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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My name is Eric Erba. This testimony is presented in support of **Proposal 19: Update the Class I differentials throughout the United States,** as proposed by National Milk Producers Federation (NMPF). I am representing the Mideast Area of Dairy Farmers of America, Inc. (DFA), a Capper-Volstead, nationwide milk marketing and milk processing cooperative. DFA is comprised of seven milk marketing areas across the United States (US). DFA's Mideast Area supplies the raw milk and intermediate dairy product needs for pool and non-pool plants located Michigan, Ohio, and Indiana as well are parts of Kentucky, Pennsylvania, and West Virginia. As of June 2023, DFA's Mideast Area had 828 member farms located in the six aforementioned states, producing about 20 million pounds of milk per day.

I have been involved in the dairy industry for almost 30 years, starting with my graduate student days at Cornell University, studying under Dr. Andrew Novakovic. After completing my Ph.D. studies in Agricultural Economics, I worked as a dairy economist at the California Department of Food and Agriculture for ten years and then spent ten years at California Dairies, Inc., a large milk marketing and milk processing cooperative located in California, as a senior vice president and Chief Strategy Officer. In 2017, I moved to Ohio to work for DFA as the senior vice president of Strategy, Planning and Operations for its Mideast Area. In September 2022, I began assisting NMPF's federal milk marketing order (FMMO) task force, which ultimately developed Proposal 19 and the other proposals presented at this hearing.

Description of the Mideast Area

The geographic boundaries of the Mideast Area roughly match those of FMMO #33 and a small portion of FMMO #5. It is comprised of six states, in whole or in part – Michigan, Ohio, Indiana, Kentucky, Pennsylvania, and West Virginia. The principal milk supplies of the Mideast Area are found in central and northeast Michigan, northern Indiana, and northwestern Ohio. Class I plants are scattered throughout the Mideast Area but are typically close to large cities, e.g., Detroit, Grand Rapids, Indianapolis, Columbus, and Pittsburgh. The Mideast Area also has many small to medium-sized cheese plants in northeast Ohio, two large cheese plants in central and western Michigan, and one large cheese plant in eastern Pennsylvania. Milk powder plants and milk condensing plants are more numerous in north and west of the Mideast Area. Over the last 25 years, the market has become increasingly milk deficit to the south (toward Kentucky) and to the east (toward Pennsylvania).

Regions with established dairy industries tend to evolve steadily, and the Mideast Area is no exception. While the Mideast Area shares much of the same geography with FMMO #33 plus a small portion of FMMO #5, I will use FMMO #33 published statistics to describe the Mideast Area (Tables 1 and 2). Over the past 23 years, the Mideast Area has realized a 20 percent increase in milk produced but shipped from 66 percent fewer dairy farms. There are fewer supply and distributing plants operating in the Mideast Area. The average Class I utilization has decreased, as has the average producer price differential. The average uniform price has nearly doubled since 2000.

Table 1. Quantitative statistics comparing FMMO #33 in 2000 to FMMO #33 in 2022
(Annual averages calculated from FMMO #33 market statistics reports)

	Class 1 util	Producers	Per Farm Daily Prod (lbs.)	Annual Milk Prod. (mm lbs.)	Uniform Price	PPD
2000	47%	10,030	3,866	38.8	$ 12.08	$ 2.34
2022	37%	3,420	13,459	46.0	$ 23.45	$ 1.50

Table 2. Comparison of plants and cooperative numbers for FMMO #33 in 2000 and in 2022
(Annual averages calculated from FMMO #33 market statistics reports)

	Supply Plants	Dist'n Plants	Cooperatives
2000	8	57	10
2022	3	33	15

The Mideast Area milk supply has grown substantially since 2000, particularly in Michigan, northwestern Ohio, and northern Indiana. At the same time, the milk supply has decreased significantly along its southern and eastern edges. Even a casual observer can confirm that the milk sheds and milk processing locations are growing more distant from each other. Processing plants that were at one time located in the middle of significant milk sheds have found themselves with diminishing abilities to attract enough local milk to satisfy their daily, weekly, monthly and seasonal needs. Also, milk processing locations in the southern and eastern parts of the Mideast Area have expanded, compounding the problem of being able to attract an adequate supply of local milk. Within the last ten years, two grocery store chains have built Class I plants in Tipp City, Ohio (west central Ohio) and Ft. Wayne, Indiana (northeast Indiana). The addition of these plants may have contributed to the closure of two Michigan Class I plants in Evart and in Livonia. The Michigan plants were located closer to milk supplies, but the Tipp City, Ohio and Ft. Wayne, Indiana Class I plants are located more strategically, being closer to population centers. The implication with the more strategic positioning of the plants is that bulk raw milk must travel further from supply points to reach these plants. The mileage difference is significant – Tipp City is 350 miles south of Evart and 200 miles southwest of Livonia, and Ft. Wayne is 250 miles south of Evart and 165 miles southwest of Livonia.

Construction of a cultured dairy product plant in Wooster, Ohio (northeast Ohio), the expansion of a Class II processing plant in west central Ohio, and the expansion of a Class I plant in northeast Ohio have also contributed to the widening gap between the locations of milk supplies and locations of milk processing plants within the Mideast Area. The recent addition of a large cheese plant in central

Michigan (started production in October 2020) has provided a local outlet for Michigan milk, making it more challenging to encourage milk to leave the state and move long distances to demand points to the south and to the east.

Mideast Area Milk Hauling Costs

Cooperatives marketing milk throughout the Mideast Area are having to rely more and more on trucks to move milk from farms to milk buyers. There has been a stunning 69 percent increase in average milk hauling costs since 2006 in Ohio (Table 3). The Ohio-based milk hauling cost increase assumes a 50,000-pound load of milk and a 100-mile roundtrip route. Even with access to equipment capable of hauling much larger load sizes and taking advantage of associated cost efficiencies, Michigan producers have still realized a similar 69 percent increase in milk hauling costs since 2006 (Table 4). The Michigan-based milk hauling cost increase assumes 108,000-pound load of milk and a 100-mile roundtrip route. In both cases, increases in labor costs, fuel costs, and equipment costs have been the primary contributors to higher milk hauling costs.

