MONTANA BOARD OF MILK CONTROL

MARKET ADMINISTRATION & INDUSTRY REPORT

Fiscal Year 2022
ENDED JUNE 30, 2022

DECEMBER 2022

MONTANA DEPARTMENT OF LIVESTOCK

MILK CONTROL PROGRAM

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MONTANA BOARD OF MILK CONTROL

MARKET ADMINISTRATION & INDUSTRY REPORT

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EXECUTIVE SUMMARY

The purpose of the Milk Control Program (program) collecting and reporting information on Montana's milk industry is to provide insights and objective quantitative information to the Board of Milk Control (board) to assist it in monitoring and understanding the industry to support policy development and deliberations.

The Milk Control Act (act) (Title 81, chapter 23, MCA) requires the board to supervise, regulate, and control the milk industry. The act requires the Montana Department of Livestock to assist in investigating matters, to bring proceedings to enforce orders of the board, and to provide staff to assist in technical, enforcement, and regulatory activities.

The act includes specific provisions enacted to support its policy goals, including:

- mandatory licensing of businesses that produce or distribute milk in Montana
- assessments to fund the administration and enforcement of the act
- establishment of minimum prices to be paid for raw milk according to how the milk is utilized, referencing federal milk classifications
- authorization for a quota plan and a statewide pooling arrangement
- governance of fair-trade practices pertaining to the transaction of business amount licensees and the general public
- expression of legislative intent that milk produced outside of state is subject to the act the instant that the milk is subject to regulation by the state; and
- statement that the act does not supersede or interfere with federal law regulating interstate commerce.

Significant activity transpired for the board, the producer committee, and the program in Fiscal Year 2022.

The board held five public meetings (September 29, 2021; October 27,2021; November 30, 2021; April 12, 2022; and June 21, 2022). The meetings were held via Zoom due to the COVID-19 pandemic. The board

- supported efforts of the Department of Livestock and Governor's Office to communicate with USDA and Montana's congressional delegation to urge those bodies to include Montana dairy farms in the USDA Pandemic Market Volatility Assistance Program (PMVAP), the program that states that have a Federal Milk Marketing Order are covered by to receive monetary assistance that's been appropriated for this purpose. Montana is not in a Federal Milk Marketing Order
- completed Governor's red tape review implementation of all ARM's and MCA's related to Milk Control
- accepted the performance audit performed by the Legislative Audit Division on the program and board and proposed to review the audit for consideration of future rule making
- accepted the Fiscal Year 2021 Milk Control Bureau annual report
- approved the Fiscal Year 2023 milk assessment rate reduction of 9.52% proposed by the Milk Control Program

- approved an administrative rule change for Montana Correctional Enterprises to no longer be a pool plant as they are no longer selling milk to Darigold (a pool plant);
- discussed the resignation of Darryl Ford, Milk Control Bureau Chief, effective December 3, 2021
- accepted Deputy Executive Office Brian Simonson's Milk Control Bureau staffing proposal
- discussed the producer committee appointment process for Calendar Years 2022 -2023
- discussed proposals to reduce quota transfer amounts by a forfeit amount of 10% and not reallocate forfeited quota annually.

The producer committee met five times via conference call and approved eight quota transfer requests.

The majority of milk produced in Montana is utilized as fluid milk consumed in Montana. In Fiscal Year 2022, Montanans consumed an estimated 21.6 million gallons of fluid milk, 71% of which originated from Montana bottling plants using milk supplied by Montana dairy farmers. The next largest use of Montana-origin milk is ice cream type products, of which an estimated 4.95 million gallons was consumed in Montana, 15.8% of which was manufactured by Montana plants. Approximately 4.6% of Class II fluid cream products (half and half, cream, creamers, and aerosol whip) consumed in Montana originated from Montana plants. Montana plants account for only small percentages of all other dairy products consumed by Montanans.

The program began preparing dairy consumption estimates beginning with Fiscal Year 2015. The estimated consumption of Class I fluid milk products in Montana since Fiscal Year 2015 is relatively flat (0.6% average annual increase). Fiscal Year 2022 saw a 2.45% increase in the consumption of Class I milk products over Fiscal Year 2021. Nationally, since 2010, annual per capita fluid milk consumption experienced an annual decline of over 2% in all but three years. Montana's population growth rate of approximately 1% per year has offset some of the impact of declining per capita fluid milk consumption that likely is occurring in Montana. The percentage of Class I milk consumed in Montana that originated in Montana plants in Fiscal Year 2022 was 12% lower than Fiscal Year 2015; the percentage was 1.3% lower in Fiscal Year 2022 than in Fiscal Year 2021. USDA Economic Research Service data shows that, for the last decade, consumption of whole milk has trended higher, and consumption of skim milk has trended lower. Information received by the program from Montana plants reflects this trend. Montana consumption of fluid cream type products increased by 7.5% annually (on average) since Fiscal Year 2015. Estimates indicate that Montana consumption of ice cream type products decreased by 11.2% in Fiscal Year 2022 and 22.2% in Fiscal Year 2021 following a 6.1% annual increase (on average) between Fiscal Years 2018 - 2020. Montana consumption of yogurt increased by 0.9% in Fiscal Year 2022 following a 1.8% annual decrease (on average) in Fiscal Years 2018 - 2021 after double digit increases in Fiscal Years 2016 and 2017. Butter consumption increased by 4.7% in Fiscal Year 2022 following a 0.1% decrease in fiscal year 2021 and 8.2% annual increases (on average) between Fiscal Years 2017 - 2020. Tourism may impact some of Montana's dairy consumption trends for products such as butter, fluid cream, and ice cream that are often served by or used as ingredients by food service establishments

In Fiscal Year 2022, Montana dairies produced approximately 226 million pounds of milk, down 14.7 million pounds from Fiscal Year 2021. Montana dairies produced 294 million pounds of milk in

2000. Montana milk production since 2000 has ranged from 226 million to 298 million pounds per year, averaging roughly 278 million pounds per year. Milk production has been relatively stable despite a significant decline in the number of dairies (from 144 licensed dairies in Fiscal Year 2000 to 46 licensed dairies in Fiscal Year 2022) and a decline in the size of the milking herd (from 13,216 cows in fiscal year 2000 to 8,649 cows in fiscal year 2022). The average number of cows being milked per dairy has increased from 92 cows per dairy in Fiscal Year 2000 to 188 cows per dairy in Fiscal Year 2022.

Montana exported 96.7 million pounds of Class I packaged fluid milk products *(compared to imports of 45.6 million milk-equivalent pounds of Class I packaged fluid milk products)* and exported 2.8 million pounds of bulk raw milk *(compared to imports of 34.1 million pounds of bulk raw milk)*. A provision in the Act (§ 81-23-302(10), MCA) specifies that distributors with processing facilities in the state shall *"whenever possible, purchase milk from Montana producers for the processing of products to be sold in this state if milk is available from Montana producers at the price set by the board."* The bulk milk imports are primarily attributed to Meadow Gold – Billings purchasing milk from Wyoming producers, processing the milk, and distributing it to the Wyoming market.

Montana's pool marketing system enables producers to receive uniform milk prices (for milk of equivalent butterfat content) based on the overall utilization of pool milk received by Montana's pool handlers. In Fiscal Year 2022, 46 pool dairies produced and delivered milk with an average butterfat content of 3.8% to three pool handlers. Compared to Fiscal Year 2021, the weighted average price increased by 22.4%. The weighted average price of $22.12 per hundredweight (cwt) is the highest price ever recorded by the Milk Control Program.

The value of pool milk is determined by production and utilization factors; factors related to the sale of surplus milk (milk in excess of pool handler's Montana Class I and Class II needs); and factors related to transportation charges absorbed by pool producers for shipments of unprocessed pool milk between pool plants.

Utilization Factors

Two major elements of utilization factors are (1) minimum prices for each class of milk and (2) the percentage of butterfat and skim milk (the portion of milk that is not butterfat) utilized in each class of milk. Minimum prices are highest for pool milk utilized as Class I milk consumed in Montana, which accounted for 57.9% of pool production in FiscalYear 2022, increasing slightly from 55% in fiscal year 2021. The percentage of pool milk utilized as Class I milk consumed in Montana was 70.4% of pool production in 2000. The decline of Montana Class I utilization corresponds to the decrease in U.S. per capita consumption of fluid milk from 197 pounds per year in 2000 to 134 pounds per year in 2021. Other potential factors influencing this decline include increased availability and possibly market share of ultra-pasteurized products (such as organic milk, lactose-free milk, and other specialty or branded products) that are imported into the state; loss of market share to a myriad of new beverage products, including plant-based milk substitutes; and changes in food distribution systems that have led to increased imports of fluid milk by out-of-state distributors supplying Montana stores. Because production has been relatively steady and Montana dairy processors do not utilize a large percentage of pool milk for production of

Class II and Class III products, the decrease in the percentage of pool milk utilized as Class I milk that is consumed in Montana is being offset by exports of surplus milk.

Adjustments to Utilization Value

Adjustments were made to the utilization value of the milk for transportation charges to ship unprocessed pool milk between pool plants and for surplus milk sales that reduced the pool utilization value by over $2.39 million (4.56%), or in other terms, $1.06/cwt of production. In Fiscal Year 2022, $440,242 was deducted from the pool skim milk utilization value to transport approximately 24.7 million pounds of unprocessed pool milk between pool plants, primarily to transport unprocessed pool milk to the pool plant in Billings from the pool plant in Great Falls. Surplus milk is milk produced in Montana that is not consumed in Montana, excluding sales of cream to out-of-state markets, inventory, shrink, and dumped milk. Surplus sale factors allow for adjustments to the value of pool milk that reflect costs of marketing surplus milk. Most of the surplus milk is sold as Class I packaged milk to out-of-state markets. In Fiscal Year 2022, the overall adjustment for surplus sales (bulk and Class I packaged milk) totaled $1,948,345.

MILK MARKET ADMINISTRATION

MILK CONTROL ACT PRIMER

Policy Purpose

The act provides for the regulation of the milk market in Montana. The act establishes that regulation of milk is in the public interest because milk is a necessary food article; adequate supply is vital to the public; and health regulations do not provide for adequate supply. The act specifies that it is a policy of the state to stabilize the marketing of milk and promote, foster, and encourage intelligent production and orderly marketing of milk dairy products; elimination of speculation and waste; and making the distribution between producer and consumer as direct as can be efficiently and economically done.

The act's policy statement declaration in § 81-23-102, MCA, includes, but is not limited to, the following summarized statements. The policy declaration has not substantively changed since 1939.

- Trade practices in the dairy value chain can threaten the health and welfare of the state's citizens and undermine the sanitary condition and purity of milk.
- Past experience shows that when regulation does not provide for an orderly and profitable marketing of milk, credit status of producers and distributors is adversely affected, resulting in broader economic damage.
- The unique nature of milk lends itself to regulation. Milk is a highly perishable commodity that is easily contaminated. It cannot be stored for a great length of time and must be produced and distributed fresh daily.
- The supply of milk is variable but must be produced on a uniform and even basis and yet accommodate fluctuating demand; therefore, a surplus of milk must be available to guarantee adequate supply to the public. Maintaining this surplus can be expensive; unless regulated, the unavoidable surplus can undermine the milk industry by causing producers to relax their diligence in complying with health and sanitary provisions.
- The natural law of supply and demand has been found inadequate to protect the industry. In the past, the adequacy of supply has been threatened by market conditions and trade practices within the industry.
- The supply and quality of milk are affected negatively unless the producers are guaranteed and ensured a reasonable profit on milk.

