

**United States Department of Agriculture  
Before The Secretary of Agriculture**

**In re: [Docket No. 23-J-0067; AMS-DA-23-0031]  
Milk in the Northeast and Other Marketing Areas**

**Hearing beginning August 23, 2023**

**Testimony Presented By:**

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**Subject: Milk Composition**

My name is Edward Gallagher. I appear today on behalf of Dairy Farmers of America (DFA) and the National Milk Producers Federation (NMPF) in support of their proposal number 1 – to modernize the component tests used to calculate Federal Order skim milk prices and to have a method of periodically updating the factors.

Dairy Farmers of America is a global dairy industry leader and the largest US dairy cooperative, largest US milk business, and largest US fluid Class I processor. Exhibit NMPF - 4A provides a series of facts about DFA.

I am the President of DFA Risk Management, a business unit of Dairy Farmers of America. As president of DFA Risk Management, I lead the DFA business unit that offers price risk management programs to members, DFA-owned plants and business units and their customers. My team and I offer the dairy industry's leading milk price forward contracting program to our farmer-owners. Additionally, I am responsible for DFA's Federal Dairy Revenue Protection and other crop insurance programs. I also lead DFA's Federal Order policy initiatives and have done so since January 2022.

I have worked in the dairy industry my whole life, having been raised on my family's dairy farm in central New York. I spent 13 years at the Northeast Milk Market Administrators office as an Economist and their Chief of Market Analysis, Research, and Information, and joined Dairyalea Cooperative Inc. (Dairyalea) in 1996 where I led them through the Federal Order Reform process in the late 1990s and later, I served in a variety of senior management roles for Dairyalea. I have been in my present role leading DFA's risk management program since 2010.

I am a frequent industry speaker imparting my knowledge of milk pricing, risk management and the dairy industry. I am a member of the National Milk Producers Federation board of directors. I serve on the Commodity Futures Trading Commission's Agricultural Advisory Committee, the Risk Management Committee for the National Council of Farmer Cooperatives, the National Milk Producers Federation Cheese Pricing Task Force and its Federal Order Task Force, and the New York Commissioner of

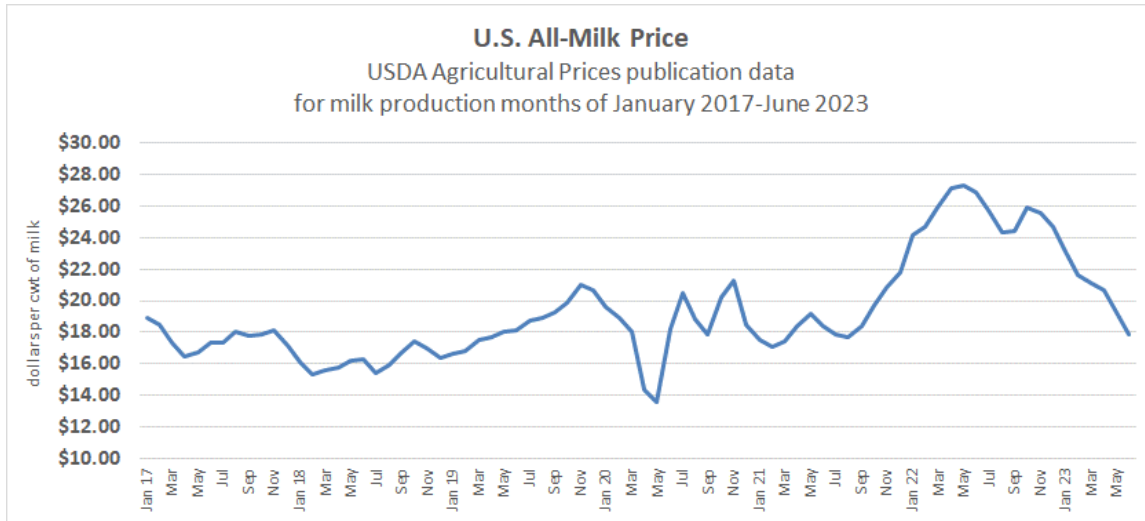
Agriculture's Milk Marketing Advisory Council, among other activities. I have testified before the US House and Senate Agriculture Committees on milk pricing and risk management issues and have been an expert witness at a variety of milk pricing regulatory and legal matters. I hold a Bachelor of Science degree in Agricultural Economics and Farm Business Management from Cornell University and a Master of Science degree in Agricultural Economics from The Ohio State University.

DFA supports the NMPF proposal 1 and requests its adoption as proposed. Others have provided expert testimony about the need to modernize the component factors used in the Federal Order skim milk prices and the expectation for dairy farmer component tests to continue to increase. The latter factor is why we are asking that the Federal Orders skim milk price formulas be updated automatically as significant component test increases occur. Specially, we are asking to delay the initial proposed increase by 12 months after the implementation date of the Final decision stemming from this proceeding. Additionally, we are asking that if the simple average of the skim component factors change by .07 percentage points after a three year look back period, and after at least three years from the most recent change, that USDA update the component factors 12 months later.

My testimony will focus on the need to delay the implementation of the changes by 12 months and will not repeat the already excellent and well-informed testimony of the NMPF witnesses prior to me.

Changing the skim component factors in the Federal order pricing formulas will have significant impacts on milk price risk management strategies deployed by dairy farmers, milk plants and end users. For dairy farmers, increasing the skim component factors will change the calculation of the Class III and Class IV settlement prices used to determine the outcome of their hedges they transacted months earlier and before knowledge of the Federal order skim milk price formula changes. When increasing the skim component factors, the new formula's announced Class III and Class IV prices will absorb some or all of the protein and other solids component basis into the announced settlement price that dairy farmers rely on to support the outcome of their hedge. The change in essence reduces the full-component milk price they thought they had locked in and would result in the regulation making their hedge ineffective. Our testimony will explain this and other issues. For each risk management user, whether a dairy farmer, a milk plant, an end user or whomever, the unknown of the regulatory change will lead to a loss of confidence that will lead to one of two poor endings. Either the expected outcome of the hedging transaction will be changed leading to a financial loss, or the participants will reduce their risk management use or stop using, entirely, for the period of time that the uncertainty exists. Since it is not known when the change will occur, or to what degree the formula might change, the uncertainty exists now and will be impacting hedging decision for milk prices that would settle in late Q3 of 2024 and after.

The use of dairy risk management has increased substantially over the last two decades and is a common business practice across the entire US dairy industry. Since dairy farmers do not know their milk check milk price until after they have produced their milk, and because milk prices are tremendously volatile, as can be seen in the chart of the US All-Milk Price, below, milk price risk management provides significant benefits to US dairy farmers.



