and losses from hedging are the difference between CME futures settlement prices on the day of hedging and USDA announced prices at futures contract expiration. The reduction in volatility is measured as the percentage difference between the standard deviation of unhedged Class I Milk Prices between January 2010 and April 2019 and the standard deviation of Net Milk Prices which include estimated cash flows from hedging activities. The standard deviation of unhedged milk prices was $2.83/cwt as calculated by the old formula and $2.75/cwt as calculated with the new formula.