Elements of the Milk Control Act

The act describes its policy purpose and authorizes necessary regulatory infrastructure. The act provides powers to the board to supervise, regulate, and control the milk industry. The act requires the Montana Department of Livestock to provide staff to the board to assist in investigating matters; bring proceedings to enforce orders of the board; and assist in technical, enforcement, and regulatory activities.

The act includes a number of specific provisions. Among these are the following:

- mandatory licensing of businesses that produce or distribute milk in Montana
- assessments to fund the administration and enforcement of the act
- establishment of minimum prices to be paid for raw milk according to how the milk is utilized, referencing federal milk classifications
- authorization for a quota plan and a statewide pooling arrangement
- governance of fair-trade practices, setting forth four specific trade practice prohibitions against secret rebates and discounts; gifts to secure fluid milk and cream business; offering special prices to customers not available to all customers who purchase under like terms/conditions; and payment (by a distributor to a producer) of a price lower than applicable producer price
- expression of legislative intent that milk produced outside of the state is subject to the act the instant that the milk is subject to regulation by the state; and
- statement that the act does not supersede or interfere with federal law regulating interstate commerce.

BOARD OF MILK CONTROL – ACTIVITY IN Fiscal Year 2022

In Fiscal Year 2022, the board held five meetings (September 29, 2021; October 27, 2021; November 30, 2021; April 12, 2022; and June 21, 2022).

The following table shows information about the board members and their terms of appointment. Appendix A provides additional information about the board, its interaction with the Montana Department of Livestock, and differentiation of the roles of the department's Milk Control Program and the Milk & Egg Bureau.

Montana Board of Milk Control - Members

Name	Board Position	Residence	Term
Ken Bryan	Chair	Great Falls	1/2021 – 1/2023
Brian C. Beerman	Member	Fairfield	1/2021 – 1/2025
Staci Ketchum	Member	Miles City	1/2021 – 1/2025
W. Scott Mitchell	Member	Billings	1/2021 – 1/2023
Travis Stroh	Member	Glendive	1/2021 – 1/2025

The Board of Milk Control can be reached through the contact information listed below.

Milk Control Program
P.O. Box 202003
Helena, MT 59620-2003
(406) 444-2875 or LivMilkControl@mt.gov

PRODUCER COMMITTEE – ACTIVITY IN Fiscal Year 2022

The producer committee is provided for by ARM 32.24.506. The committee reviews and approves transfers of quota and is authorized by rule to take over the responsibility from pool handlers of selling surplus milk that is sold unprocessed in bulk. Pool handlers may also relinquish the responsibility to market bulk surplus milk to the Committee.

In Fiscal Year 2022, the producer committee met five times (August 31, 2021; September 29, 2021; November 30, 2021; May 27, 2022; and June 28, 2022) to consider and approve eight quota transfer requests, discuss dairy closures and industry developments, and receive updates from the program. All meetings were held via conference call.

The following table shows the committee's membership for most of Fiscal Year 2022. At the May 27, 2022, producer committee meeting, Nelson Kamerman replaced Dave Miller as the new Chair due to Mr. Miller's departure from the committee. Program analysis of pool plants' June 2021 receipts determined that no change in the number of producers representing each pool plant was required to comply with ARM 32.24.506(3)(b)(i). The board did not make appointments at its meetings in Fiscal Year 2022. Because the issue is not addressed in rule and is not controlled by statute, the board has discretion in how it interprets and applies its rules. One possible interpretation is that the members' terms automatically renew if the board takes no action. Another possible interpretation is that members' terms automatically expire at the end of the term unless the board takes an action. Based on a board recommendation in Fiscal Year 2021, the committee is operating based on the first interpretation (automatic renewal).

Producer Committee Members 2022 – 2023 Term:

Producer Name	Committee Position	Pool Plant Receiving Milk	Dairy Name
David Miller	Chair	Darigold - Bozeman	Moiese Valley Ranch
Sam Hofer	Vice-Chair	Meadow Gold – Great Falls	Surprise Creek Colony Dairy
Dan Daugherty	Member (Serving as At-Large Committee Member)	Darigold – Bozeman	Triple D Dairy
Nelson Kamerman	Member	Darigold – Bozeman	Dairyland Farms
Mark Kleinsasser	Member	Meadow Gold – Billings	Mountain View Colony Dairy
Shane Leep	Member	Darigold - Bozeman	Leep Dairy
John Waldner	Member	Meadow Gold – Great Falls	Fairhaven Colony Dairy

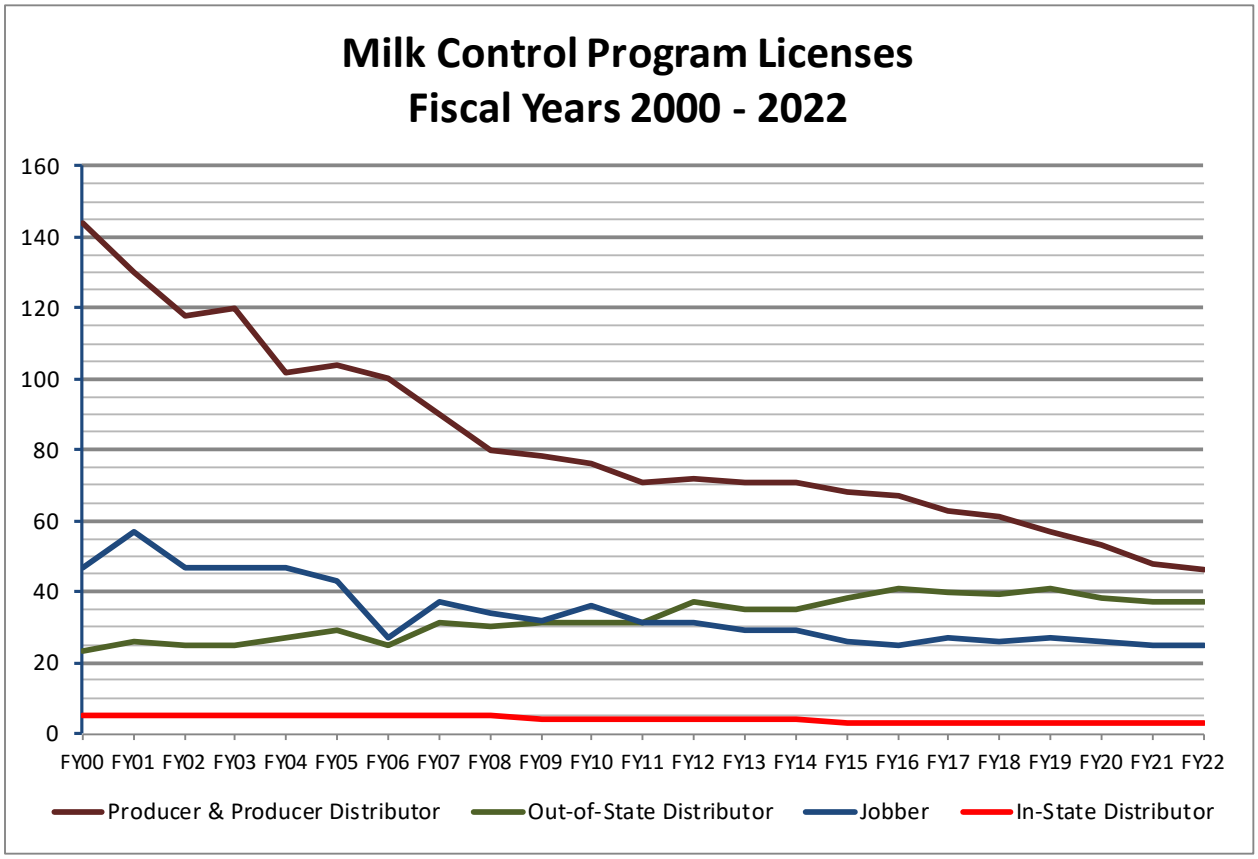
LICENSING SUMMARY

The program issues licenses to producers, producer-distributors, distributors, and jobbers (a class of distributors that purchase and resell milk). The following table shows the number of licenses issued in Fiscal Year 2022 for each type of business. Licenses are issued on an annual Fiscal Year basis (July 1 – June 30). By statute, the license fee is two dollars per license, and the fees are deposited into the state general fund.

Licenses Issued for Fiscal Year 2022

License Type	Number of Licenses
Producer	43
Producer-Distributor	3
In-State Distributor	3
Out-of-State Distributor	37
Jobber	25

The following chart shows the number of licenses issued for each license type for Fiscal Year 2000 through Fiscal Year 2022, combining the number of producers and producer-distributors. The chart reflects consolidation affecting the milk industry. Starting in Fiscal Year 2015, Montana Correctional Enterprises was licensed as a producer-distributor instead of an in-state distributor. Had the business been licensed as a producer-distributor in prior years, the number of in-state distributor licenses would have been reduced by one. A change of significance in the number of in-state distributors occurred after Fiscal Year 2008, when Meadow Gold did not renew its in-state distributor license for its Kalispell facility.



ADMINISTRATIVE ASSESSMENTS AND COLLECTION

Administrative assessments are levied on sales of milk by Montana producers, producer-distributors, in-state distributors, and out-of-state distributors to secure funds to administer and enforce the act. The assessments are classified as special revenue and are the sole source of funding for the board and program.

As required by statute, the board considered the Fiscal Year 2023 assessment rates (at its October 27, 2021, meeting) and took action to reduce assessment rates for Fiscal Year 2023. At the time of the meeting, the bureau projected that the program's cash balance would decrease by approximately $15,195 during Fiscal Year 2023 but that sufficient funds would be available to administer the act.

Assessment Rates by License Type for Fiscal Year 2022 & Fiscal Year 2023

License Type	FY2022 Assessment Rates	FY2023 Assessment Rates
Producer	$0.02625/cwt	$0.02375/cwt
Distributor	$0.02625/cwt	$0.02375/cwt
Producer-Distributor	$0.05250/cwt	$0.04750/cwt

ESTIMATE OF MONTANA DAIRY CONSUMPTION

DISCUSSION OF ESTIMATE METHOD & LIMITATIONS

The estimated dairy consumption in Montana is based on combining information from assessments reports submitted by pool handlers, producer-distributors, and out-of-state distributors. The forms submitted by distributors gather different levels of information depending on the type of distributor. Information from pool handlers and producer-distributors focuses on the weight of milk utilized. Information gathered from import reports from in-state and out-of-state distributors focuses on product volume or weight to which milk equivalent factors are applied to determine milk equivalent weight subject to administrative assessments. Because different sources of information are being combined, the information should be viewed as being an estimate. Additionally, because the milk equivalent factors used by the program changed in Fiscal Year 2019 relative to prior years, the estimate of Montana's estimated dairy consumption by milk equivalent weight is not comparable to years prior to Fiscal Year 2019 for several products.

Pool handlers (Meadow Gold and Darigold) and Montana Correctional Enterprises report how milk received is utilized in monthly reports submitted for pooling calculations. Pool handlers sell some bulk milk to other dairy manufacturers located in Montana. The utilization of this milk is attributed to the class of utilization thought to account for these manufacturers' utilization.

Producer-distributors report total milk produced and sold in reports submitted with payment of administrative assessments and report how the milk was utilized. In estimating dairy product consumption, product weights are estimated through calculations that use product density and milk equivalent factors.

All distributors report imports of dairy products.

The following tables show estimates of dairy consumption in Montana in terms of product consumed (gallons or pounds of product) and in terms of milk equivalent (weight of milk utilized to manufacture the products consumed, determined on a total milk solids basis). The milk equivalent weight of imported dairy products is calculated by multiplying the units of product imported by the milk equivalent factors shown in the table labeled "Dairy Product Milk Equivalent Factors Used by the Milk Control Program."