Dairy farmers use risk management transactions to have a known price of milk many months prior to its production. By measuring this price against their milk production costs, or using other risk management strategies to know their livestock feed costs, dairy farmers have the ability to utilize milk price risk management transactions to assure the profitability of their dairy farm months in advance of producing the milk, as opposed to hoping milk pricing dynamics work out in their favor later on. Additionally, dairy farmers can use these transactions to place a floor on their milk price to protect against price erosion that could lead to significant financial losses on their dairies. It is widely known that dairy farms take on significant amounts of debt to finance their business. For larger dairies, the debts can be in the millions of dollars. The use of risk management transactions can protect dairy farmers future cash flow, so they are able to meet their lender's loan repayment obligations. Additionally, by managing the milk price and the feed price – known as the milk-feed margin – dairy farmers will be assured of having the cash to pay their livestock feed bills, which, feed, as we know, is the lifeblood of the dairy operation, and their other operating expenses.

I can personally attest to the significant benefits our risk management programs have brought to our farmer-owners during times of unexpected price declines. I go back no further than the spring and summer of 2020. Our farmer-owners that had risk management coverage, were able to continue to cash flow their dairies and produce a profit during the onset of the Covid-caused milk price crash. During that time, we paid out tens of millions of dollars to farmer-owners that had covered their milk in advance of that price crash.

Similar benefits abound for milk plant operators and their customers.

Because the settlement of most US milk price derivatives are settled against announced USDA Federal order prices, any changes to the formulas will negatively impact the expected outcomes and the effectiveness of the risk management transactions entered into before knowledge of the changes and knowledge of the effective dates of the changes. **It is for this reason, NMPF asks that changes to the skim milk component factors be delayed by twelve months to provide adequate notice to milk price risk management users of the changes and to allow most of the transactions entered into, prior to knowledge of the change and the date of the change, to run off.** Failure to delay the implementation will reduce the effectiveness of and the use of risk management tools across the dairy industry and have

the unwanted effect of increasing financial risks for dairy farmers, milk plant operators, dairy cooperatives, and end users.

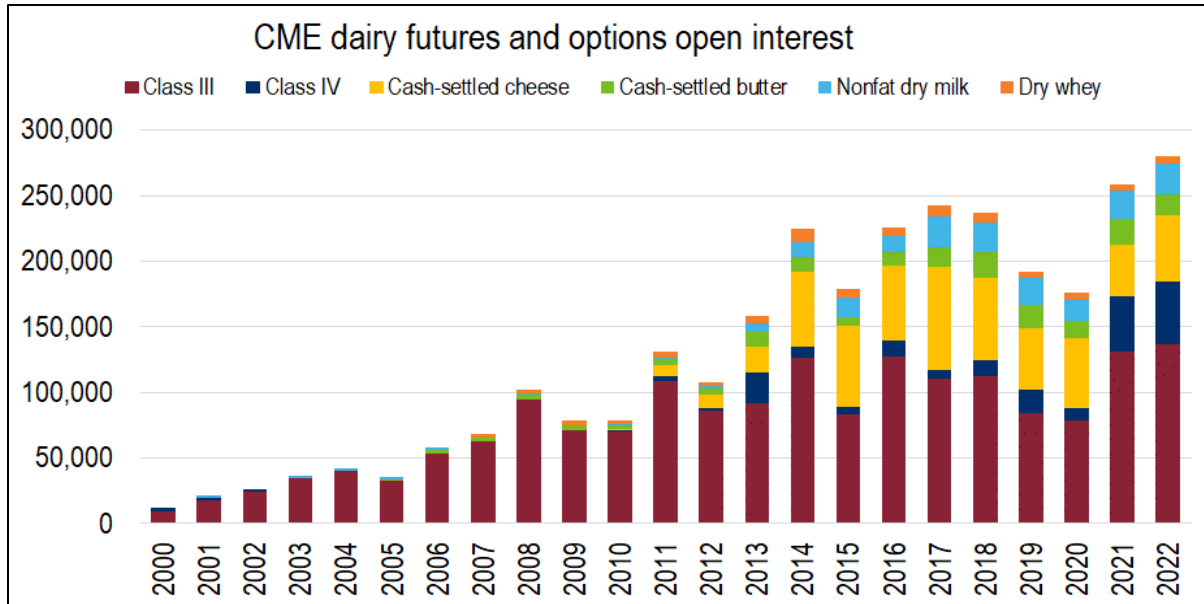
Changing the skim component factors will have two impacts on risk management transactions that were executed prior to the knowledge and the certainty of the regulatory change. The first is an impact on the settlements of dairy farmers' Class III and/or Class IV hedging transactions – either through brokerage transactions, forward contracts with handlers and cooperatives or with the Federal Crop Insurance dairy programs. The second is the impact on transactions that use nonfat dry milk to hedge Class IV skim milk values, or that use cheese and whey to hedge Class III skim milk values. To assist in understanding these issues, I begin with overviews of US dairy derivatives, the use and tie into Federal Crop Insurance programs for milk, the degree of use by dairy farmers and their importance in providing the US a competitive edge in the global export market. I will then offer examples that describe how a failure to delay the changes will be harmful to dairy farmers and others in the marketplace.

## **The Use of Dairy Derivative and Hedging Transactions in the US**

The CME Group operates the largest dairy derivatives market in the world – offering futures and options contracts for Class III and Class IV milk prices and butter, nonfat dry milk, whey powder and cheese prices used to calculate the Federal order Class III and IV prices. Each of these futures contracts cash-settle against prices announced by USDA and used to determine Federal order milk and component prices. You can find more information at <https://www.cmegroup.com/education/courses/introduction-to-dairy/dairy-overview.html>.

Dairy farmers use the CME Group dairy futures contracts to hedge their milk check price risk which is their families' main source of income. Dairy cooperatives, offering their farmer-owners milk price forward contracting opportunities, provide a similar mechanism for their members and utilize the CME Group futures contracts as a means to execute hedging transactions to assure it can pay the agreed to forward contract prices. Many dairy farmers use these products to lock into known future profit margins. Dairy manufacturing businesses and dairy product buyers use the products to manage profit margins, hedge inventory risk, and lock into future sales prices, among other transactions. The CME Group dairy derivatives markets have become as much a part of the US dairy industry as the Federal Order system.

The following chart was developed by DFA using data provided by the CME Group. It represents open interest (i.e., the number of outstanding contracts that are trading at any one time and have not yet been settled) for all of their dairy futures and options contracts on the last trading day of each year. You can see the explosive growth of their dairy futures and options markets since 2000 when Federal Order reform was implemented. At the time of Federal Order Reform, the use of these products by dairy producers, milk plants and other industry participants was nominal. It now is a significant aspect of the US dairy industry's business practices and climate.