Table 3. Milk hauling cost changes for Ohio milk assembly and delivery, 2006 to 2023
50,000 lb. load, 100-mile round trip; cost per hundredweight

Variable Costs	2006	2023	Difference	% Increase
Fuel	$0.0712	$0.1158	$0.0446	62.6%
Labor	$0.2800	$0.5040	$0.2240	80.0%
Tires	$0.0148	$0.0236	$0.0088	59.5%
Maintenance	$0.0281	$0.0481	$0.0200	71.2%
Total Variable	*$0.3941*	*$0.6915*	*$0.2974*	73.0%
Fixed Costs				
Equipment	$0.0925	$0.1547	$0.0622	67.2%
License &Tax	$0.0158	$0.0264	$0.0106	67.1%
Insurance	$0.0370	$0.0548	$0.0178	48.1%
Mgt. & Overhead	$0.0493	$0.0658	$0.0165	33.5%
Total Fixed	*$0.1946*	*$0.3017*	*$0.1071*	*55.0%*
COST PER HUNDREDWEIGHT	*$0.5887*	*$0.9932*	*$0.4045*	*68.7%*

Table 4. Milk hauling cost changes for Michigan milk assembly and delivery, 2006 to 2023
108,000 lb. load, 100-mile round trip; cost per hundredweight

Variable Costs	2006	2023	Difference	% Increase
Fuel	$0.0427	$0.0694	$0.0267	62.5%
Labor	$0.1426	$0.2528	$0.1102	77.3%
Tires	$0.0221	$0.0324	$0.0103	46.6%
Maintenance	$0.0192	$0.0349	$0.0157	81.8%
Total Variable	*$0.2266*	*$0.3895*	*$0.1629*	*71.9%*
Fixed Costs				
Equipment	$0.0757	$0.1198	$0.0441	58.3%
License & Tax	$0.0067	$0.0224	$0.0157	234.3%
Insurance	$0.0190	$0.0304	$0.0114	60.0%
Mgt. & Overhead	$0.0228	$0.0304	$0.0076	33.3%
Total Fixed	*$0.1242*	*$0.2030*	*$0.0788*	*63.4%*
COST PER HUNDREDWEIGHT	*$0.3508*	*$0.5925*	*$0.2417*	*68.9%*

The data for Tables 3 and 4 were derived from proprietary sources and publicly available milk hauling information. Calculations were performed using hauling rate software developed by the Upper Great Plains Transportation Institute (Agriculture Transport Center, North Dakota State University). Fuel costs represent the prices for the Midwest Region published by the US Department of Energy. Labor costs were derived from the US Department of Labor Statistics and were increased 25 percent to account for employee benefits. Tire costs were based on regional tire price quotes and contract milk hauler responses to a survey administered by DFA Mideast Area staff. Maintenance costs were also based on contract milk hauler survey responses and verified by leasing company estimates. Equipment costs were based on contract milk hauler survey responses and price quotes from equipment manufacturers, dealers and leasing companies. License costs and taxes were based on state and US Department of Transportation information, as well as costs reported by contract milk haulers. Insurance costs were based on contract milk hauler survey responses as well as quotes obtained by Mideast Area

insurance providers. Management and overhead costs were based on contract milk hauler survey responses.

Current Class I pricing zones in the Mideast Area are too large geographically and do not reflect today's cost of moving bulk milk, a cost which is borne by producers. When attempting to move milk to satisfy Class I customer ordering requirements, Class I differentials are the main regulatory tool available to incentivize milk movements. Clearly, they must be set at levels high enough to encourage milk to move, at times, significant distances. The current Class I differentials fail this basic test. Simply, there is not enough of a "slope" or price difference to encourage or to facilitate movement of milk from supply sources to receiving points. A good example of the lack of slope is the $1.80 per hundredweight pricing zone that stretches an incredible 550 miles from Marquette, Michigan to Huntington, Indiana. The implication is that the milk in Marquette, Michigan has the same relative value as milk in Huntington, Indiana. This makes no sense in today's milk marketing world. When Class I differentials are set too low, as they are currently, the responsibility and costs to supply milk to customers distant from milk sheds shifts to cooperatives and their farmer-owners.

Description of Process Used to Revise Mideast Area Class I Differentials

My colleague, Jeff Sims, provided an extensive recounting of the process used to establish Class I differentials across the US. I will reference that process briefly to segue to the process used in the Mideast Area specifically. The foundation of the process to assess Class I differentials came from work done by Drs. Mark Stephenson and Chuck Nicholson at the University of Wisconsin. Their dairy transshipment model, the United States Dairy Sector Simulator (USDSS), solves the problem of efficiently moving milk from supply points to processing plants and then moving finished dairy products to demand points. A secondary output generated by USDSS is a list of relative values for milk at specific locations. As such, the relative incremental value of milk for Class I usage can be used to develop a Class

I price surface covering the entire US. By request, Drs. Stephenson and Nicholson used May and October 2021 input data to generate the baseline of relative Class I values.

Because the group of milk marketers collaborating on the project were local as opposed to global experts, we needed a process to synchronize and harmonize our thoughts. We created a spine of nineteen strategically chosen anchor cities extending across the US; these anchor cities established the relative level from which regional subgroups could branch out and discuss increasing or decreasing the USDSS-generated Class I values using knowledge of specific local challenges.

We assigned relative Class I values for the nineteen anchor cities starting with Miami, Florida, then moving north to Orlando, Florida; Atlanta, Georgia; Asheville, North Carolina, and so forth. The Mideast Area was based off of values established for two anchor cities – Verona, Virginia and Charleston, West Virginia. Furthermore, there was general agreement that the Class I differential in western Michigan should be reasonably similar to the Class I differential established for Chicago, Illinois.

Using this framework, the Mideast Area subgroup developed its own anchor points, focusing on the larger cities initially. We used Charleston, West Virginia at $4.70 per hundredweight as the reference standard to preserve relative pricing relationships with the Northeast and Southeast subgroups. From Charleston, West Virginia we established values at other significant milk processing cities by moving north to Sharpsville, Pennsylvania; moving west to Winchester, Kentucky; moving southwest to Nashville, Tennessee; moving west to Indianapolis, Indiana; and moving far north to Grand Rapids, Michigan.