Fiscal Year 2022: MONTANA ESTIMATED DAIRY CONSUMPTION (BY PRODUCT VOLUME OR WEIGHT)

Class / Type / Product	Products from Montana Plants	% of Product Total from Montana	Products from Out-of-State Plants	% of Product Total from Out-of-State	Total Consumption Estimate
CLASS I (gallons)					
White & Flavored Milk, Buttermilk, Eggnog	15,375,381	71.12%	6,243,663	28.88%	21,619,045
CLASS II					
Fluid/Whip (gallons)					
Half and Half	45,952	4.25%	1,036,333	95.75%	1,082,285
Whipping Cream	86,033	8.69%	903,614	91.31%	989,647
Creamers			669,459	100.00%	669,459
Aerosol Whip			121,493	100.00%	121,493
Uncultured (gallons)					
Ice Cream / Mix / Ice Milk / Novelties	780,848	15.76%	4,172,709	84.24%	4,953,557
Frozen Yogurt / Mix			205,015	100.00%	205,015
Cream for Candy Products	2,331	100.00%			2,331
Cultured (pounds)					
Cottage Cheese	134,892	3.89%	3,334,377	96.11%	3,469,269
Sour Cream & Dressings			6,088,771	100.00%	6,088,771
Yogurt / Kefir	514,004	3.15%	15,818,625	96.85%	16,332,630
CLASS III (pounds)					
Cream Cheese			2,420,731	100.00%	2,420,731
Cheese	60,329	0.22%	27,062,343	99.78%	27,122,672
Butter	8,768	0.09%	10,038,648	99.91%	10,047,416

DAIRY PRODUCT MILK EQUIVALENT FACTORS USED BY THE MILK CONTROL PROGRAM

Product	Milk Equivalent *(lbs. per 1 lb. of product)*	Milk Equivalent *(lbs. per 1 gallon of product)*
White Milk		6.07 – 7.94
Flavored Milk		6.18 – 8.13
Buttermilk		6.87
Eggnog		9.82
Half and Half (10.5% - 18% milkfat)		12.53
Creamers		12.53
Light Cream (18% - 30% milkfat)		17.60
Light Whipping Cream (30 – 36% milkfat)		25.50
Heavy Whipping Cream (>36% milkfat)		29.41
Aerosol Whip		17.44
Ice Cream		7.23
Ice Milk / Sherbet		0.96
Frozen Yogurt		5.40
Frozen Dairy Novelties		6.05
Ice Cream Mix		14.75
Shake Mix / Yogurt Mix		11.80
Cottage Cheese	1.61	
Cottage Cheese (low fat or no fat)	1.41	
Dry Curd Cottage Cheese	1.61	
Sour Cream (and similar dips and dressings)	1.91	
Non-fat Sour Cream	0.51	
Yogurt / Kefir	0.92	
Butter	6.51	
Cream Cheese	3.61	
Hard Cheese	4.90	

Raw milk is composed of approximately 87.55% water and 12.45% milk solids by weight (3.68% butterfat + 8.77% milk solids not fat). Milk solids not fat includes protein, lactose, and minerals. The amount of butterfat and milk solids not fat used to manufacture different products varies. Low-fat dairy products have less milk solids content than comparable full-fat dairy products. Butter has a high amount of milk solids per pound of product because 81% of its weight is milk solids, nearly all of which is butterfat.

Fiscal Year 2022: MONTANA ESTIMATED DAIRY CONSUMPTION – BY MILK EQUIVALENT WEIGHT

Class / Type / Product	Products from Montana Plants *(lbs. milk equivalent)*	Products from Out-of-State Plants *(lbs. milk equivalent)*	Total Consumption Estimate *(lbs. milk equivalent)*
CLASS I			
White & Flavored Milk, Buttermilk, Eggnog	132,535,788	45,644,529	178,180,317
TOTAL CLASS I	**132,535,788**	**45,644,529**	**178,180,317**
CLASS II			
Fluid/Whip			
Half and Half	575,782	12,985,250	13,561,032
Whipping Cream	1,138,269	24,289,791	25,428,060
Creamers		8,388,327	8,388,327
Aerosol Whip		2,118,843	2,118,843
Subtotal	**1,714,051**	**47,782,211**	**49,496,262**
Uncultured			
Ice Cream / Mix / Ice Milk / Novelties	9,130,432	39,016,265	48,146,697
Frozen Yogurt / Mix		2,252,149	2,252,149
Candy Products	68,569		68,569
Subtotal	**9,199,001**	**41,268,414**	**50,467,415**
Cultured			
Cottage Cheese	206,894	5,162,482	5,369,376
Sour Cream & Dressings		11,182,004	11,182,004
Yogurt / Kefir	472,884	14,553,135	15,026,019
Subtotal	**679,778**	**30,897,621**	**31,577,399**
TOTAL CLASS II	**11,592,830**	**119,948,246**	**131,541,077**
CLASS III			
Cream Cheese		8,738,838	8,738,838
Cheese	610,232	132,605,480	132,215,712
Butter	9,651	65,351,599	65,361,250
TOTAL CLASS III	**619,883**	**206,695,917**	**207,315,800**

SUMMARY

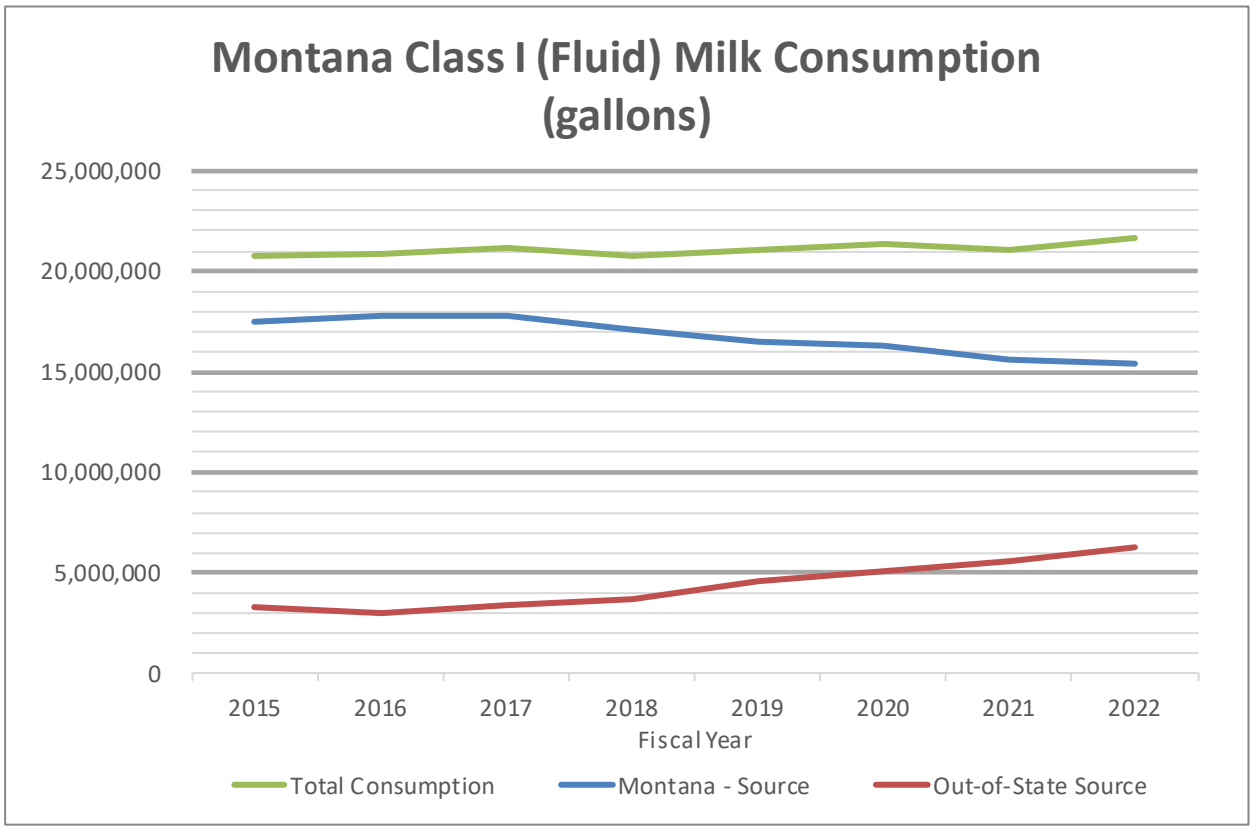
The majority of milk produced in Montana is utilized for fluid milk consumed in Montana. In Fiscal Year 2022, an estimated 21.6 million gallons of fluid milk was consumed in Montana, 71% of which originated from Montana bottling plants using milk supplied by Montana dairy farmers. The next largest use of Montana-origin milk is for ice cream type products (ice cream, ice milk, and frozen yogurt). An estimated 4.95 million gallons of ice cream type products were consumed in Montana, 15.76% of which was manufactured by Montana plants. Approximately 4.6% of Class II fluid cream products (half and half, cream, creamers, and aerosol whip) that were consumed in Montana originated from Montana plants. Montana plants account for only small percentages of all other dairy products consumed by Montanans. Production of these products outside of Montana is largely a function of industry dynamics that relate to scales of efficiency in manufacturing and placement of manufacturing facilities near areas with greater population or areas with larger supplies of milk.

The program began preparing dairy consumption estimates beginning with Fiscal Year 2015. The following describes some observed trends.

- **Class I Fluid Products** The estimated consumption of Class I fluid milk products in Montana since Fiscal Year 2015 is relatively flat (0.60% average annual increase). Fiscal Year 2022 saw a 2.45% increase in the consumption of Class I milk products while Fiscal Year 2021 had seen a decrease of 1.18%. Nationally, since 2010, annual per capita fluid milk consumption experienced an average decline of over 2%. The percentage of Class I milk consumed in Montana that originated in Montana plants was 71% for Fiscal Year 2022, down 2.7% from Fiscal Year 2021 and 13.1% lower than Fiscal Year 2015. USDA Economic Research Service data shows that, for the last decade, consumption of whole milk has trended higher, and consumption of skim milk has trended lower. The program has observed an average butterfat content of 3.78% in milk bottled by Montana plants.
- **Fluid Cream Type Products** Estimates indicate that consumption of fluid cream type products increased by 7.5% annually (on average) since Fiscal Year 2015.
- **Ice Cream Type Products** Estimates indicate that consumption of ice cream type products decreased by 9.75% in Fiscal Year 2022 following nearly 5.2% annual increases (on average) between Fiscal Year 2015 and Fiscal Year 2021. *(The authors note that estimating consumption of ice cream type products is more difficult and not as straight forward as estimating fluid milk consumption.)*
- **Yogurt** Estimates indicate yogurt consumption increased by .87% in Fiscal Year 2022 following decreases of 0.9% in Fiscal Year 2021, 3% in Fiscal Years 2018, 2019, and 2020 after double digit increases in Fiscal Years 2016 and 2017.
- **Butter** The estimated butter consumption increased 4.75% in Fiscal Year 2022 following a decrease of 0.11% in Fiscal Year 2021 and following an increase of over 6% annually (on average) in Fiscal Years 2018 - 2020.