Due to the significant overlap of the US dairy futures markets and the Federal order class prices, any changes to price formulas will impact the use and practicality of the dairy futures and options since formula changes will change settlement prices after derivative transactions were executed. Due to the uncertainty of the timing and impact on the settlement prices these changes could cause financial harm to some. Unexpected formula changes will undermine the confidence of those using the US dairy futures in protecting their prices and assets and will lead to less use for a period of time, and perhaps delay the growth of the derivative markets. This would mean that Federal order price formula changes could increase financial risk across the dairy industry. This is particularly of concern when there is the possibility of regular price formula changes, as could occur in NMPF’s Proposal 1.

**Degree of Futures and Options Use by Month**

The following chart was developed by DFA from CME Group information and shows the degree of use by month of US dairy futures and options. It shows the CME Groups open interest, by contract type, on May 26, 2023 and August 8, 2023.

TOTAL OPEN INTEREST BY MONTH (Market Close 5/26/23)							
	Class III*	Class IV	CSC	Blk Cheese Futures	Butter	NFDM	Dry Whey
May-23	12,792	4,630	4,252	210	1,700	2,482	206
Jun-23	17,544	5,130	5,761	238	1,654	2,206	246
Jul-23	10,300	2,921	5,542	266	1,114	2,028	10
Aug-23	9,075	2,687	4,035	64	714	1,278	5
Sep-23	8,809	2,663	2,465		812	1,797	5
Oct-23	7,674	2,787	2,057		762	480	
Nov-23	7,614	2,811	1,936		709	471	
Dec-23	7,534	2,822	1,992		688	504	
Jan-24	1,640	891	536			112	
Feb-24	1,523	880	218			45	
Mar-24	1,557	882	218			45	
Apr-24	476	295	59			2	
May-24	475	295	59				
Jun-24	476	295	27				
Jul-24		3					
Aug-24		3					
Sep-24		3					
Oct-24							
Nov-24							
Dec-24							

TOTAL OPEN INTEREST BY MONTH (Market Close 8/8/23)							
	Class III*	Class IV	Cash Settled Cheese	Block Cheddar Cheese	Butter	NFDM	Dry Whey
Aug-23	20,239	4,855	9,431	679	3,274	3,598	594
Sep-23	18,652	4,421	9,137	733	4,130	5,205	491
Oct-23	12,471	4,654	6,348	301	3,043	3,724	334
Nov-23	11,824	4,691	6,098	210	2,843	2,540	358
Dec-23	10,305	4,700	5,912	141	2,587	2,425	250
Jan-24	5,089	2,359	2,662	71	298	916	47
Feb-24	4,840	2,401	1,990	65	177	969	25
Mar-24	4,791	2,424	1,948	67	138	634	28
Apr-24	2,710	1,348	1,116	50	65	381	6
May-24	2,690	1,338	1,030	50	62	299	6
Jun-24	2,733	1,327	919	50	59	225	6
Jul-24	810	531	269		6	42	
Aug-24	776	551	258		6	34	
Sep-24	803	520	247		6	26	
Oct-24	169	10	34			8	
Nov-24	136	10	32			3	
Dec-24	128	10	24		5	3	
Jan-25	2						
Feb-25	2						
Mar-25	2						
Apr-25							
May-25							
Jun-25							
Jul-25							

As can be seen, there is significant open interest for the then current month, May, and for Class III and IV large open interest positions going out 13 additional months to June 2024. The May 26th snapshot of open interest is representative of the normal operation of the CME Group dairy futures and options markets. As one month rolls off, open interest builds in other months – including the farther out months that are one month closer to settlement. I have also included the open interest count for August 8, 2023. The roll of the futures open interest as a month is settled can be seen. By August 8, May, June, and July 2023 futures contracts have been settled and off the board. The chart shows how three months of additional open interest grew for July, August and September 2024 and shows significant volumes. During the third and fourth quarters of a year, many manufacturers and end users are setting their budgets for the following year and dairy farmers are more active managing their milk price risk for the following year. This typically leads to an increase in hedging transactions and an increase in open

interest for most months of the following year. These two charts are clear evidence of the practical application of hedging that extends out beyond the current month and would provide evidence to support our request to delay the implementation of the skim milk factor component adjustment by 12 months.

Significant dairy farmer hedging is included in the futures and options open interest. Later in my testimony, I will detail how dairy farmers using futures derived milk price risk management strategies will be harmed by unanticipated and unknown changes to the skim milk price formulas. In general, dairy farmers are still somewhat uncertain about using the CME Group futures and options markets to protect against milk price declines and to use to support their families' incomes and margins. Price formula changes that lead to unexpected and unanticipated results will undermine the confidence that dairy farmers have in using CME Group futures and options products to support their hedges and will result in reduced use and increased income risks for dairy farmers and destabilize the ability to financially manage the main source of their families' income.

### **Federal Crop Insurance for Milk**

USDA's Risk Management Agency's Federal Crop Insurance Program offers two important programs to assist dairy producers in hedging their milk price risk – the Dairy Revenue Protection Insurance program and the LGM-Dairy program. The most prominent and widely used is the Dairy Revenue Protection program which places a floor on Class III and IV milk and component prices at an inexpensive premium cost. This program debuted in October 2019. It has been widely embraced by dairy producers. The following chart shows the volumes of U.S. dairy producer milk covered under the program for each crop year. The data is published by USDA's Risk Management Agency. I created the table.

<u>Crop Year*</u>	<u>Coverage</u> <u>bil. lbs of milk</u>
2019	30.0
2020	64.6
2021	54.5
2022	53.0
2023	38.6

\* Crop Year runs from July 1 - June 30

The crop year runs from July 1 of a year to June 30 of the following year. The coverage denotes transactions that occurred during the crop year – even though their settlement may occur outside of the crop year. For the 2023 Crop Year, which ended on June 30, 2023, 38.6 billion pounds of milk was covered. This is down quite a bit from more recent years. It is down for two reasons. First, Class III and IV price levels offered were down considerably, but production costs were at or near record high levels making the hedge less interesting. Second, the volatility in dairy markets resulted in extremely high premium costs for this coverage which turned dairy producers off from the program. It is my opinion that the use of this program will return to its 2022 levels in the next year or so. The 53 billion pounds of milk equates to 23.4 percent of the US milk supply.

Under its current rules, the Dairy Revenue Protection Insurance Program settlement price is based on the Class III and IV price formulas that existed on the date the insurance was bound. That would mean that the settlement price for an insurance policy taken out in a quarter, prior to the implementation of a Federal order class price formula change, such as the skim milk price component factor changes, and settles after the new price formula with the new factors, would be based on the former class price formula with the outdated factors. The USDA Risk Management Agency is reviewing a change in its settlement rules and I am expecting that the changes will result in the Class III and IV settlement prices being based on the announced USDA Class III and IV prices in the month of settlement – as opposed to a prior rule’s formula’s prices.<sup>1</sup>

USDA’s Risk Management Agency has a second crop insurance program for milk prices. It is called Livestock Gross Margin – Dairy (LGM-Dairy). This program was first implemented in 2008. In its current state, it provides a hedge on the margin between the Class III milk price and a livestock feed index selected by the dairy farmer. It effectively places a minimum value on the Class III milk-feed margin. Much more complicated than the Dairy Revenue Protection insurance program, it isn’t as widely used. The following table uses USDA Risk Management Agency data to depict the annual crop year coverage of US dairy farmer milk production under the LGM-Dairy. I created the table. A dairy farmer cannot use the LGM-Dairy and the Dairy Revenue Protection Program to cover milk in the same month.