To begin the process of assigning values to the interior anchor points, we developed ten two-city pairings. As such the process allowed the subgroup to discuss and to debate the relative value differences and the rationale for the differences. The objective was consistent in each of the pairings, i.e., to determine what value difference was needed to encourage milk to move from milk supply areas located in the north and in the west of the Mideast Area to the areas of demand. Relative Class I value

differences were decided by an independent assessment of staff representing four NMPF member cooperatives marketing milk in the Mideast Area – DFA, Michigan Milk Producers Association, Foremost Farms USA, and Prairie Farms. After the individual assessments, differences were resolved by discussing specific milk marketing challenges faced as described below.

First pairing: Chicago, Illinois – Grand Rapids, Michigan (distance of 180 miles)

There is ample milk production around Chicago and around Grand Rapids, and there are no longer any fluid milk processing plants operating in the Chicago metropolitan area. All of the packaged product in the Chicago area is brought in from Grand Rapids, Michigan; Cedarburg, Wisconsin; Rockford, Illinois; or Dubuque, Iowa. To maintain Class I value continuity, the Class I differential in Chicago should be aligned with the prices at these other locations supplying packaged milk to Chicago. The recommendation was to set the Chicago Class I differential (Cook County) at $3.10 per hundredweight and the Grand Rapids Class I differential (Kent County) at $3.10 per hundredweight.

Second pairing: Grand Rapids, Michigan – Marquette, Michigan (distance of 400 miles)

Marquette has a small population and an adequate milk supply to cover the needs of Michigan's Upper Peninsula. Milk does not need to move far in the Upper Peninsula to get to the local Class I plant, and Upper Peninsula milk tends to stay local; it would not typically move south to other processing locations in Michigan. The recommendation is to set the Grand Rapids Class I differential (Kent County) at $3.10 per hundredweight and the Marquette Class I differential (Marquette County) at $2.80 per hundredweight. The relative difference of $0.30 per hundredweight places more value on the location further south, which is closer to a larger population center and closer to more processing plants.

Third pairing: Grand Rapids, Michigan – Elkhart, Indiana (distance of 100 miles)

Only a short distance separates the two locations, and milk production is ample around both cities. There is no need to encourage milk to move between the two locations; milk should have the same relative value at Grand Rapids and at Elkhart. The recommendation is to set the Grand Rapids

Class I differential (Kent County) at $3.10 per hundredweight and Elkhart Class I differential (Elkhart County) at $3.10 per hundredweight.

Fourth pairing: Elkhart, Indiana – Indianapolis, Indiana (distance of 160 miles)

Indianapolis is a large metropolitan area with a large population. There are several Class I plants in and around the Indianapolis metropolitan area. However, there is not much local milk near Indianapolis so milk from supply locations to the north needs to be encouraged to move south toward Indianapolis. The recommendation is to set the Elkhart Class I differential (Elkhart County) at $3.10 per hundredweight and the Indianapolis Class I differential (Marion County) at $3.70 per hundredweight. The difference of $0.60 per hundredweight places more value on the location further south and east and located more distant from the milk supply.

Fifth pairing: Indianapolis, Indiana – Columbus, Ohio (distance of 175 miles)

Both cities have significant populations, but neither city is close to a milk supply. Logistically, it is easier to move milk to Indianapolis from northern Indiana than to get milk into Columbus. The natural flow of milk is from north to south and from west to east. However, milk still needs financial encouragement to move, especially west to east. The recommendation is to set the Indianapolis Class I differential (Marion County) at $3.70 per hundredweight and the Columbus Class I differential (Franklin County) at $4.00 per hundredweight. The difference of $0.30 per hundredweight places more value on the locations further east.

Sixth pairing: Columbus, Ohio – Cleveland, Ohio (distance of 150 miles)

Logistically, it is relatively easy to get milk from Michigan into Cleveland via I-90. The mileage is not insignificant, but they are relatively easy miles on interstate highways. The Cleveland Class I differential should be lower than Columbus and about the same as Indianapolis. The recommendation is to set the Columbus Class I differential (Franklin County) at $4.00 per hundredweight and the Cleveland

Class I differential (Cuyahoga County) at $3.70 per hundredweight. The difference of $0.30 per hundredweight places more value on the location further south.

Seventh pairing: Columbus, Ohio – Sharpsville, Pennsylvania (distance of 195 miles)

Western Pennsylvania has a large cheese plant and a large Class I plant within 50 miles of each other with little local supply. Being a milk deficit area already and becoming more milk deficit each year, milk needs to move into the area from supply points located to the west. Milk needs financial encouragement to move to the Class I plant instead of moving to the local cheese plant. Milk haulers are challenged by long distance hauls from the Mideast Area's supply locations and are reluctant to move milk from Michigan or northern Indiana that far to the east because of the strain on drivers, who are increasingly difficult to hire and to retain. There are also concerns about violating Department of Transportation driver hours of operation regulations. The best opportunity to get milk to the east is to stairstep milk by pulling milk from eastern Ohio and backfilling with milk from western Ohio, northern Indiana or from Michigan. Eastern Ohio is already milk deficit because of the abundance of milk processing plants in the region; both Columbus and Sharpsville have similar challenges for milk movements. As such, their Class I differentials should be aligned. The recommendation is to set the Columbus Class I differential (Franklin County) at $4.00 per hundredweight and the Sharpsville Class I differential (Mercer County) at $4.00 per hundredweight.

Eighth pairing: Columbus, Ohio – Cincinnati, Ohio (distance of 110 miles)

There is not much milk in southern Ohio or southern Indiana. Milk does not move north out of Kentucky to Cincinnati because Kentucky is already milk deficit. To service customers consistently, milk must move from the northern part of the Mideast Area to the south. Both locations have similar challenges for milk movements. Once milk gets to Columbus, it is relatively easy to get the milk to Cincinnati on I-71. The recommendation is to set the Columbus Class I differential (Franklin County) at

$4.00 per hundredweight and the Cincinnati Class I differential (Hamilton County) at $4.00 per hundredweight.