The U.S. Census Bureau estimates that Montana's population in 2021 was 1.1 million. According to worldpopulationreview.com (accessed on November 28, 2022), Montana's estimated population is 1.103 million. Montana experienced modest population growth of approximately .9% per year from 2010 to 2021. Tourism may impact some of Montana's dairy

consumption trends for products such as butter, fluid cream, and ice cream that food service establishments serve or use as ingredients. The University of Montana Institute for Tourism & Recreation Research estimated that there were 12.34 million nonresident visits in 2021, roughly 0.4% more than in 2015. The average duration of a visit in 2021 was 5.2 nights according to the University of Montana Institute for Tourism & Recreation Research's *2021 Nonresident Visitation, Expenditures & Economic Impact Estimates* report for Montana. The relationship of Montana dairy consumption statistics and tourism in this report is most reflective of the 2021 tourism season.



MINIMUM PRODUCER PRICES

CLASSIFIED PRICING

To aid in the orderly marketing of milk, many jurisdictions in the United States, starting in the 1930s, established price regulation systems that set prices for milk purchased from dairies based upon how the buyer (a processor) utilizes the milk. Currently in the United States, over 85% of all milk sold by dairy farms is subject to federal or state price regulation that uses classified pricing. Classified pricing systems have been adopted in a number of other western countries as well. Such systems help prevent situations in which producers are pitted against each other by processors to undercut prices, which can lead to a chaotic marketplace in which the supply and sanitary condition of milk becomes imperiled. Montana's milk classification system is similar to federal (USDA) milk classification. Class I utilization includes fluid milk products, including buttermilk and eggnog. Class II utilization includes fluid cream products, ice cream type products, cottage cheese, sour cream, and yogurt. Class III utilization includes cheese and cream cheese. Class IV utilization includes butter and dried milk. Montana law allows the Board of Milk Control to combine milk classes, and Montana Class III utilization combines the federal Class III and Class IV utilizations. In Montana, Class III utilization also includes bulk milk inventory, dumped milk, and up to 2% shrinkage, with any shrinkage in excess of 2% of pool receipts being allocated to Class I utilization. Shrinkage is a term that describes milk received that is not accounted for by utilization or inventory. Shrink is unavoidable and typically is caused by processing losses and incidental waste.

PRICE FORMULAS

The Milk Control Act requires that the Board of Milk Control establish formulas to calculate minimum prices to be paid for milk based upon classified utilization.

Montana Class I

Montana's Class I milk price formula adds a $2.55/cwt differential to the USDA Federal Order Base Class I price published in the USDA Agricultural Marketing Service's Announcement of Advanced Prices and Pricing Factors. The Montana Class I butterfat price is the Federal Order Advanced Butterfat Pricing Factor (from the same USDA price announcement) plus $0.0255/lb. The USDA Federal Milk Marketing Administration announces these prices in advance of the month of production. The federal announcement is generally made on the Wednesday following the first two full weeks of the month. The following table illustrates the application of the Montana Class I price formulas for June 2022.

Montana Class I Price Computations per ARM 32.24.480(2) for June 2022	
Federal Order Base Class I Price for Milk Testing 3.5% Butterfat ($/cwt)	$25.87
Plus: Montana Differential ($/cwt)	$2.55
Montana Class I Milk Price for Milk Testing 3.5% Butterfat ($/cwt)	**$28.42**
Federal Order Advanced Butterfat Pricing Factor ($/lb.)	$3.0728
Plus: Montana Differential ($/lb.)	$0.0255
Montana Class I Butterfat Price ($/lb.)	**$3.0983**
Value of Montana Class I Butterfat at 3.5 lbs.	$10.84405
Value of Montana Class I Skim Milk at 96.5 lbs.	$17.57595
Montana Class I Milk Price for Milk Testing 3.5% Butterfat ($/cwt)	**$28.42000**

Montana Class II & Class III

The Montana Class II and Class III price formulas reference the prices listed below that are published in the USDA Agricultural Marketing Service's Announcement of Advanced Prices and Pricing Factors.

- Class II Skim Milk Price (converted to dollars per pound of skim milk)
- Advanced Class III Skim Milk Pricing Factor (converted to dollars per pound of skim milk)
- Advanced Class IV Skim Milk Pricing Factor (converted to dollars per pound of skim milk)
- Advanced Butterfat Pricing Factor

These prices are determined by USDA using federally established formulas that rely upon USDA-calculated weighted average prices of butter, nonfat dry milk, cheese, and whey for the first full two weeks of the month prior to the month to which the price announcement applies. Prices and sales volumes of these products are mandatorily reported to USDA by the United States dairy industry.

The Montana Class III Butterfat Price formula subtracts the Montana Class III Butterfat Price Differential from the Advanced Butterfat Pricing Factor. The following tables illustrate the application of the Montana Class II and Class III price formulas for June 2022.

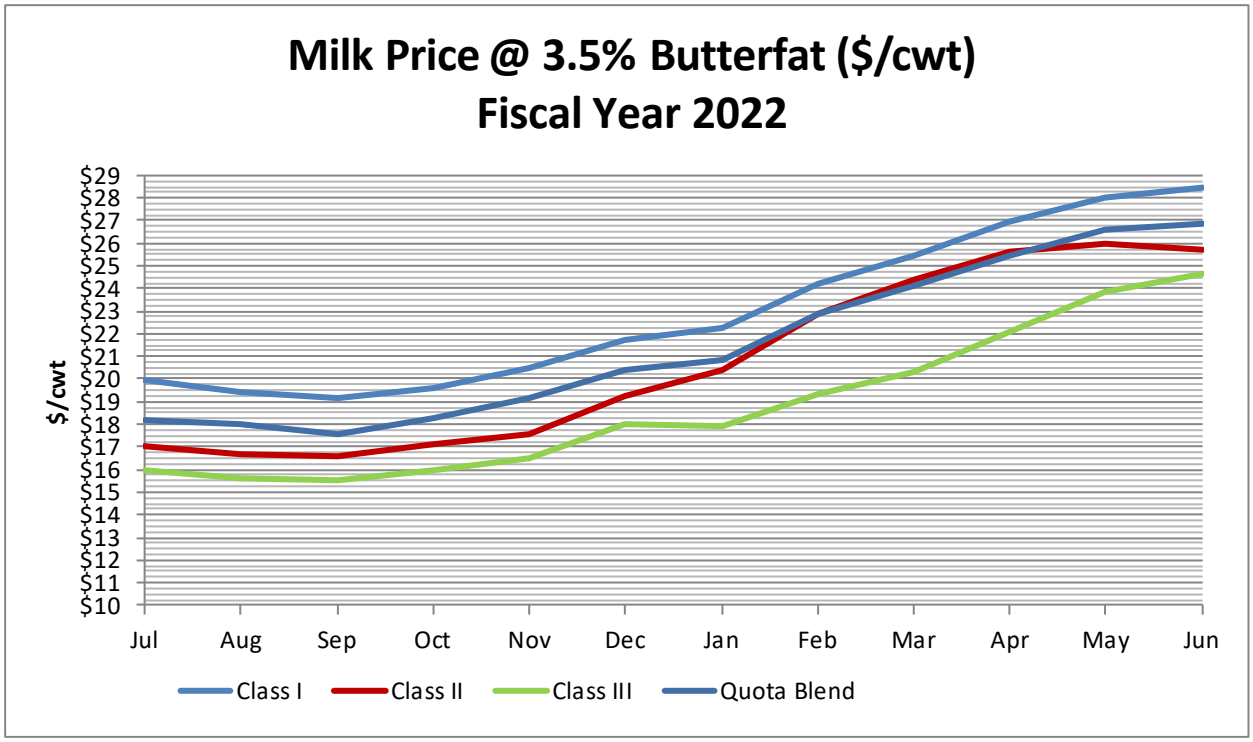
Montana Class II Price Computations per ARM 32.24.480(3) for June 2022	
Advanced Butterfat Pricing Factor ($/lb.)	$3.0728
Plus: $0.007/lb. ($/lb.)	$0.0070
Montana Class II Butterfat Price ($/lb.)	**$3.0798**
Montana Class II Skim Milk Price ($/lb.): *Federal Class II Skim Milk Price converted to units of dollars per pound of skim milk*	**$0.1550**
Value of Montana Class II Butterfat at 3.5 lbs.	$10.77930
Value of Montana Class II Skim Milk at 96.5 lbs.	$14.95750
Montana Class II Milk Price for Milk Testing 3.5% Butterfat ($/cwt)	**$25.73680**

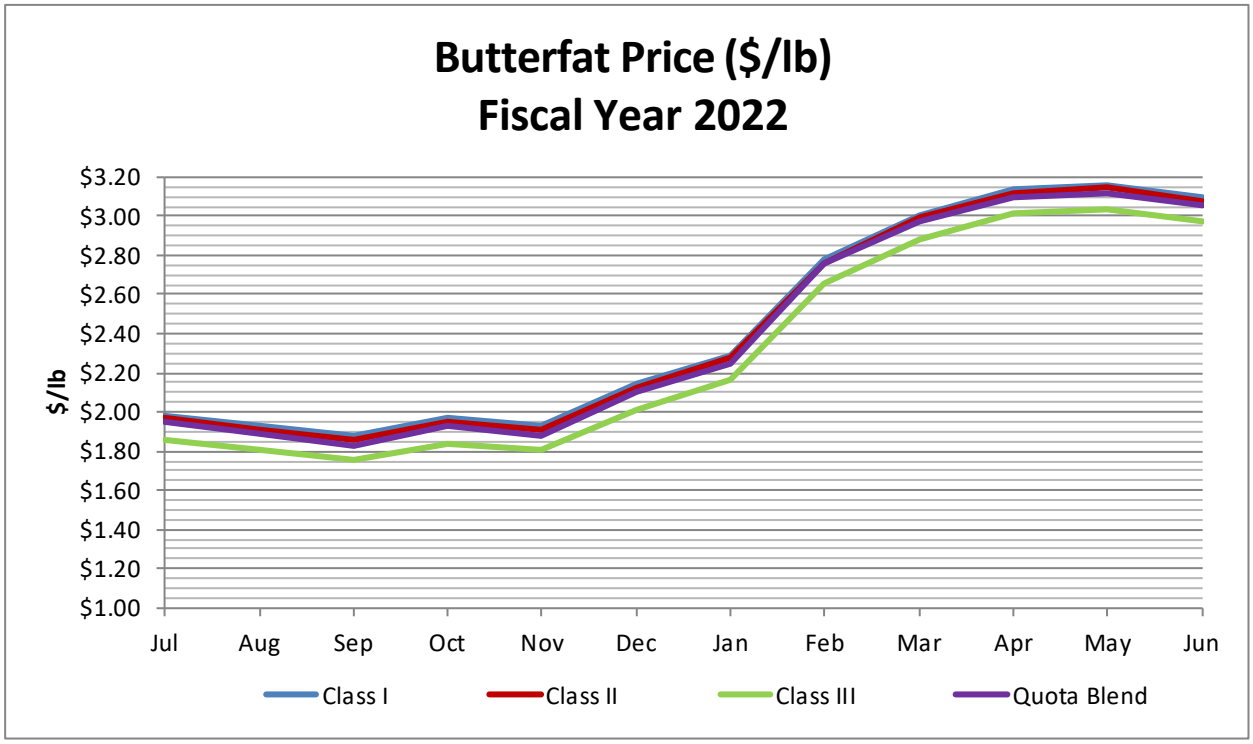
Montana Class III Price Computations per ARM 32.24.480(4) for June 2022	
Advanced Butterfat Pricing Factor ($/lb.)	$3.0728
Less: Montana Class III Butterfat Price Differential ($/lb.)	($0.1000)
Montana Class III Butterfat Price ($/lb.)	**$2.9728**
Federal Class III Skim Milk Pricing Factor ($/cwt)	$15.04
Federal Class IV Skim Milk Pricing Factor ($/cwt)	$14.80
Montana Class III Skim Milk Price ($/lb.): *lower of Class III or Class IV Skim Milk Pricing Factor, converted to units of dollars per pound of skim milk*	**$0.1480**
Value of Montana Class III Butterfat at 3.5 lbs.	$10.40480
Value of Montana Class III Skim Milk at 96.5 lbs.	$14.28200
Montana Class III Milk Price for Milk Testing 3.5% Butterfat ($/cwt)	**$24.68680**