<u>Crop Year*</u>	<u>Coverage</u> <u>bil. lbs of milk</u>
2019	0.8
2020	1.6
2021	2.6
2022	2.9
2023	2.8

\* Crop Year runs from July 1 - June 30

The LGM-Dairy program Class III settlement price is determined by the CME Group Class III futures daily settlement prices on the last three days that the month of coverage is trading. This means that for August 2023, the simple average of daily settlement prices on August 25, 28 and 29 will determine the settlement price as the August futures price stops trading one day prior to USDA’s announcement of the August Class III price. This means that LGM-Dairy transactions also suffer the same issues as futures-based hedging settlements.

### **Coverage of US Milk Production by Dairy Farmers**

DFA’s farmer-owner forward contracting program makes significant use of the CME Group dairy futures and options offerings as well as other forms of hedges with banks, customers, and other industry participants. We are also one of the leading insurance agencies offering the Dairy Revenue Protection insurance program. Our farmer-owners use of these two programs via our offerings can provide some insights into the scope of use of hedging by US dairy farmers. More importantly, DFA’s experience in operating our farmer-owner forward contracting program and offering Dairy Revenue Protection insurance provides some insights into the use of the CME Group futures programs. We have found that the milk volume covered by our farmer-owner forward contract programs is about equal to the volume



covered by our farmer-owners using the Dairy Revenue Protection program and that split has been consistent since 2020. Based on our use, I would estimate the use of CME Group futures and options by dairy farmers was equivalent to about 25 - 50 billion pounds of milk production in 2022. Combined with the Revenue Protection Insurance program, I estimate that about 35 to 45 percent of US milk production was hedged by dairy farmers in 2022. The US Class I utilization in 2022 was approximately 20 percent. By any measure, the Dairy Revenue Protection volume alone or my combined estimate, the volume of US milk production hedged by dairy farmers is significantly more than the milk utilized in Class I.

USDA's Dairy Margin Coverage (DMC) is a highly effective risk management program for the large percentage of US dairy farms milking fewer than 200 cows. Although these dairies will also use futures based hedging products, Dairy Revenue Protection and other programs, the vast quantity of milk that is covered by these various hedging programs comes from the larger farms since they produce most of the milk in the US, tend to carry high loan balances and that financial leverage places their families' dairy businesses at risk of financial peril if a significant price decline occurs. This results in these larger dairies being more predisposed to use the dairy hedging programs. Seventy-five percent of DFA's farmer-owners milk production is produced by 12 percent of their farms with milking cows of 841 head or more. DFA's farmer-owners produce about 24 percent of US milk production and are, in my view, a microcosm of the US dairy farming sector. Based on this, I believe about 80 percent of US milk production is produced on about 15 percent of US dairy farms. As consolidation in the dairy production sector continues, there will be a greater degree of US milk production produced by dairy farms with 1,000 or more cows and those farms will be producing much larger amounts of milk and taking on much larger levels of debt and financial risk. I am certain that these dairies will need to take increasing amounts of milk price protection coverage to protect their investments. To assure this can happen, it is critically important for USDA's Federal order program to adjust to a new level of regulatory practice by acknowledging the tie in that their price formulas have to the US dairy farmer hedging strategies. Its regulatory construct has to support the growth in milk price risk management practices by strategically timing the implementation of price formula changes in a manner that supports the use of risk management strategies. Doing so will avoid a potentially destructive decline in the incidence of hedging leading up to price formula changes and avoid price and income volatility that would occur if USDA ignored the close ties between the Federal order program and the use of dairy farmer risk management practices.

## **US Dairy Derivatives Market Provides Competitive Advantage for our Exports in the Global Market Place**

The US milk price derivatives market plays a significant role in reducing price risk in our dairy exports and provides a significant strategic advantage to our dairy industry.<sup>1</sup> The US dairy industry has a significant risk management advantage over our global competitors due to the size, breadth, and use of the CME Group dairy futures and options contracts that form the backbone of the dairy derivatives market.<sup>2</sup> For instance, US manufacturers may lock in the Class IV skim milk price they pay to dairy

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<sup>1</sup> Derivatives include futures, options, forward contracts and swaps.

<sup>2</sup> Often dairy forward contracts and swaps are hedged against the CME Group futures and options contracts although forward contracts with a cooperative and a dairy farmer could be hedged against a forward contract with

farmers to be able to offer a fixed price nonfat dry milk powder price to a foreign buyer. This transaction may happen months before the milk is produced and the powder is exported.

Our derivative markets are the envy of the worldwide dairy industry and dairy businesses in other countries see the need and are racing to catch up. As we will show, below, the acceptance and use of dairy hedging in Europe and New Zealand is much less than in the US. There are two regulated dairy futures exchanges outside of the US. The New Zealand Stock Exchange (NZX) began offering dairy derivatives in 2010. In 2021, it began listing its dairy futures contracts on the Singapore Exchange (SGX) to broaden the reach of their dairy derivatives offerings. The European Energy Exchange (EEX) began trading dairy futures contracts in 2010. The following chart lists their futures and options contracts with open interest on the last trading day of 2022.

<b>Dairy Futures and Options Contract Open Interest on Other Derivatives Markets, Last Trading Day of 2022</b>				
<b>SGX/NZX - Futures and Options</b>	<b>Open Interest</b>	<b>Contract Volume</b>	<b>Pounds</b>	<b>CME Contract Equivalent</b>
AMF	2,655	1 MT	5,853,266	293
Milk Solids	26,556	6,000kg MS	351,275,332	14,414
SMP	6,991	1 MT	15,412,498	350
WMP	22,446	1 MT	49,484,901	1,125
Butter	3,585	1 MT	7,903,563	395
<b>EEX - Futures</b>				
Butter	3,362	5 MT	37,059,662	1,853
SMP	5,918	5 MT	65,234,706	1,483
Whey	463	5 MT	5,103,695	116
Total SGX/NZX and EEX				20,029

Because the volume covered by a contract on the foreign exchanges are much smaller than a CME contract, the non-US open futures and options interest count belies the size of their derivatives coverage. For instance, the US butter contract is 20,000 pounds compared to the SGX/NZX which is 2,204.6 lbs and the EEX which is 11,023 pounds. I have converted their contracts to CME Contract Equivalent sizes. The SGX/NZX Milk Solids contract was converted to its fluid equivalent and then to the CME equivalent as a Class III and Class IV contract comparison (i.e., 200,000 pounds of milk). It represents the equivalent of 14,414 CME Group Class III or Class IV futures contracts. Summing the open interest in CME Contract Equivalent, the non-US global futures and options market had just over 20,000 contracts in open interest as 2022 ended. This is about where the US derivative market was 23 years ago.