Ninth pairing: Cincinnati, Ohio – Winchester, Kentucky (distance of 100 miles)

There is not much local supply in central Kentucky; it is a milk deficit state. Most of the local Kentucky milk is shipped to a large Class I plant in Winchester, Kentucky. However, there is not enough nearby milk to supply that plant's milk needs. Logistically, the distance and driver time are limiting factors to get milk to move that far south in the Mideast Area. Also, terrain and road quality are not as conducive to hauling milk in Kentucky. There must be incentives in place to encourage milk to move out of northern Indiana, northwestern Ohio, or Michigan and into Kentucky. The recommendation is to set the Cincinnati Class I differential (Hamilton County) at $4.00 per hundredweight and the Winchester Class I differential (Clark County) at $4.60 per hundredweight. The difference of $0.60 per hundredweight places more value on the location further south.

Tenth pairing: Cincinnati, Ohio – Charleston, West Virginia (distance of 210 miles)

West Virginia is a milk deficit area that is getting more deficit as dairy farms exit the dairy business. To supply customers, milk must move from northern and western supply locations. Terrain and road quality are not as conducive to hauling milk in West Virginia. The best opportunity to get milk moved to the east is to stairstep milk by pulling milk from eastern Ohio and backfilling with milk from northwestern Ohio, northern Indiana or Michigan. The recommendation is to set the Cincinnati Class I differential (Hamilton County) at $4.00 per hundredweight and the Charleston Class I differential (Kanawaha County) at $4.70 per hundredweight. The difference of $0.70 per hundredweight places more value on the location further east.

After the relative value differences among the ten two-city pairings were established, we expanded the analysis to include additional cities. The 29 cities selected represent locations of pool distributing plants and major milk processing plants categorized as Class I, Class II, Class III, or Class IV

(Table 5). Chicago was included as reference point among the 29 cities but is not a city located within the Mideast Area. Referencing Table 5, the lowest proposed Class I differential is $2.80 per hundredweight in Marquette County, Michigan, and the highest is found in Laurel County, Kentucky at $4.85 per hundredweight.

Table 5. Comparison of current and proposed Class I differentials in 29 cities relevant to the Mideast Area

City	County	State	Current Differential	Proposed Differential	Difference
Chicago	Cook	Illinois	$1.80	$3.20	$1.40
Marquette	Marquette	Michigan	$1.80	$2.80	$1.00
Grand Rapids	Kent	Michigan	$1.80	$3.10	$1.30
Remus	Mecosta	Michigan	$1.80	$3.00	$1.20
Allendale	Ottawa	Michigan	$1.80	$3.10	$1.30
St. John	Clinton	Michigan	$1.80	$3.10	$1.30
Cass City	Tuscola	Michigan	$1.80	$3.00	$1.20
Detroit	Wayne	Michigan	$1.80	$3.30	$1.50
Livonia	Wayne	Michigan	$1.80	$3.30	$1.50
Elkhart	Elkhart	Indiana	$1.80	$3.10	$1.30
Goshen	Elkhart	Indiana	$1.80	$3.10	$1.30
Huntington	Huntington	Indiana	$1.80	$3.30	$1.50
Indianapolis	Marion	Indiana	$2.00	$3.70	$1.70
Richmond	Wayne	Indiana	$2.00	$3.70	$1.70
Canton	Stark	Ohio	$2.00	$3.70	$1.70
Dayton	Montgomery	Ohio	$2.00	$3.70	$1.70
Columbus	Franklin	Ohio	$2.00	$4.00	$2.00
Cleveland	Cuyahoga	Ohio	$2.00	$3.70	$1.70
Cincinnati	Hamilton	Ohio	$2.20	$4.00	$1.80
Springfield	Clark	Ohio	$2.00	$4.00	$2.00
Tipp City	Miami	Ohio	$2.00	$3.70	$1.70
Orrville	Wayne	Ohio	$2.00	$3.70	$1.70
Newark	Licking	Ohio	$2.00	$4.00	$2.00
Sharpsville	Mercer	Pennsylvania	$2.10	$4.00	$1.90
Uniontown	Fayette	Pennsylvania	$2.30	$4.40	$2.10
Winchester	Clark	Kentucky	$2.60	$4.60	$2.00
Somerset	Pulaski	Kentucky	$2.90	$4.85	$1.95
London	Laurel	Kentucky	$2.90	$4.85	$1.95
Charleston	Kanawha	West Virginia	$2.20	$4.70	$2.50
Averages:			***$2.04***	***$3.69***	***$1.65***

On average, the NMPF Class I differentials proposed for the 29 cities are $1.65 per hundredweight higher than the current values. Qualitatively, Table 5 reveals the NMPF proposal recommends lower Class I differentials in Michigan than obtained from the USDSS model output. We also see that Class I differentials grow increasingly larger when moving to the south and to the east, i.e., higher Class I differentials are found in Ohio, Indiana, central Kentucky, and western Pennsylvania. In other words, the NMPF proposal provides a greater slope or additional financial incentives to encourage milk to move south and east out of the milk surplus regions located in northern Indiana and in Michigan.

The Mideast Area shares touchpoints with the Midwest, Southeast and Northeast regions, and some additional discussions with representatives from those regions were necessary to ensure the seams where the regions join were consistent. Comparing notes with other cooperative representatives, we identified areas within the Mideast where consolidating two or more pricing zones made sense. For example, the original exercise left a small pocket of higher Class I differentials around Columbus, Ohio which was later consolidated with an adjacent geographically larger zone that dovetailed well with the zones proposed for the Northeast region. Similarly, differences for counties along the seams were resolved through discussions with staff representing the Northeast, Southeast, and Midwest Areas.

To finalize the Class I differentials proposed for the Mideast Area, some fine tuning was necessary after adjustments were made after consulting with cooperative staff representing surrounding regions. Because input and suggestions were taken from many sources and resulting compromises were made to develop an explainable and contiguous Class I differential surface, a final check seemed like a logical next step before concluding the process. Pool plants reported for FMMOs #33 and #5 in 2022 were plotted on a map of the proposed Class I differentials to determine if any inconsistencies persisted. A few such inconsistencies were identified, and I will detail the specifics of two of them. However, the process involved to resolve the pricing inconsistencies was the same for each instance encountered.