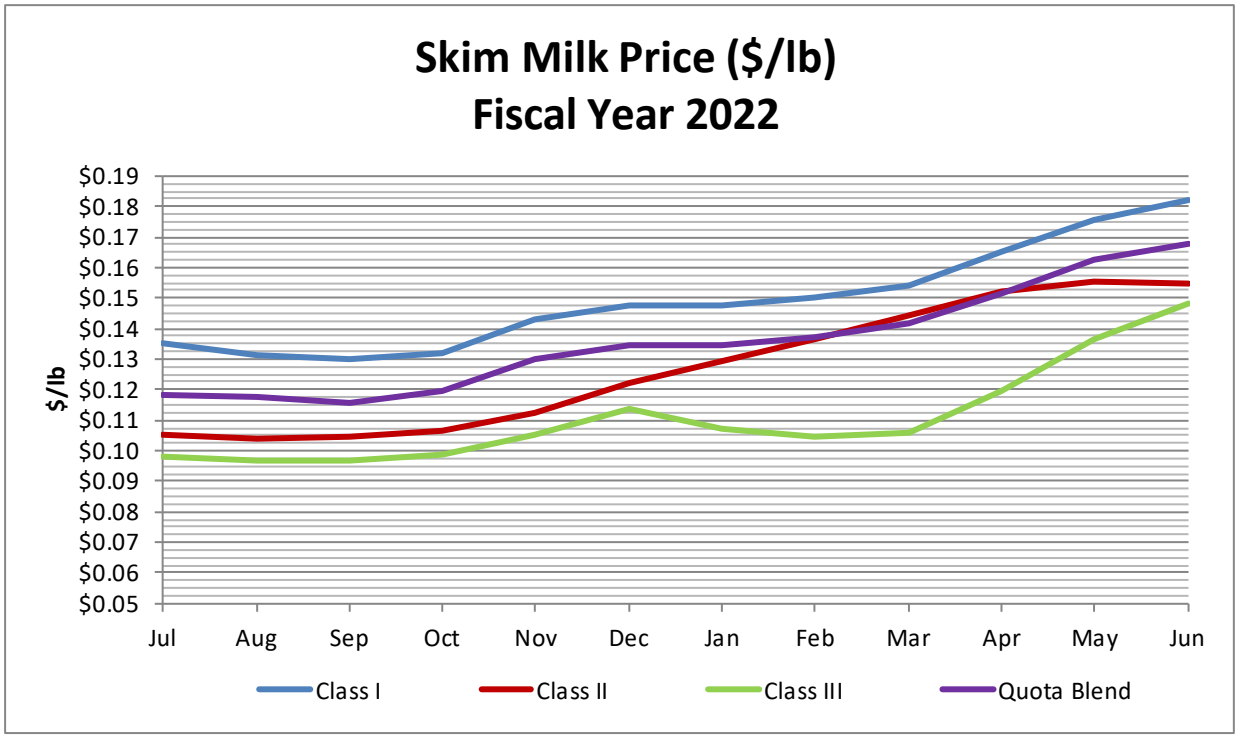
ANNOUNCED MINIMUM PRICES IN Fiscal Year 2022

Cows generally produce milk that has 3.5% - 4% butterfat content. The dairy industry often uses a reference price for milk having 3.5% butterfat content. One hundred pounds of milk (a hundredweight, abbreviated "cwt") with 3.5% butterfat content consists of 3.5 pounds of butterfat and 96.5 pounds of skim milk. Skim milk consists of water (over 90% of skim milk weight) and solids that are not fat (lactose, protein, and minerals). In Montana, an individual producer is paid on the actual butterfat and skim milk produced by the dairy's herd for each month of production.

The charts below show announced minimum prices for months in Fiscal Year 2022 (July 2021 – June 2022) along with the calculated quota price based on actual milk utilization.

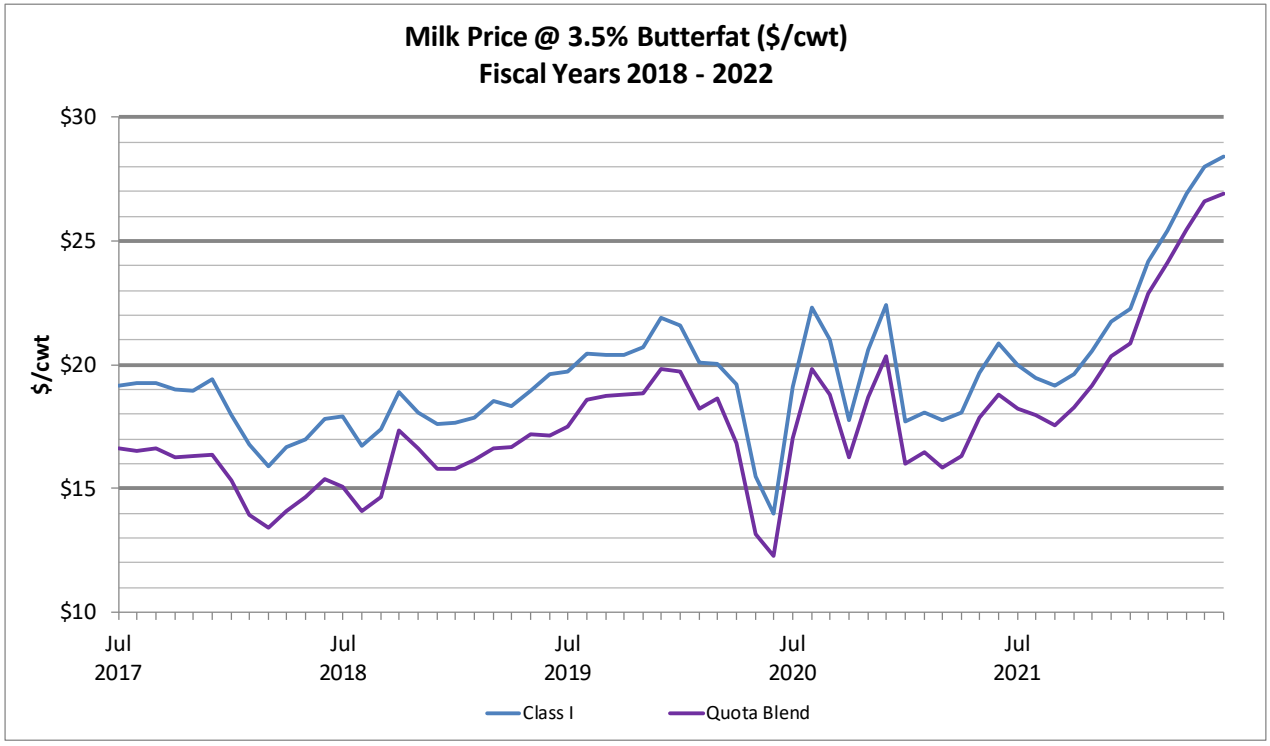

Milk Price @ 3.5% Butterfat ($/cwt)
Fiscal Year 2022
$/cwt
$29
$28
$27
$26
$25
$24
$23
$22
$21
$20
$19
$18
$17
$16
$15
$14
$13
$12
$11
$10
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Class I
Class II
Class III
Quota Blend

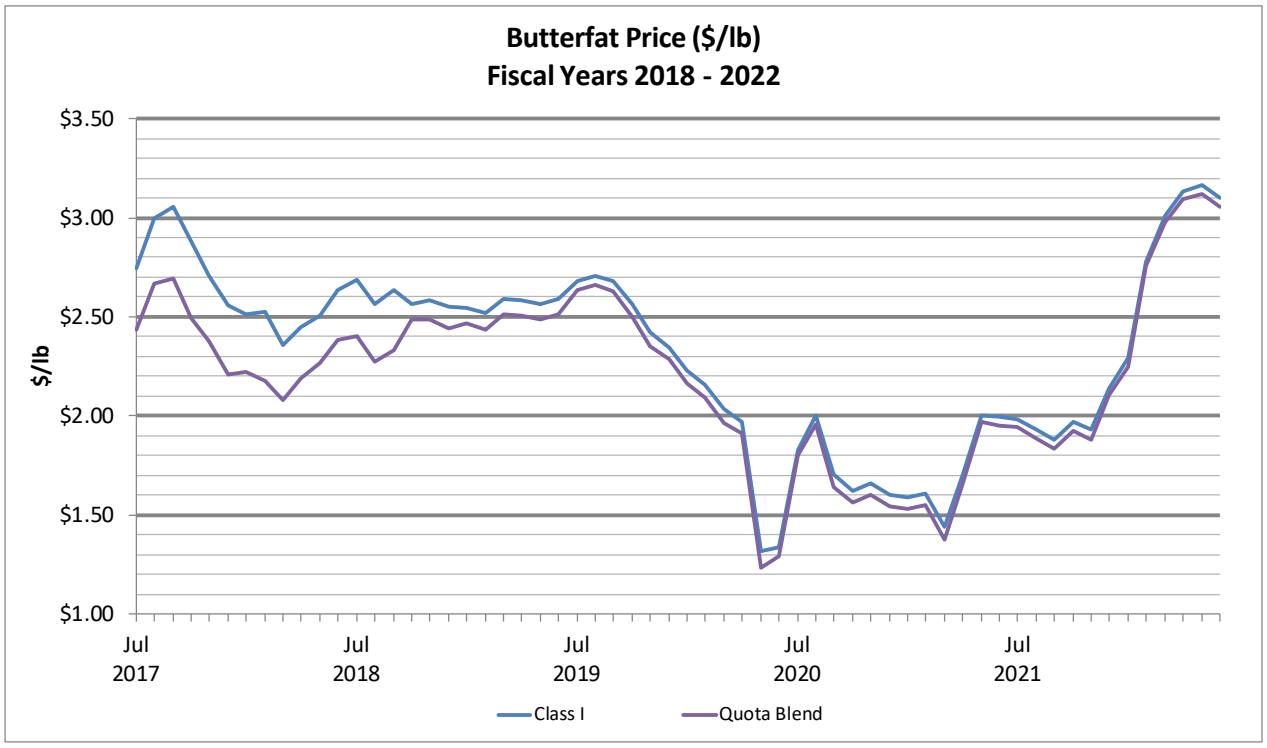

Butterfat Price ($/lb)
Fiscal Year 2022
$/lb
$3.20
$3.00
$2.80
$2.60
$2.40
$2.20
$2.00
$1.80
$1.60
$1.40
$1.20
$1.00
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Class I
Class II
Class III
Quota Blend