The use of the US dairy futures and options market success is predicated on its direct linkage to Federal Order Class III and IV prices and the butter, cheese, nonfat dry milk and whey prices that determine our fluid milk prices. DFA and NMPF urge USDA to recognize the importance of our derivative markets and the tie into our milk pricing programs and to take actions to support their use and continued growth.

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a cooperative's milk plant or a customer or a swap with a bank or other business. Similarly, swap transactions could be hedged against another swap or a forward contract.

Federal order price formula changes that are administered in a manner that creates uncertainty and reduces our confidence in the strategies' outcomes will undermine the use of our dairy derivatives to hedge dairy export sales and could destabilize the US dairy industry's competitiveness in the global dairy export market.

## Impact of the Skim Milk Component Factors on Risk Management Hedging Decisions by Dairy Farmers

I offer the following example to illustrate the harm of immediately implementing a change to the skim milk price component values to a dairy farmer hedging his or her milk price. For simplicity, I am going to provide an example of a dairy farmer hedging with the Class III milk price via the selling of a Class III futures contract. By selling a Class III futures contract, the dairy farmer protects their Class III price from declining but accepts that it will not receive a higher price if the actual market price at time of settlement is higher than the sold (also identified as "short") futures position.

The following chart presents a rendition of calculating the Announced Class III Price (Class III Price) using a butterfat test of 3.5% and skim milk component factors of 3.1% protein and 5.9% other solids and the 2021 average Federal order prices for butterfat, protein and other solids. Note, the Class III price is announced at standard skim component tests (i.e., 2.995% protein and 5.6935% other solids). The standard component tests are calculated by multiplying the skim component factors by 96.5% - which represent the percentage of skim milk in 100 pounds of milk testing 3.5% butterfat. The milk component factors used in the formula represent milk component tests in the late 1990's and have been in place in Federal order price formulas since the implementation of Federal Order Reform on January 1, 2000.

<b>Current Determination of Class III Price</b>					
	2021 Average <u>Comp Prices</u>	Class III Class III Butterfat and Current Skim <u>Component Factors</u>	Class III Butterfat and Skim Milk Price <u>Contribution</u>	Adjustment to Standard <u>Test Milk</u>	Class III Price at Announced <u>Standard Tests</u>
Butterfat	\$1.8904	3.5000	\$6.62	N.A.	\$6.62
Protein	\$2.7630	3.1000	\$8.57	96.5%	\$8.27
Other Solids	\$0.3866	5.9000	\$2.28	96.5%	<u>\$2.20</u>
Class III Price, Standard Test					\$17.08

To unpack the information in the chart, the butterfat price of \$1.8904 is multiplied by 3.5 pounds of butterfat which equates to \$6.62 per hundredweight of milk at standard component tests and is the butterfat contribution to the Class III price at standard component tests. The \$2.7630 protein price is multiplied by 3.1 pounds of protein in skim milk. This equates to \$8.57 per hundredweight in skim milk. To determine its value at the standard component level, it is multiplied by 96.5 percent (i.e., after subtracting 3.5 pounds of butterfat from 100 pounds of milk there remains 96.5 of milk with the protein and other solids components). Thus, multiplying by 96.5 percent provides the protein value in 100 pounds of standard component test milk. This equates to \$8.27 which, in this example, is the protein value of Class III milk at standard tests. Following through in the same process for other solids results in

a value of \$2.20 of other solids in 100 pounds of standard component Class III milk. Summing the three values equates to the Class III price of \$17.08 per hundredweight of milk at standard component tests.

When changing the Class III skim component factors, the 3.1 for protein and the 5.9 for other solids will go up. However, those changes will not impact the butter, nonfat dry milk, cheese and whey prices used to calculate the component prices. Thus, increasing the component tests will change the calculation of the Class III, and also the Class IV prices.

The CME Group Class III futures and options contracts settle against the USDA announced Class III Price at standard components, as shown in the above example. If the final component prices for a month were equal to the 2021 Average Component Prices, the CME Class III settlement price for the month would be \$17.08 per hundredweight. All futures and option contracts that cash settle for that month would settle against the \$17.08 price, regardless of when the futures and options contracts were executed (or entered into).

The Class III Dairy Revenue Protection Insurance contracts also settle to the USDA announced Class III price at standard components. A bit different than the way the futures contract settlement processes are written; the Dairy Revenue Protection contracts settle against the formula that existed when the insurance product was purchased. However, it is highly likely that USDA's Risk Management Agency will change the Dairy Revenue Protection Insurance programs settlement to be to the announced price as occurs with the CME Group futures. I am expecting that by the time USDA implements new orders stemming from these proceedings, the Dairy Revenue Protection Program will settle against the prices as announced by USDA as opposed to settling against the Class III formula that existed when the insurance contract was purchased.

Reiterating a point from earlier in my testimony, when a dairy producer hedges their milk price, they take a position to protect against milk prices declining. The dairy producer's transaction would be selling a Class III futures contract. By selling the contract, the dairy producer earns a trading profit on the transaction if the ultimate Class III price for that month is lower. However, if the Class III price is higher, the hedge transaction would be at a loss. Either way, the dairy farmer receives the hedged milk price as their cash price at standard component tests. For instance, if a dairy producer hedged their Class III milk price risk 12-months earlier, and hedged at a price of \$17.90, using the above example of the Class III price at settlement, the dairy producer would profit by \$.82 per cwt on their futures transaction (\$17.90 hedge price minus \$17.08 settlement price). However, when selling their milk to their cooperative or other milk handler, the dairy producer would receive a standard Class III price of \$17.08, all other things be equal. By adding in their \$.82 per hundredweight futures profit, their standard test milk price would be \$17.90 (\$17.08 announced Class III price plus their \$.82 profit from their hedging transaction) – the price they were expecting to receive when they executed their hedging transaction.

Alternatively, if the Class III settlement price was \$18.72 for the month, they would receive an \$.82 loss in the futures, but sell their milk for \$18.72 – netting them their expected milk price of \$17.90.