First, in western Pennsylvania, there are several Class I plants around the Pittsburgh area. Some of them compete for business in that market, but not all were in the same pricing zone.

- A Class I plant located in Mercer County was in the $4.00 per hundredweight zone
- A Class I plant located in Butler County was in the $4.20 per hundredweight zone
- A Class I plant located in Fayette County, and two Class I plants located in Allegheny County were in the $4.40 per hundredweight zone

The solution was to move Allegheny County (where Pittsburgh is located) to the $4.20 per hundredweight zone because plants located in Allegheny County compete for Pittsburgh area business. The plant located in Mercer County is more distant from the Pittsburgh market and does not compete directly with the other smaller independently owned Class I plants. The same sentiment applies to the plant located in Fayette County, as it is located further south of the Pittsburgh market.

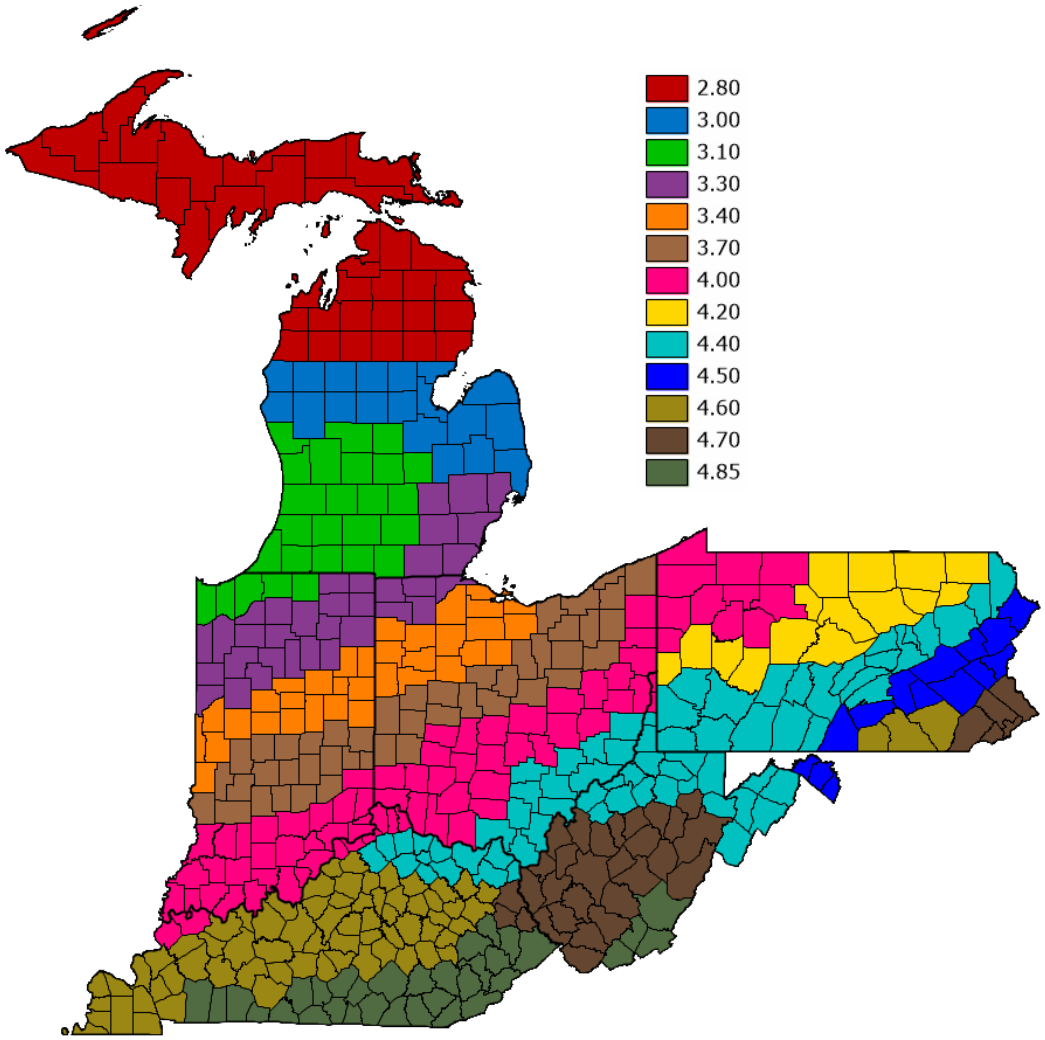
The second case involves Class I plants in southwest Ohio and in eastern Indiana.

- A Class I plant located in Clark County, Ohio was in the $4.00 per hundredweight zone
- A multi-use plant located in Wayne County, Indiana was in the $3.70 per hundredweight zone
- A Class I plant located in Miami County, Ohio was in the $3.70 per hundredweight zone
- A Class I plant located in Marion County, Indiana was in the $3.70 per hundredweight zone

Again, there are several plants within a relatively small geography that are likely competing for the same business around Columbus, Dayton and Cincinnati. The solution to equalize raw product costs was to move Clark County, Ohio to the $3.70 per hundredweight zone.

Figure 1 shows the NMPF proposal for Class I differentials among the counties in the six states comprising the Mideast Area. Compared to current Class I differentials (Figure 2), NMPF proposes higher Class I differentials in the Mideast Area as well as more zones or bands of differentials. The zones or bands tend to be oriented southwest to northeast, reflecting the increase in relative location value of milk when moving to the south and to the east. Figure 3 reveals the differences by county of the NMPF