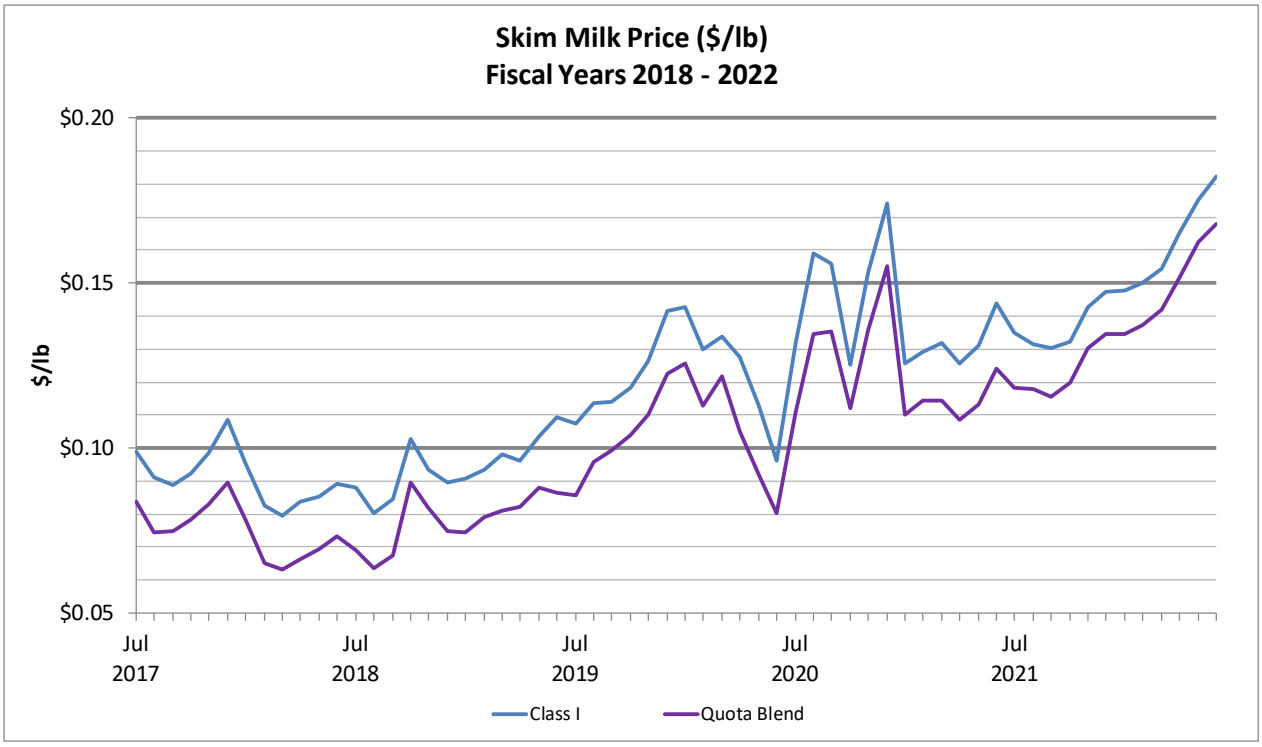

Skim Milk Price ($/lb)
Fiscal Year 2022
$/lb
$0.19
$0.18
$0.17
$0.16
$0.15
$0.14
$0.13
$0.12
$0.11
$0.10
$0.09
$0.08
$0.07
$0.06
$0.05
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Class I
Class II
Class III
Quota Blend

PRICE CHARTS JULY 2017 – JUNE 2022

The following charts show Montana Class I prices and Montana Quota Blend producer prices for milk containing 3.5% butterfat, butterfat component of milk, and skim milk component of milk.



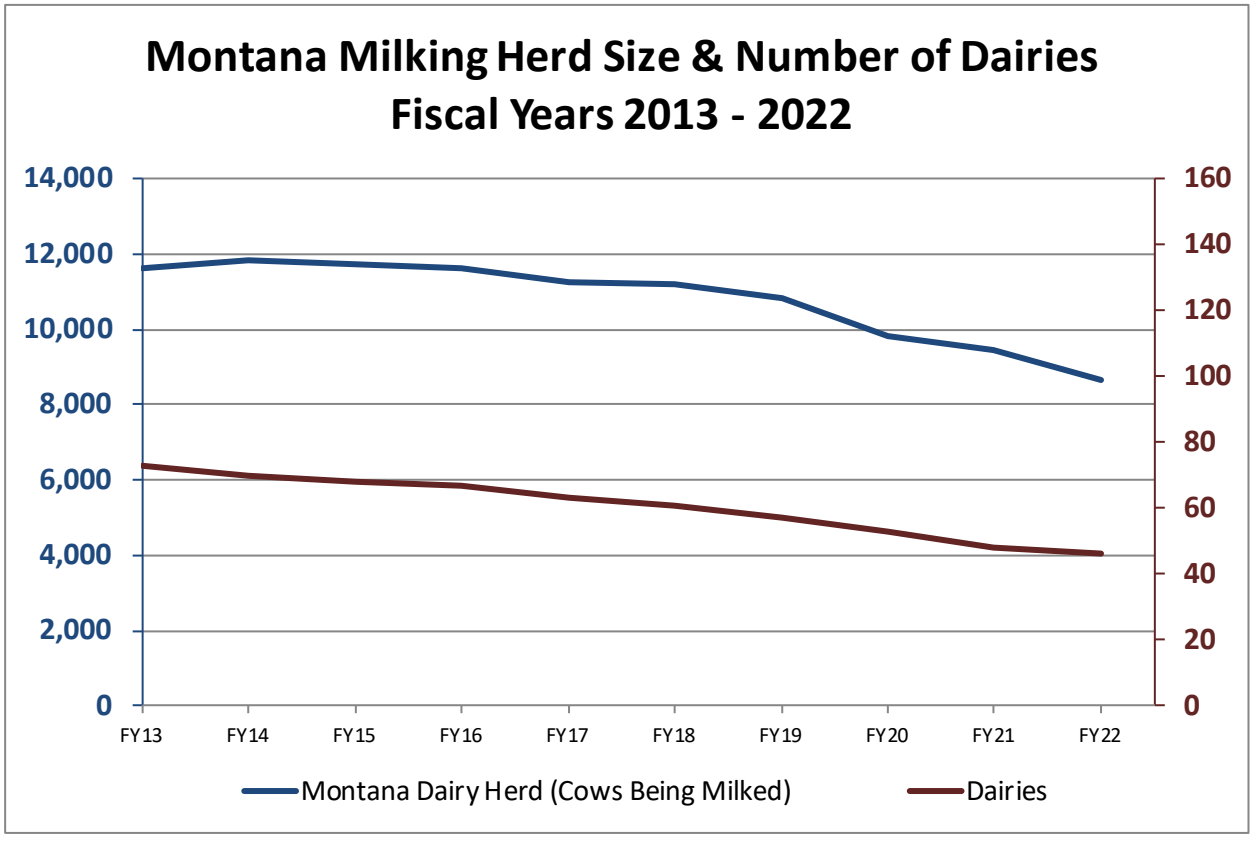


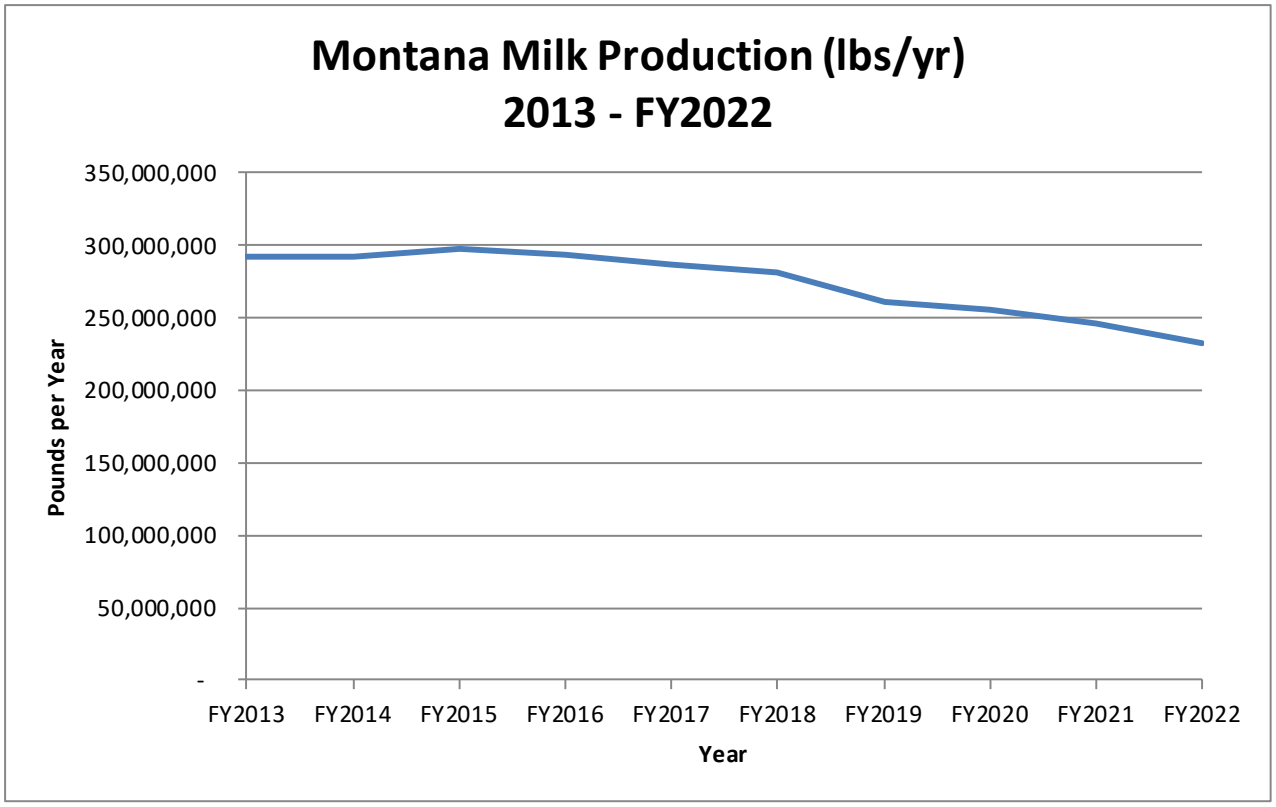

Skim Milk Price ($/lb)
Fiscal Years 2018 - 2022
$0.20
$0.15
$0.10
$0.05
$/lb
Jul 2017
Jul 2018
Jul 2019
Jul 2020
Jul 2021
Class I
Quota Blend