Dairy farmers produce milk at varying component tests that are generally greater than the standard component tests. For instance, in 2022 producer protein tests in the seven multiple component orders averaged 3.25% and other solids averaged 5.78%. These values are important when a producer makes a decision to hedge their milk price. An important term in the risk management world is "basis". Basis is

the difference between the price that is being hedged and the price, based on the hedge, that the producer expects to receive. For dairy producers, the producer price differential would be part of their basis when hedging the Class III price. Additionally, and germane to this discussion, is their component basis (i.e., the value of their Class III milk at full component values minus the expected Class III hedge at standard component tests). When a dairy farmer executes a Class III hedge, they consider the level of the Class III price that the CME Group futures offer, and they consider the additional basis they expect to get paid. Often it is the expectation of the additional basis value that motivates them to cover at a given level of a Class III futures price with the understanding that the Class III price plus their basis will return a milk price greater than their expected cost of production and allow them to lock into a profit margin for their family's business. The following is an example of the milk component basis.

<b>Full Component Class III Expectation, Omitting Actual Butterfat Test Expectation</b>			
	<b>2021 Average Comp Prices</b>	<b>Dairy Producer's Component Tests</b>	<b>Dairy Producer's Full Component Class III Values</b>
Butterfat	\$1.8904	3.5	\$6.62
Protein	\$2.7630	3.27	\$9.04
Other Solids	\$0.3866	5.81	<u>\$2.25</u>
<b>Class III Full Component Test Price</b>			<b>\$17.90</b>
<b>Announced Class III, Standard Tests</b>			<b><u>\$17.08</u></b>
<b>Additional Component Basis</b>			<b>\$0.82</b>

The above chart uses an example of a dairy producer with 3.27% protein and 5.81% other solids – both significantly higher than the standard component tests. Unpacking the chart's calculation, it uses the same component prices as the prior chart that provided an example of the calculation of the announced Class III price. The component test would be those out of the bulk tank. The 3.27 percent protein and 5.81 percent other solids is for 100 pounds of raw milk testing 3.5 percent butterfat. In this example, the protein and other solids tests, then, are not skim milk tests. To determine this producer's full component Class III value, the component price is multiplied by the pounds of the components in 100 pounds of raw farm milk. For example, for protein, there are 3.27 pounds of protein in raw farm milk with a 3.27 percent protein test. Each component's prices are multiplied by the pounds of components in the middle column to get the value in the third column. Summing the three component values in the third column equates to a full component price of \$17.90 per hundredweight of milk. Subtracting the announced Class III price at standard components of \$17.08 (see the prior chart for its calculation) results in additional component basis of \$.82 per hundred pounds of milk.

When executing a hedging transaction at \$17.08, the dairy producer expects to receive an additional \$.82 per hundredweight in their milk price – their milk component basis – that represents their full component value.<sup>3</sup> For ease of example, later, I left the butterfat test at 3.5%. This producer would likely have had a butterfat test of 4.00% or higher with the protein and other solids test used in this

<sup>3</sup> In this simplified example, there is an assumption that the producer price differential is zero and there are not other adjustments to the milk price.

example. The higher butterfat tests would also add to their component basis. My reason for the omission of the higher butterfat test will reveal itself in the narrative that follows.

For simplicity of example, let's assume that prices in the above chart were available in the CME futures market and a producer hedged their Class III price. Again, for simplicity of example, let's assume that the hedge was transacted 12 months in advance of producing the milk and that when that month's actual prices were announced by USDA that the cheese, whey, butter and nonfat dry milk prices, use to calculate Class III and IV prices were exactly the same as the prices that existed 12 months earlier in the futures market when the producer hedged their milk price.

Returning to the Class III hedging example, the dairy producer was expecting a price of \$17.90 when he or she hedged - \$17.08 from the Class III hedge transaction at standard tests plus \$.82 in additional component basis. When the producer made their hedge decision, they made it based on the \$17.90 price being an acceptable price for their family's dairy.

As the hedge worked out, the dairy producer received the \$17.08 price for standard test milk plus the \$.82 on protein and other solids additional component basis as the dairy was paid by its cooperative or other handler at the full component value of milk – thus achieving their expected \$17.90 milk price.

Now let's assume the Federal order skim component factors changed after the hedge was transacted and before the settlement prices for the hedge were determined. Herein lies the problem over not delaying the implementation of the increased component factors when determining the skim component factors. Increasing the skim component factors will change the calculation of the Class III settlement prices. When increasing the skim component factors, the new formula's announced Class III price will absorb some or all of the protein and other solids component basis into the announced settlement price.

Following on with our example of the Class III price, modernizing the component tests forming the basis of the Class III skim milk price will increase the Class III price, all things else being equal. The following chart shows that change by using the average annual Class III component prices for 2021. These are the same prices as used in the previous charts. The only change in the chart below, from the previous chart, is the increase in the protein and other solids skim component tests. The protein and other solids tests in the new chart reflect the average protein and other solid test in 2022 Federal Order pooled milk on the seven multiple component orders. No adjustments were made for a potential make allowance, barrel elimination or other changes being considered at this hearing. The calculation convention is the same as in the prior chart.

<b>Proposed Determination of Class III Price Using NMPF Proposed Component Test Change, only</b>					
	2021	Class III Butterfat	Class III	Adjustment	Class III Price
	Average	and 2022 Skim	Butterfat and	to Standard	at Announced
	<u>Comp Prices</u>	<u>Component Factors</u>	<u>Skim Milk Price</u>	<u>Test Milk</u>	<u>Standard Tests</u>
			<u>Contribution</u>		
Butterfat	\$1.8904	3.5000	\$6.62	N.A.	\$6.62
Protein	\$2.7630	3.3900	\$9.37	96.5%	\$9.04
Other Solids	\$0.3866	6.0200	\$2.33	96.5%	<u>\$2.25</u>
Class III Price, Standard Test					\$17.90

The chart shows that the proposed change, using the 2022 annual average component prices would increase the announced Class III price from \$17.08 to \$17.90. The increase in the price occurs because the announced price at the new standard test levels now includes all or most of the additional protein and other solids component basis.

Let's return to our example of a dairy producer hedging their Class III price 12-months earlier. As it turns out, that producer hedged their milk price prior to knowing how or when the milk component tests would change and prior to these values being reflected in CME Group futures daily prices. The dairy producer's good faith hedge transaction was to yield a Class III price at standard tests of \$17.08 and a full component test price of \$17.90. This would mean that the dairy producer's hedge would settle at a loss of \$.82 per hundredweight (\$17.08 minus \$17.90 - since the Class III settlement price would be calculated at the new and higher standard component test levels). The announced Class III price at the new standard tests would be \$17.90 and there would be no additional protein and other solids component basis. This means that the dairy producer sells to their cooperative or other handler at \$17.90 and has to absorb the \$.82 hedge loss netting them a \$17.08 milk price - \$.82 less than expected because their expected component basis was absorbed into the announced Class III price. The following chart summarizes this information.

**It is for this reason, that we are asking that the implementation of the skim component changes be delayed 12-months to allow these types of hedging transactions to settle out before the change impacts Federal order milk prices.** The delay in implementation would provide time for most of these hedges, made prior to knowledge of the price formula change, to run off and thus preserve the effective hedging outcomes entered into by dairies across the US in an effort to protect their families' incomes and their businesses' revenues.