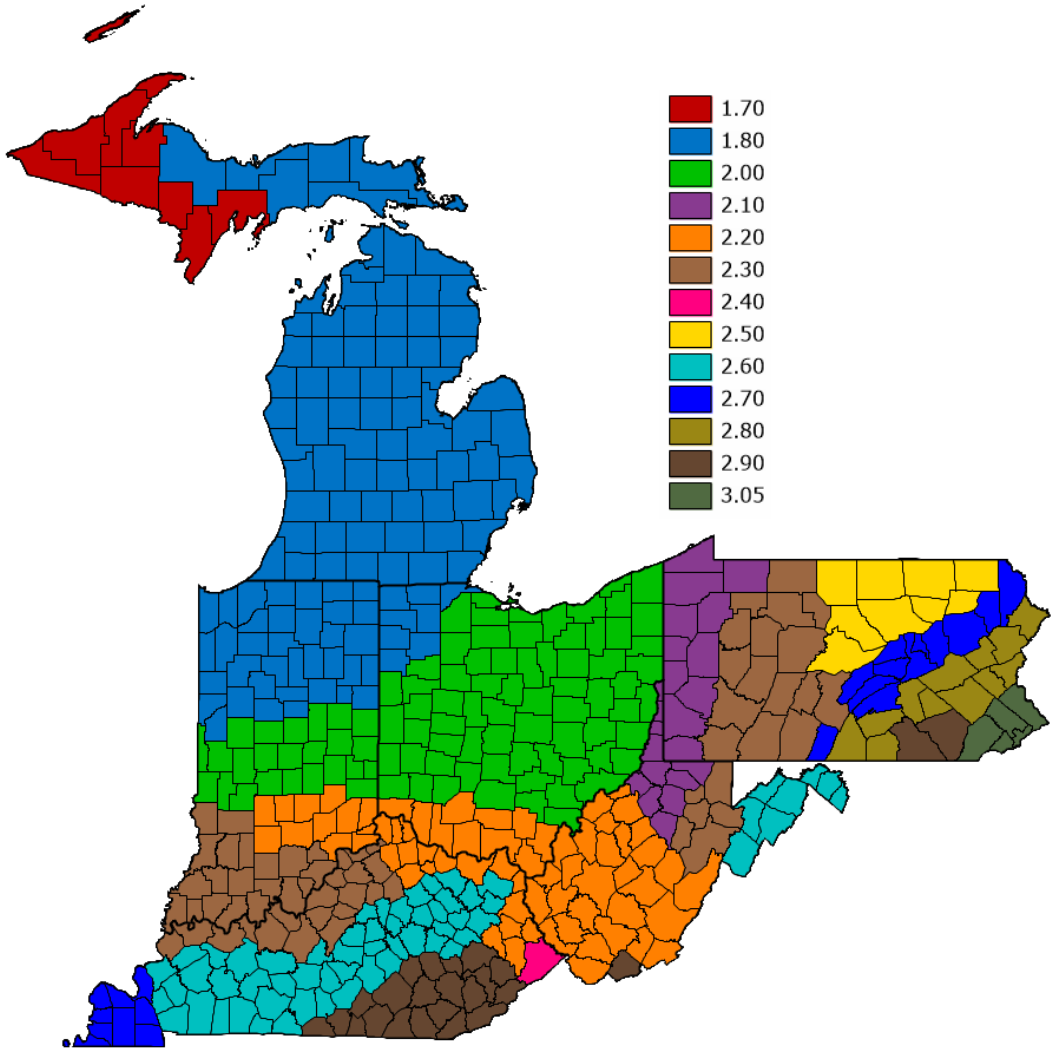
Figure 1. NMPF proposed Class I differentials for six states in the Mideast Area



proposed Class I differentials and the current Class I differentials. In addition to more pricing zones and higher values at each location, the NMPF proposal for the Mideast Area also adds more of a pricing slope by placing a higher value on the locations to the south and to the east than the current Class I differentials. The increased slope addresses the difficulties of moving milk from areas of surplus milk supplies, i.e., Michigan, northern Indiana, and northwestern Ohio, to the milk deficit areas located to the south and to the east.

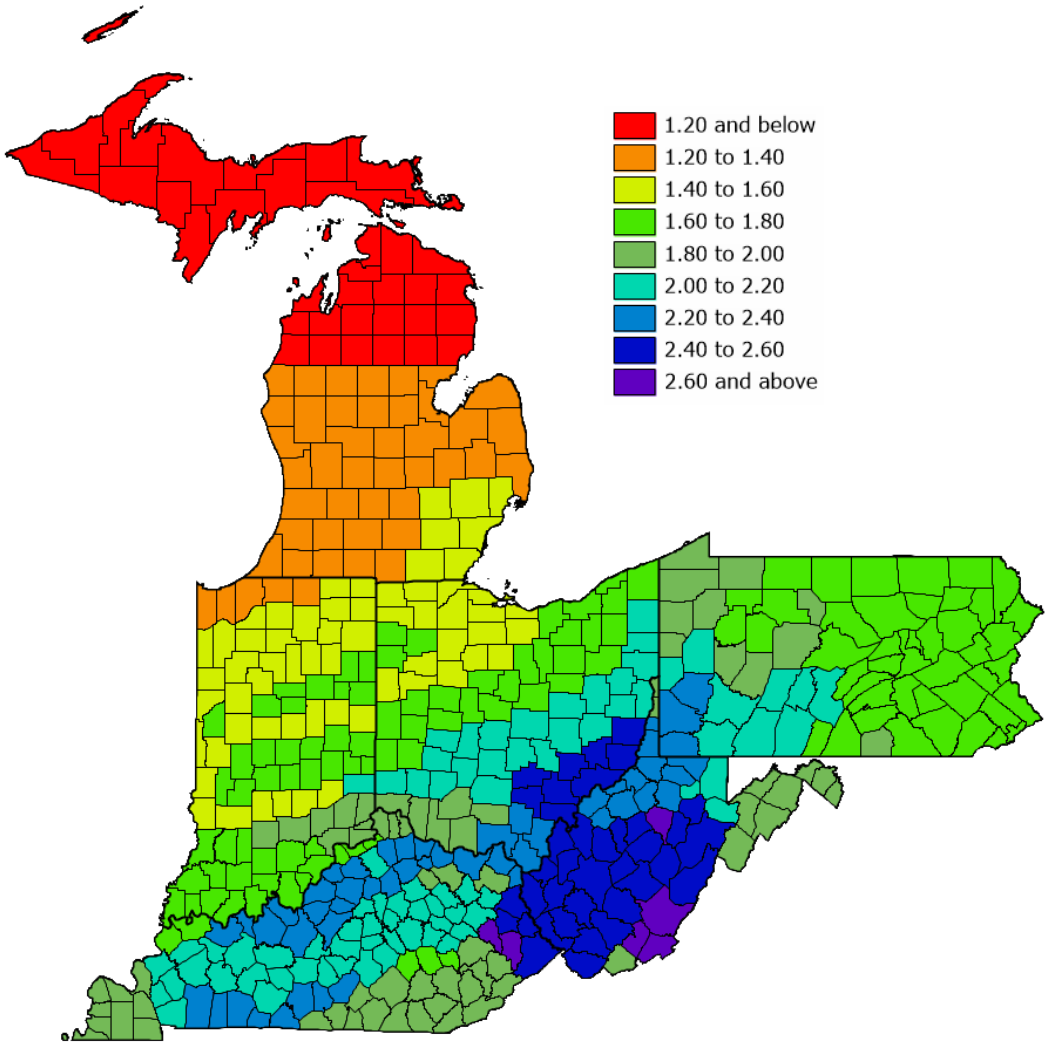
The NMPF proposal for Class I differentials in the Mideast Area is mostly in line with the results obtained from the USDSS. There are 406 counties contained in FMMO #33 and in the north central