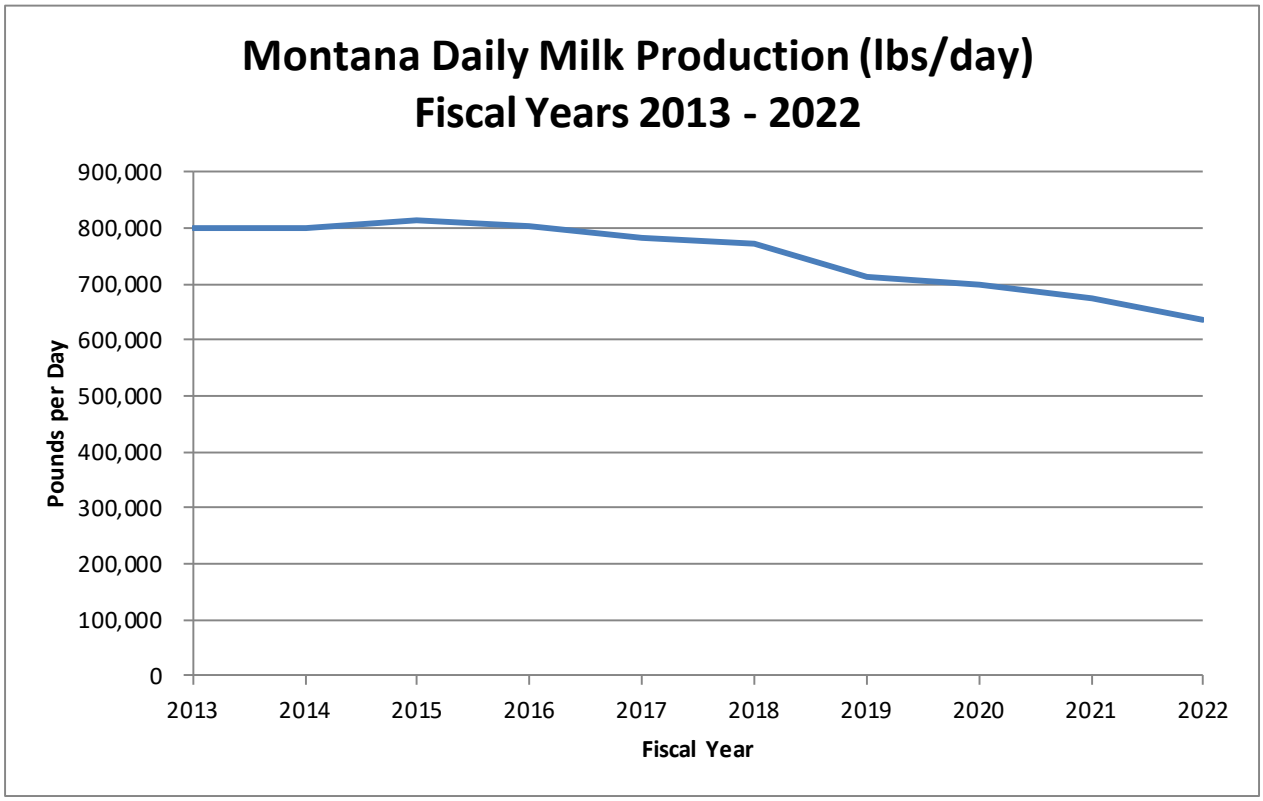
MONTANA MILK PRODUCTION

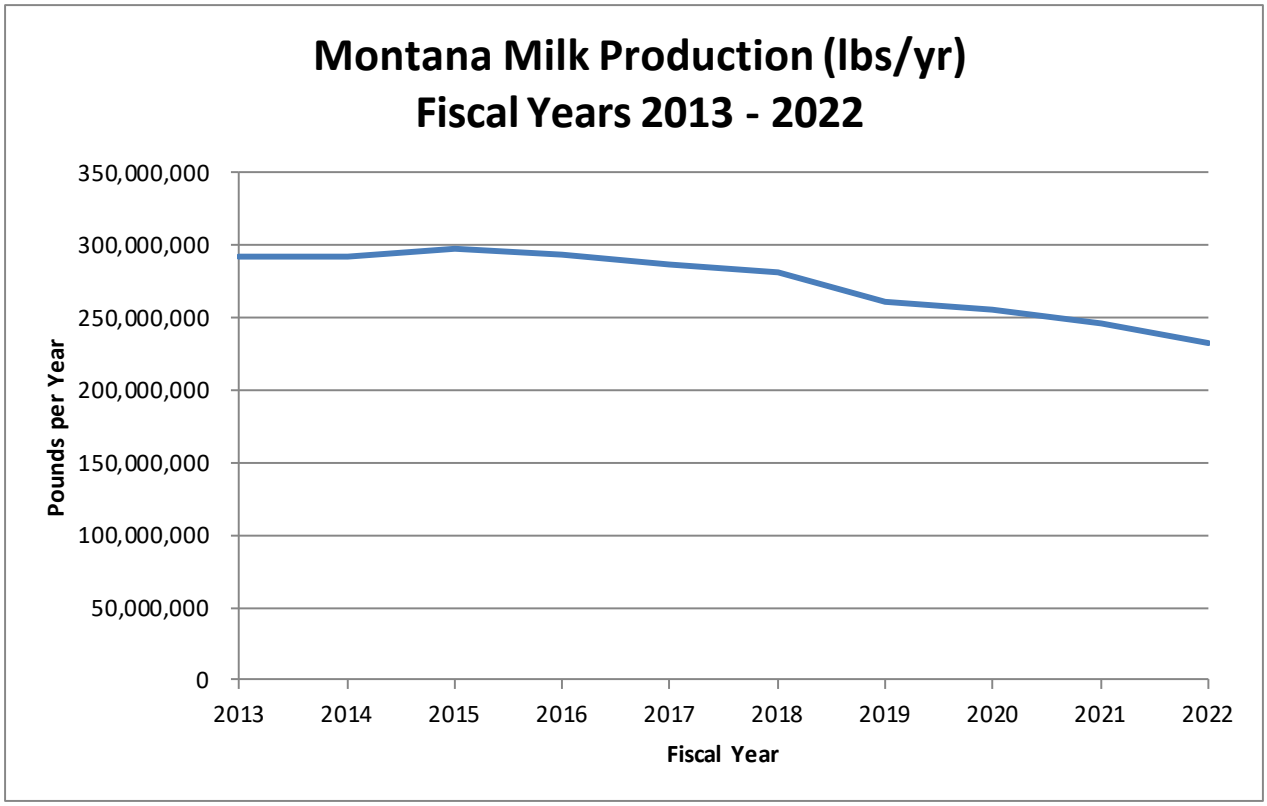
Dairies that participate in Montana's pool marketing system account for most of Montana's milk production. These dairies supply milk to Darigold's processing plant in Bozeman and Meadow Gold's processing plants in Great Falls and Billings. Dairies that are licensed as producer-distributors account for the rest of Montana milk production. The map on page 27 shows the counties in which dairies are licensed to operate in Fiscal Year 2023.

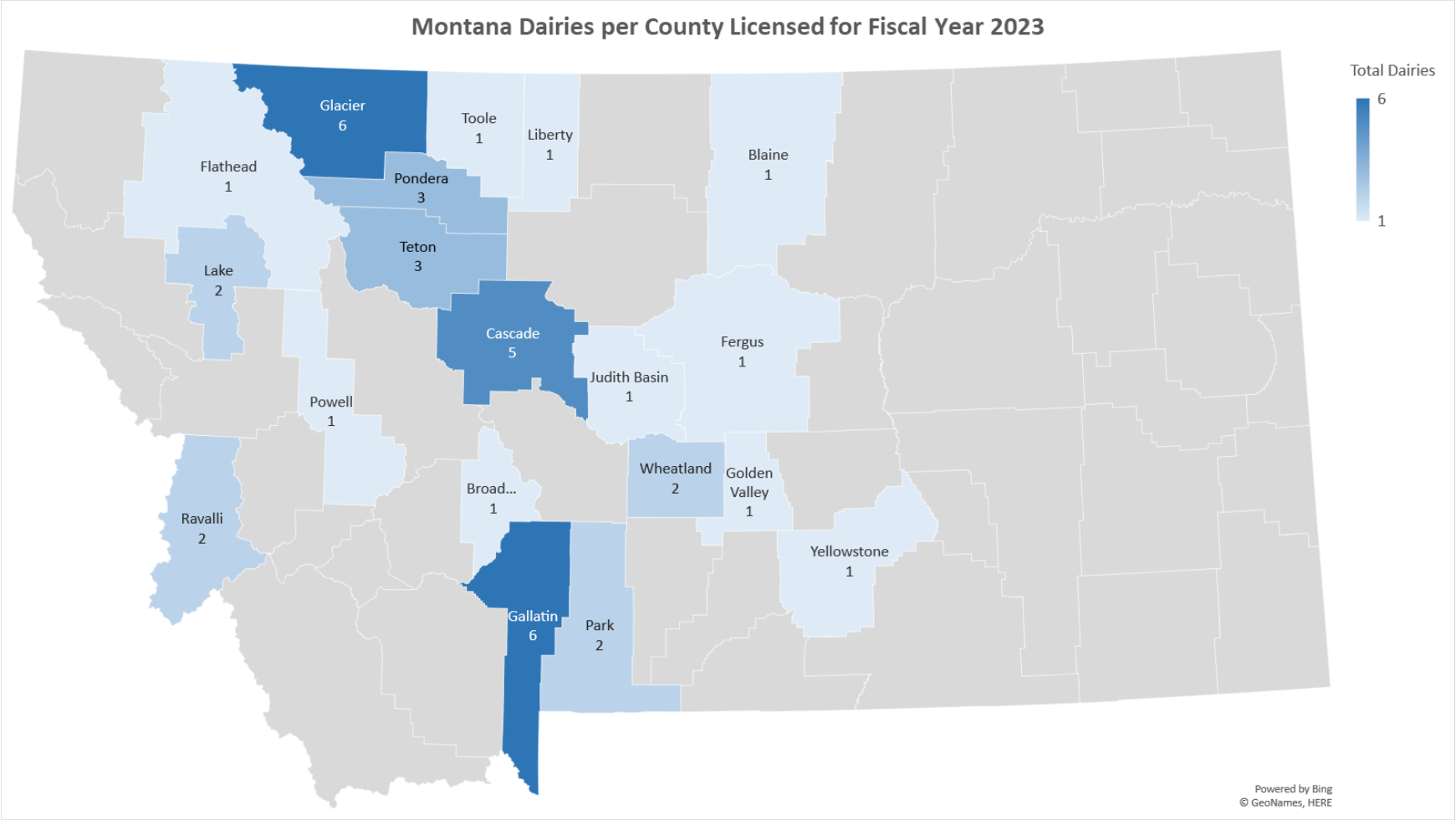
The following charts show the size of Montana's dairy herd and the number of dairies licensed in Fiscal Year 2013 through Fiscal Year 2022, Montana milk production from 2013 through Fiscal Year 2022, and total milk production (per year and per day) for Fiscal Year 2013 through Fiscal Year 2022. The size of Montana's milking herd is based on information provided by producers and producer-distributors in annual license applications. From Fiscal Year 2013 to Fiscal Year 2022, the number of cows being milked declined by 25.7%, while the number of dairies declined by 37%. The average number of cows being milked per dairy increased from 159 cows per dairy in Fiscal Year 2013 to 188 cows per dairy in Fiscal Year 2022. The reduction in production is less than the reduction in herd size due to an increase in dairy cow productivity. Montana milk production in Fiscal Year 2022 was 21.6% lower than in 2013, with most of the decrease occurring in Fiscal Year 2022. Production in Fiscal Year 2022 was the lowest in 22 years and was 18.8% lower than the average of the 2000 – 2022 time period.




Montana Milk Production (lbs/yr)
2013 - FY2022
350,000,000
300,000,000
250,000,000
200,000,000
150,000,000
100,000,000
50,000,000
-
Pounds per Year
FY2013
FY2014
FY2015
FY2016
FY2017
FY2018
FY2019
FY2020
FY2021
FY2022
Year


Montana Daily Milk Production (lbs/day)
Fiscal Years 2013 - 2022
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
Pounds per Day
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
Fiscal Year


Montana Milk Production (lbs/yr)
Fiscal Years 2013 - 2022
350,000,000
300,000,000
250,000,000
200,000,000
150,000,000
100,000,000
50,000,000
0
Pounds per Year
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
Fiscal Year


Montana Dairies per County Licensed for Fiscal Year 2023
Total Dairies
6
1
Glacier
6
Toole
1
Liberty
1
Blaine
1
Flathead
1
Pondera
3
Teton
3
Lake
2
Cascade
5
Fergus
1
Judith Basin
1
Powell
1
Wheatland
2
Golden
Valley
1
Broad...
1
Ravalli
2
Yellowstone
1
Gallatin
6
Park
2
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MILK IMPORTS / EXPORTS

In the discussion of Montana's milk imports and exports, the terms refer to trade between Montana and other states, not international trade.