Class III Hedge Standard Comp	\$17.08
Expected Component Basis	<u>\$0.82</u>
Expected Class III Milk Price	\$17.90
Actual Class III Settlement	\$17.90
Hedge Gain or Loss	(\$0.82)
Component Basis	<u>\$0.00</u>
Actual Class III Milk Price	\$17.08

All dairy producers using milk price hedging mechanisms and executing transactions prior to knowledge of the change and the implementation date will suffer from these issues, regardless of the strategy they used. This would include Class III and IV futures trades, handler forward contracts, Dairy Revenue Protection Insurance transactions, dairy cooperative target blend forward contracts, fixed prices, minimum prices, and collar transactions.<sup>4</sup> It would negatively impact all dairy farmer milk price risk management transactions that were made before the certainty of formula changes and certainty of the

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<sup>4</sup> A collar transaction is a milk hedging strategy that involves the purchase of an option (known as a put) to place a floor on a milk price and the sale of an option (known as a call) that puts a ceiling on the milk price and allows the milk price to fluctuate in between. The sale of the call generates revenue for the hedger to help offset some or all of the cost of the put.

timing of the implementation of those changes and based on an expectation of a certain milk component basis value that will no longer exist. As described above, the change would eviscerate the component basis value and negatively impact the expected outcome of the hedge transactions. If the change was known with a date certain, dairy producers would have waited for the Class III and IV futures prices to rise to their targeted full component price before executing the transaction.

## **Impact on Using Class III and IV Component Prices to Hedge Class III and IV Milk Prices**

The CME Group dairy futures complex, as previously described, was developed to conveniently support hedging of Federal order milk prices – both raw milk prices and component prices. It was specifically designed so that risk management participants could cross hedge Class III with cheese and whey component prices and cross hedge Class IV with butterfat and nonfat dry milk prices – all of which settle to the announced prices used in Federal Order Class price computations and price announcements. As such, any change to a pricing formula, impacts how the cross hedges work and changes the financial results of the hedges in a manner that creates a loss for one of the parties in the hedge. Repeating this, executing these transactions without knowledge of the formula change and timing of the formula change for transactions that settle after the formula change will result in losses for one side of the hedge. Dairy industry hedgers and liquidity providers<sup>5</sup> will reduce their use of these transactions or in some case stop using these transactions until the uncertainty of the price formula change and its timing is no longer a risk factor. We are concerned that some of the liquidity providers will permanently exit the CME Group futures and options markets. This will result in increased risk and fewer participants in the CME Group futures markets – further harming the growth of transactions that are needed to help de-risk the US dairy industry. It is for this reason, too, that we need to have a regulated delay in the implementation of the changes arising from the skim milk component changes.

I will provide an example of the harm by explaining a Class IV, butter and nonfat dry milk cross hedge. This is a less complicated cross hedge than Class III, cheese and whey and is easier to follow. I have provided an overview of the Class III cross hedge at the end of my testimony.

Using Class IV as our example, because of the skim factor of 9 and the price announcement butterfat test of 3.5%, 8,750 pounds of butter can hedge the butterfat in 200,000 pounds of 3.5% butterfat milk (200,000 pounds of milk times 3.5% butterfat is 7,000 pounds of butterfat; butter has 80% butterfat in it, so to hedge 7,000 pounds of butterfat you would need 8,750 pounds of butter). Similarly, 17,196 pounds of nonfat dry milk can hedge the skim milk in 200,000 pounds of 3.5% butterfat milk (200,000 pounds of milk minus 7,000 pounds of butterfat equals 193,000 pounds of skim milk; using a skim factor of 9 means there are 9 pounds of nonfat solids in 100 pounds of skim milk or 0.09 pounds per pound of skim, but converting to its nonfat dry milk equivalent there is a 1 percent shrink so the .09 is multiplied

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<sup>5</sup> A liquidity provider is an investor that trades in futures and options in an effort to earn a return for themselves. Liquidity providers are crucial to the functioning of futures and options market as they bring additional transaction volumes into the marketplace that can become the other side of a farmer's hedge or a milk plant's hedge. If liquidity providers lose confidence in their ability to understand regulatory price changes and the risks it brings to their investments, they will stop trading in such a market.



by .99 to yield .0891 pounds of nonfat per pound of skim milk. Multiplying .089 time 193,000 yields 17,196 pounds of nonfat dry milk to hedge – see the chart below).

At DFA, we often use this cross hedge to cover a farmer-owners Class IV price risk in their blend price forward contract by breaking out the Class IV butterfat and nonfat dry milk and, as an example, hedging it against butterfat used in our ice cream operations or a fixed price nonfat dry milk powder sale to a customer in Southeast Asia, for example.

Changing the skim factor will change the amount of nonfat dry milk needed to cover the Class IV skim milk price. For example, if the skim milk price factor is changed from 9.0 to 9.4, the amount of nonfat dry milk to hedge to cover the Class IV skim milk price increases from 17,196 pounds to 17,961 pounds (see chart below). If a Class IV skim to NFDM and butter cross hedge was transacted prior to knowledge of the Federal order formula change and its implementation date, and that settled after the implementation date, the hedge will not have the correct volume of nonfat dry milk associated with it and open one of the parties in the hedge to a loss.

The following charts help to show the issue that businesses that cross-hedge will face. Each will show what happens when the hedged price and the settlement price are the same. This removes impacts from prices changing. The first will use the same solids component during the hedge transaction and the settlement transaction. The second will use the current solids component during the hedge transaction but a 9.4 component factor for the settlement transaction – denoting an example of the impact of changing the component factor without prior knowledge of the amount of the change and the certainty of the timing of the change.

Current NF Skim Factor for Settlement			
	Hedge	Settlement	Change
NFDM Price	\$1.35	\$1.35	\$0.00
NFS Price	\$1.17	\$1.17	
NF Skim Factor	9.0	9.0	
Skim Milk Price	\$10.53	\$10.53	\$0.00
Skim lbs to Hedge	193,000		
Lbs NFDM/lb Skim Milk	0.0891		
NFDM lbs to hedge	17,196.3		
NFDM Hedge Adjustment			\$0.00
Class IV Skim Hedge Adjustment			\$0.00

Different NF Skim Factor For Settlement			
	Hedge	Settlement	Change
NFDM	\$1.35	\$1.35	\$0.00
NFS	\$1.17	\$1.17	
NF Skim Factor	9.0	9.4	
Skim Milk Price	\$10.53	\$11.00	\$0.47
Skim lbs to Hedge	193,000	193,000	
Lbs NFDM/lb Skim Milk	0.0891	0.09306	
NFDM lbs to hedge	17,196.3	17,960.6	
NFDM Hedge Adjustment			\$0.00
Class IV Skim Hedge Adjustment			\$903.53

Please note the blue and the gray highlighted values. For the transaction to work appropriately, all values in the blue and gray boxes, when there is no difference between the nonfat dry milk hedge and settlement prices, should be zero. Since the change in the nonfat skim factor will change the value of the skim price, the hedging “middleman” needs to have an equal income change on the nonfat dry milk hedge to be certain it does not lose money or make money due to the change in the Federal order price formula.<sup>6</sup>

<sup>6</sup> My reference to a “middleman” is a trading entity that covers the price risk of a business hedging their nonfat dry milk price and another entity covering the risk of a skim milk price change. Typically, this type of hedge is done by a trader that works for both of the parties and “makes the market” for one or both of the entities. Specifically, there is not futures market for a Class IV skim milk price, so the middleman is helping to make that market for the business wanting to protect its Class IV skim milk price. It does so by hedging the nonfat dry milk price in the futures market, with a customer or in a swap transaction.