Figure 2. Current Class I differentials for six states in the Mideast Area



portion of FMMO #5 (i.e., central Kentucky and southern Indiana). In the NMPF proposal for the Mideast Area, just 18 counties (four percent) are more than $0.25 per hundredweight higher than what is suggested by the USDSS; those counties are found in central West Virginia, southeast Ohio, and central Kentucky. The largest upside departure from the USDSS results is found in central Kentucky at +$0.40 per hundredweight Conversely, there are 97 counties (24 percent) that are more than $0.25 per hundredweight lower than the USDSS results. These are found primarily in northern Michigan, northern Indiana, and northern Ohio. The largest downside departure from the USDSS results is found in northern

Figure 3. Difference of NMPF proposed Class I differentials and current Class I differentials for six states in the Mideast Area



Michigan at -$0.70 per hundredweight. Across the entire Mideast Area, the NMPF proposal averages $0.10 per hundredweight compared to the USDSS output.

Justifying the base price for Class I differentials

During Federal Order Reform, USDA cited nine performance criteria to evaluate Class I pricing options (*Federal Register, Vol. 54, No. 63/Friday April 2, 1999; page 16109-16112*). The nine criteria were based upon regulatory objectives and requirements of the Agricultural Marketing Agreement Act of 1937. One of the criteria cited by USDA was to recognize the quality value of milk, as Grade A milk is

required for fluid use. USDA further noted that dairy farms incur costs of obtaining and maintaining Grade A licenses and those costs need to be reflected in Class I prices. At the time of statement, USDA determined that the appropriate minimum value for Class I differentials should be $1.60 per hundredweight.

> "Option 1A recognizes the quality value (Grade A) of milk through the addition of a differential that begins at $1.60 per hundredweight in the base zone. The $1.60 per hundredweight differential level is used because it would ensure a sufficient supply of milk for fluid uses in the most surplus regions."

Similarly, in the Proposed Rules published during Federal Order Reform, USDA described the costs considered in the build-up to the $1.60 per hundredweight base Class I differential (*Federal Register, Vol. 63, No. 20/Friday January 30, 1998; page 4907-4909).* In summary,

Maintenance cost associated with Grade A license for dairy farm	$0.40 per hundredweight
Cost of balancing for Class I plants	$0.60 per hundredweight
Incentives to encourage deliveries to Class I plants	$0.60 per hundredweight
Total	*$1.60* per hundredweight

While USDA recognized there is a cost associated with the conversion from a Grade B dairy to a Grade A dairy, those conversion costs were not considered; only the cost to the dairy of maintaining its Grade A license was considered. USDA stated,

> "…a portion of the Class I differential must reflect the value associated with maintaining Grade A milk supplies since this is the only milk available for fluid use. Originally, the differential needed to be established at a level that would encourage conversion from Grade B to Grade A status. With approximately 96 percent of all milk already converted to Grade A, this value now needs to reflect the cost of maintaining Grade A milk supplies."

USDA further stated that it is difficult to quantify the cost of maintaining the Grade A status on a dairy farm, although USDA did cite a number of requirements that would need to be met, including an approved water system, specific facility construction and plumbing requirements, specific equipment, and appearance of facility. Perhaps a reason USDA had difficulty specifying a dairy farm's maintenance cost is that the detailed list of costs encountered while converting from Grade B to Grade A was omitted, and some of those conversion costs would be on-going costs that could be used to estimate a maintenance cost. For this reason, I want to revisit the issue of cost of converting a Grade B dairy to a Grade A.

Cost of converting a Grade B dairy farm to a Grade A dairy farm

This analysis tracks the increased sanitary requirements for a Grade A dairy facility as imposed by state health departments and the Food and Drug Administration's Grade A Pasteurized Milk Ordinance (PMO) and estimates a cost of compliance to convert the facility from Grade B to Grade A. The PMO sets forth the specific requirements that must be met to attain a Grade A license for dairy farms (PMO – Items 1r. through 19r.). Generally speaking, the infrastructure for a Grade A facility, especially the milk room, milking parlor, vestibules, storage rooms, etc. must be maintained at a higher sanitary standard. The Grade A facility should provide a clean, well-lit, well-ventilated environment in good repair.

The following additional points summarize some of the main improvements distinguishing a Grade A facility from a Grade B facility:

- Water supply – Grade A standards have specific requirements for locating and maintaining a water well
- Waste storage – Liquid and solid wastes must be properly disposed or stored which generally means the expense of building a fixed holding system, e.g., lagoon, plus the associated equipment and labor to manage waste daily

- Cow yard and cattle housing areas – structures should be designed to maintain cleanliness, which will require associated equipment and daily labor
- Grade A milking equipment – equipment is held to a higher standard and bears an associated cost
- Toilet access – Grade A dairies are required to have a clean, functional conveniently located toilet facility which would include a septic tank/field line system or local environmental equivalent
- Sanitation – increased milk parlor and equipment sanitation is needed to meet Grade A standards
- Milk hauling – increased frequency of milk pickups are needed to meet Grade A standards
- Energy usage – milk must be maintained at 45 degrees or less as opposed to 50 degrees for Grade B milk, increased use of fans to ventilate cow barns, increased usage of pumps for manure storage in lagoon
- Permits and inspection fees – some states require additional permits and inspection fees for Grade A dairies

To put the cost of conversion from a Grade B facility to a Grade A facility, I will use an example dairy of representative size. Grade B dairies tend to be smaller so for this example, I will assume 100 cow dairy farm, producing an average of 70 pounds of milk per cow per day. A dairy of that size with the specified daily production would produce 2.55 million pounds per year. I will describe each of the required improvements and estimate an associated cost of compliance. Costs of compliance were estimated using input from cooperative field representatives in the Mideast Area, a 2009 document published by the Oregon Department of Revenue on cost factors for farm buildings (Exhibit NMPF – 38A), and a 2015 University of Wisconsin Extension publication summarizing the costs involved with modernizing a dairy farm (Exhibit NMPF – 38B).

- Item 1: Remodel or build milk house and milking parlor
    - Estimate $250,000 for a simple structure meeting PMO requirements for impervious surfaces, lighting, air circulation, animal distribution, etc.
        - Include a double-four herringbone parlor arrangement
    - 20-year depreciation
    - 10% salvage which works out to $0.44 per hundredweight on this size farm
- Item 2: Install toilet facility
    - Estimate $15,000 with groundwork, plumbing, supplies, and labor
    - 20-year depreciation which works out to $0.03 per hundredweight on this size farm
- Item 3: Construct liquid/solid waste holding structure (lagoon) with clay-liner
    - Estimate $100,000 in design, permitting and construction costs
    - 20-year depreciation which works out to $0.20 per hundredweight on this size farm
- Item 4: Develop a Grade A water supply
    - Estimate $25,000 for permitting, drilling, grading land, construction around well-head, and water testing
    - 20-year depreciation which works out to $0.05 per hundredweight for this size farm
- Item 5: Acquire, install and plumb a stainless steel 2,000-gallon bulk milk tank
    - Estimate $35,000 purchase price
    - 20-year depreciation
    - 25% salvage value which works out to $0.05 per hundredweight for this size farm
- Item 6: Construct a cow yard and cattle housing area – fully equipped free stall barn with fans, waterers, scrape alleys, etc.
    - Estimate $300,000 to design, permit and construct a 100-cow stall barn @ $300 per stall
    - 20-year depreciation
    - 10% salvage value which works out to $0.53 per hundredweight for this size farm
- Item 7: Cost of interest on construction/facility remodel loan
    - Loan amount of $725,000 for milk house, parlor, cow yard and cow housing area, lagoon, water supply, bulk tank, and toilet
    - 6% interest rate
    - 20-year repayment period
    - $26,080 per year which works out to $1.02 per hundredweight for this size farm
- Item 8: Regulatory inspections to ensure Grade A standards are being met

- Responsible for paying Market Administrator fees
- $0.05 per hundredweight for this size farm

- Item 9: Increased electricity usage for fans, bulk tank refrigeration, manure pumps for lagoon
  - $0.15 per hundredweight for this size farm

- Item 10: Increase in transportation costs
  - Increase from pickups every 3 days to every other day to be Grade A compliant
  - Assume a $25 stop charge
  - Increase frequency of pickups by 50 percent
    - For this size farm, increase from 10 pickups per month to 15 pickups to per month
    - $125 increase per month
  - $0.06 per hundredweight for this size farm

Item 11: Increased chemical usage and more frequent rubber part replacement to maintain Grade A milk quality standards

- More frequent system and facility washings and cleanings
- High quality soap, acid, sanitizer, and teat dip
- More frequent replacement of all rubber gaskets, hoses, and inflations
- $0.25 per hundredweight for chemicals
- $0.10 per hundredweight for rubber part replacement

Total cost of conversion from Grade B dairy farm to Grade A dairy farm is $2.93 per hundredweight

Cost of maintaining Grade A license for a dairy farm

Related to the analysis of determining the cost of converting a Grade B dairy farm to a Grade A dairy farm is the cost of maintaining a Grade A license. In other words, after a dairy is remodeled to meet the PMO requirements for a Grade A facility, what does it cost to maintain the Grade A license? It is fair to say that all the variable costs cited in the analysis would continue to apply. These would include paying for inspections ($0.05 per hundredweight), increased electricity usage ($0.15 per hundredweight), increased frequency of hauling ($0.06 per hundredweight), increased chemical usage for sanitation ($0.25 per hundredweight), and increased frequency of replacing rubber parts ($0.10 per hundredweight). In addition, the maintenance cost of the physical assets necessary for the dairy farm to meet the Grade A standards should also be included. Estimated maintenance costs for physical assets

such as barns and other farm structures range between two percent and five percent of replacement cost. Using construction costs as a proxy for replacement costs and using three percent as the maintenance cost, the cost to maintain the physical structures cited in the cost of conversion analysis amounts to $21,750 per year or $0.85 per hundredweight. As such, the estimated ongoing cost of maintaining a Grade A license is $1.46 per hundredweight. This does not include the non-cash expense of depreciation, which represents about $1.30 per hundredweight.

Concluding comments

For more than 20 years, Class I differentials in the Mideast Area have been unchanged. During that time, Michigan has emerged as the leading reserve supply for the Mideast Area, and at times, Michigan has also been the reserve supply for states in the southeastern US. At the same time that Michigan's milk production capacity has been evolving, traditional milk supply points within the Mideast Area, such as eastern Ohio, southern Ohio, western Pennsylvania, and central Kentucky, have been losing and continue to lose milk production capacity, a result of dairy farms exiting the business.

The US dairy industry has been built around the ability to haul milk when and where it is needed, and the Mideast Area has followed that same pattern. Milk must move from the north to the south, and from the west to east to meet customer raw milk needs. As milk hauling costs have increased for a variety of reasons, the need for greater financial incentives to encourage milk to move to Class I plants has also increased. Current supply and demand conditions in the Mideast Area and in surrounding areas justify updates to the current Class I differentials.

DFA expresses its appreciation to the Secretary of Agriculture and the Dairy Division for holding this hearing to consider these important proposals. We encourage the Secretary to recommend the adoption of Proposal 19, update Class I differentials throughout the US.