Let me provide an example about the issue highlighted in the box above and to the right titled “Different NF Skim Factors For Settlement”. A yogurt manufacturer may be interested in hedging their Class II skim milk price by covering with the Class IV skim milk price. For simplicity, we will not incorporate the Class II differential in this example. The yogurt manufacturer will want to protect against the milk price increasing so it takes a long position – meaning if the Class IV skim milk settlement price goes up then the middleman will pay the difference. In the example above since the regulatory change in the nonfat skim factor from 9.0 to 9.4 cause the Class IV skim milk settlement value to increase, the middleman will owe the yogurt company \$903.53. To be able to pay that amount, the middleman will have to earn an equal or greater amount on the nonfat dry milk hedge. If the middleman’s hedge was in the nonfat dry milk futures market, it would also take a long position – for the Class IV skim milk price to go up, the nonfat dry milk price would have to go up as well, if no change in the Federal order pricing formula. For simplicity and ease of illustration, the hedged nonfat dry milk price and the settlement nonfat dry milk price are the same. This means the middleman has no income from the nonfat dry milk position to pay the yogurt manufacturer on its hedged Class IV skim milk price gain and thus loses money on the transaction. The opposite would be true if a dairy farmer was hedging their Class IV skim milk price risk by taking a short position. In that case, the dairy farmer would lose \$903.53 and pay it to the middleman. However, the middleman, who if hedging their risk by selling a nonfat dry milk futures contract would not have a loss on its position and it would profit by the \$903.53.

It is not unusual for these types of transactions to be occurring into the second half of 2024 and into the first half of 2025, at this time. It is my belief that the uncertainty surrounding the changes is negatively impacting the use of these transactions in that time period.

The Class III to cheese and whey cross hedge will have similar issues as the Class IV to NFDM and butter cross hedge. The following table identifies similar issues as would occur with the Class IV to NFDM and butter cross hedge.

Current Class III Skim Factor Settlement			
	Hedge	Settlement	Change
Cheese Price	\$1.80	\$1.80	
Dry Whey Price	\$0.40	\$0.40	
Butter Price	\$2.50	\$2.50	
Protein Price	\$2.5221	\$2.5221	
Other Solids Price	\$0.2061	\$0.2061	
Skim Factor	9.0	9.0	
Skim Milk Price	\$ 9.03	\$ 9.03	\$0.00
Skim lbs to Hedge	193,000	193,000	
lbs Cheese/lb Skim Milk	0.0999	0.0999	
lbs Dry Whey/lb Skim Milk	0.0608	0.0608	
Cheese lbs to hedge	19,279	19,279	
Dry Whey lbs to hedge	11,729	11,729	
Cheese Hedge Adjustment			\$0.00
Dry Whey Hedge Adjustment			\$0.00
Class III Skim Hedge Adjustment			\$0.00

Differen Class III Skim Factors for Settlement			
	Hedge	Settlement	Change
Cheese Price	\$1.80	\$1.80	
Dry Whey Price	\$0.40	\$0.40	
Butter Price	\$2.50	\$2.50	
Protein price	\$2.5221	\$2.5221	
OS Price	\$0.2061	\$0.2061	
Skim Factor	9.0	9.4	
Skim Milk Price	\$9.03	\$9.79	\$0.76
Skim lbs to Hedge	193,000	193000	
lbs Cheese/lb Skim Milk	0.0999	0.1092	
lbs Dry Whey/lb Skim Milk	0.0608	0.0620	
Cheese lbs to hedge	19,279	21,082	
Dry Whey lbs to hedge	11,729	11,967	
Cheese Hedge Adjustment			\$0.00
Dry Whey Hedge Adjustment			\$0.00
Class III Skim Hedge Adjustment			\$1,459.35

To mitigate the disruption from a formula change, we request that the component factor changes to the pricing formulas be implemented 12 months after the implementation of the other changes in this proceeding.

Since we wish to set up a process that automatically updates these factors as component tests increase, we see these changes having a more regular impact on the pricing formulas. As we see it, we have not

changed these factors in 23 years, and by the time of the start date for any changes stemming from this hearing it will be more like a quarter century. From that vantage point, we do not see an issue waiting as little as 12 months for the next change to be implemented – especially if it avoids disruption to a marketing mechanism as highly used and widely embraced as hedging with dairy futures and options.

In conclusion, DFA and NMPF request a twelve-month delay in the implementation of Proposal 1. This is a balanced approach to changing a long-needed and unfortunately neglected aspect of the Federal order skim milk price formulas and that appropriately and importantly recognizes its impact on dairy risk management transactions utilized in the US dairy industry. The benefit of immediately implementing this proposal will be outweighed by the harm it causes dairy farmers and the broader US dairy industry. We believe our requested solution is exactly right for the US dairy industry and we urge its adoption.

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<sup>i</sup> Presently, settlements for the Dairy Revenue Protection Program are based on the Class III and IV price formulas in existence at the time the insurance transaction is accepted. This would mean a transaction that is executed for, say Q1 2025, would settle against the current formula's calculation even if USDA changed the formulas and made the formula changes effective in January 2025. However, this process has another issue – that being at some point, prior to the implementation of Federal Order formula changes, if any, the CME Group futures markets will begin trading to the expected calculations of the new formulas. Depending on the degree and types of the formula changes stemming from this hearing the Dairy Revenue Protection program settlement process could be supportive or disruptive to dairy farmer hedges. However, if there are more frequent make allowance changes, for instance every couple of years as some have suggested, the Dairy Revenue Protection settlement process would negatively impact hedging opportunities for dairy farmers using this program. Due to that, a potential change to the settlement process could occur which would result in a settlement to the announced price for the month as opposed to the price emanating from the formula in existence when the insurance was bound. If that were to occur, the component basis issue for the Dairy Revenue Protection program would be the same as described for futures and options hedging and handler forward contract hedging.