MILK IMPORTS

Bulk Milk

A provision in the Milk Control Act (81-23-302(10), MCA) specifies that distributors with processing facilities in the state shall *"whenever possible, purchase milk from Montana producers for the processing of products to be sold in this state if milk is available from Montana producers at the price set by the board."* In Fiscal Year 2022, pool handlers imported 34.1 million pounds of bulk unpasteurized milk, an average of approximately 2.84 million pounds per month. In comparison, Montana producers delivered almost 226 million pounds of milk to pool handlers in Fiscal Year 2022, an average of approximately 18.83 million pounds per month. Due to milk plant needs and the decline in supply from Montana producers, Montana distributors' imports of bulk milk increased by 2.07 million pounds in Fiscal Year 2022.

The bulk milk imports are primarily attributed to Meadow Gold – Billings purchasing milk from Wyoming producers, processing the milk, and distributing it to the Wyoming market. Infrequently, pool handlers import bulk milk for other reasons, such as enabling a plant to be shut down during a holiday. Current levels of bulk milk imports are lower than Class I packaged milk exports for any given month. As such, Montana is a net exporter of milk to Wyoming.

Processed Dairy Products

Processed dairy products are imported by both out-of-state distributors and in-state distributors. The following table shows the dairy product imports in Fiscal Year 2022 in units of pounds of milk equivalent calculated on a milk solids basis. Because Montana's milk equivalent conversion factors changed in Fiscal Year 2019, estimates for Fiscal Year 2019 and later are not comparable to prior years, particularly for Class II uncultured products, cheese, and butter.

Estimated Montana Dairy Product Imports – Fiscal Year 2022

Product Description	Imports (lbs. milk equivalent)
Class I Fluid Milk Products	45,644,529
Class II Fluid Cream Products	47,782,211
Class II Uncultured Products *(ice cream & frozen yogurt)*	41,268,414
Class II Cultured Products *(cottage cheese, sour cream, yogurt)*	30,897,621
Class III Products *(cream cheese, cheese, butter)*	206,695,917

MILK EXPORTS

Montana exports include Class I fluid milk products packaged in Montana's pool plants, bulk unpasteurized milk, and bulk cream collected by pool handlers. Montana's exports of bulk milk and Class I packaged fluid milk products significantly exceed its bulk milk imports. The program estimates that bulk cream exported from Montana could have produced approximately 4 million pounds of butter. In Fiscal Year 2022, approximately 10 million pounds of butter were consumed in Montana, almost all of it imported from outside of Montana.

Montana Milk Exports – Fiscal Year 2022

Product Description	Exports (lbs.)
Bulk Cream	7,998,420
Bulk Milk	2,817,399
Class I Packaged Fluid Milk Products	96,656,330
Total	**107,472,149**

MONTANA POOL MARKETING SYSTEM

EXPLANATION OF POOLING & QUOTA SYSTEM

Montana Pool System

Montana's pool marketing system enables producers to receive uniform milk prices (for milk of equivalent butterfat content) based on the overall utilization of pool milk received by all of Montana's pool handlers. Without the pool marketing system, an individual dairy's milk price would be completely dependent upon how the receiving plant utilized the milk. By having a pool marketing system, variation in blend prices (for milk of identical butterfat content) for producers delivering to different plants does not occur. Because of the statewide pooling arrangement, producers supplying an individual plant are not as exposed to the volatility of that plant's marketing "wins" and "losses."

Quota System

Montana's quota system was established in an effort to discourage overproduction that would depress statewide pool blend prices. Montana's quota system establishes a $1.50/cwt differential in the price of milk produced "in quota" over the price of milk produced "in excess" of quota. Excess production accounted for 0.84% of production in Fiscal Year 2022, up from 0.63% in Fiscal Year 2021.

Montana's quota system allows for additional quota to be allocated but does not allow for outstanding quota to be reduced. An adjustment (increase) in quota happens when both of the following conditions occur: (1) more than 83.5% of non-surplus quota milk is utilized in Class I and Class II and (2) non-surplus quota milk utilized for Montana Class I and Class II products increases relative to two years prior. In calendar year 2021, 59.5% of non-surplus quota milk was utilized in Class I and Class II, and non-surplus quota milk utilized for Montana Class I and Class II products decreased by 7.7 million pounds compared to 2019. Because of a generally steady decline in Montana Class I and Class II utilization and steady levels of production, the last time there was an adjustment (increase) in quota was 2001.

The provisions of Montana's administrative rules allow for quota to be provided to a "new eligible producer" for a portion of production. For a new eligible producer, the following sales to a pool handler are treated as if the milk was quota milk: 20% of sales to a pool handler in April – August and 35% of sales in September – March. If the new eligible producer purchases quota, the described assignment of quota is reduced by the amount of quota purchased. Producers are allowed to transfer quota. Per ARM 32.24.502(3), producers may lose quota if delivery of milk to pool handlers is discontinued for over 90 consecutive days. If such producer's quota is not transferred within the 90-day period, it is forfeited. Forfeited quota is allocated to all remaining eligible producers on the following May 1 if the total unassigned quota is 500 lbs./day or more.

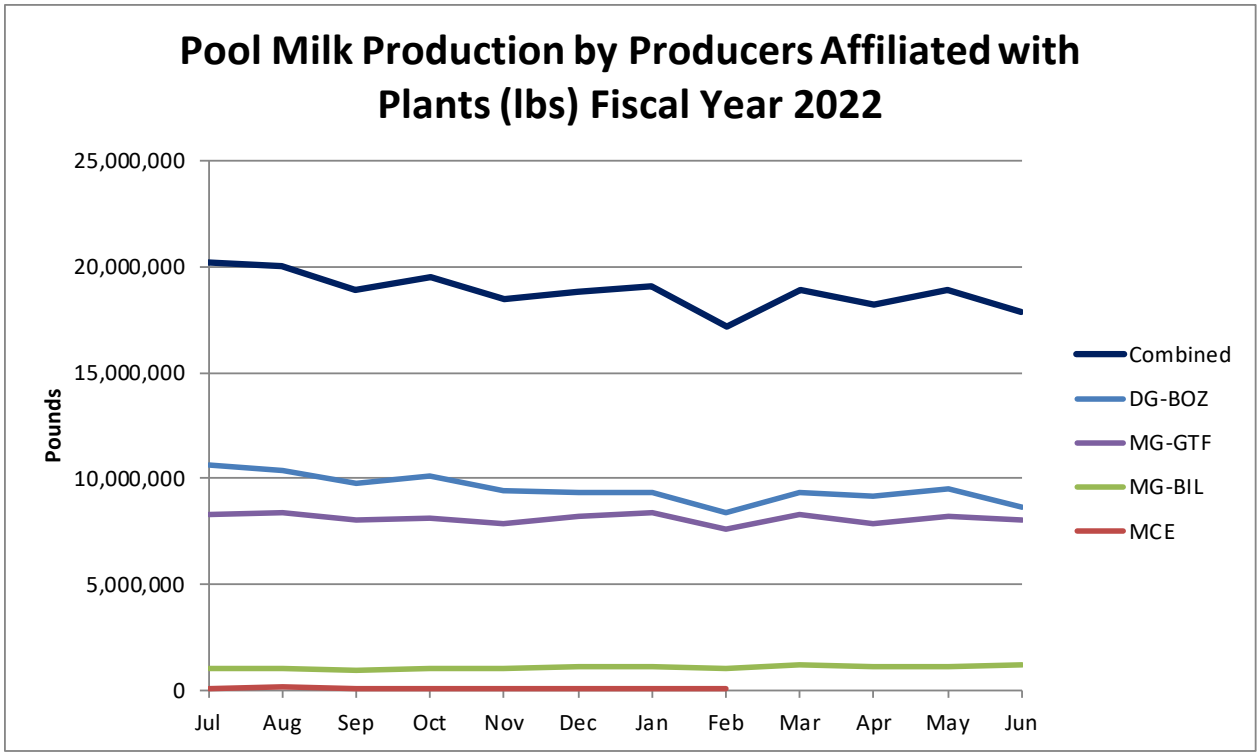
POOL PRODUCTION

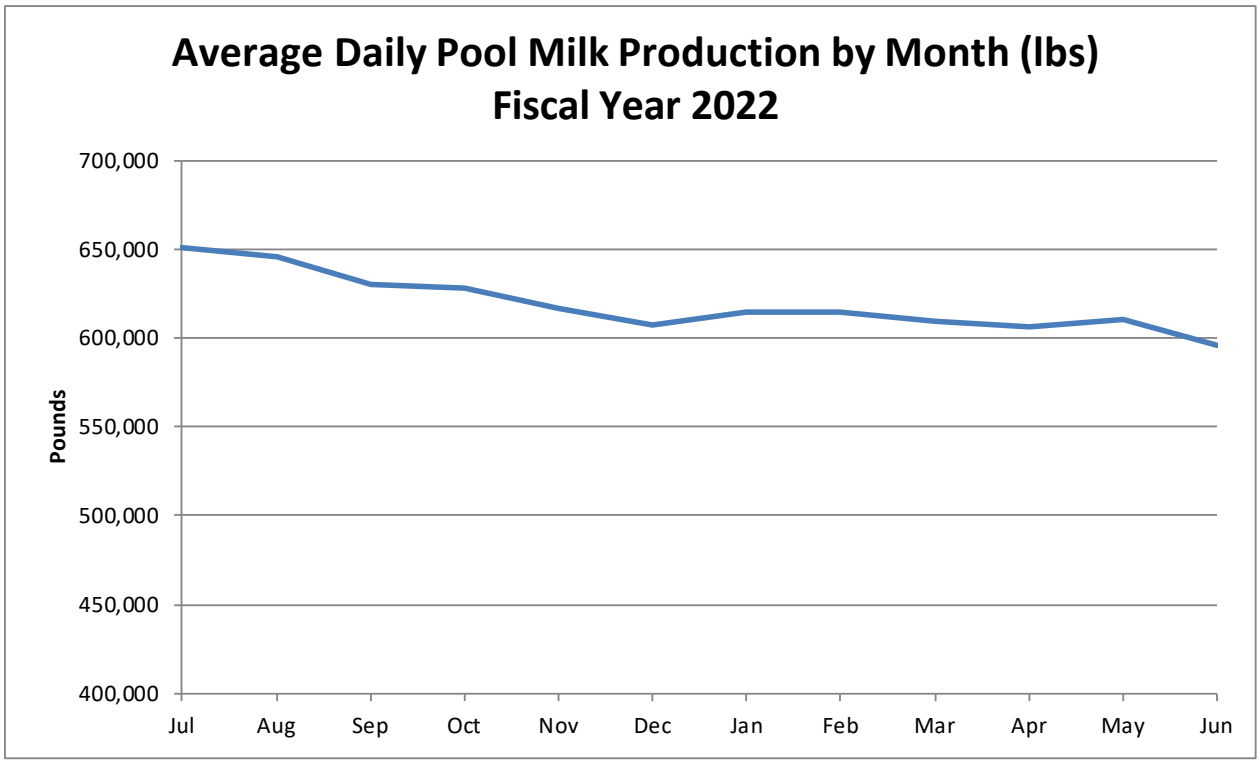
In Fiscal Year 2022, 46 dairies produced and delivered milk to three pool handlers, plus the Montana Correctional Enterprises plant. The following table shows the Montana milk pool's annual production, average butterfat content, weighted average pool price, and gross receipts for Fiscal Year 2012 through Fiscal Year 2022. In Fiscal Year 2022 production decreased by 6.1%; the weighted average price increased by 21.7%; and annual gross receipts increased by 14.2%.

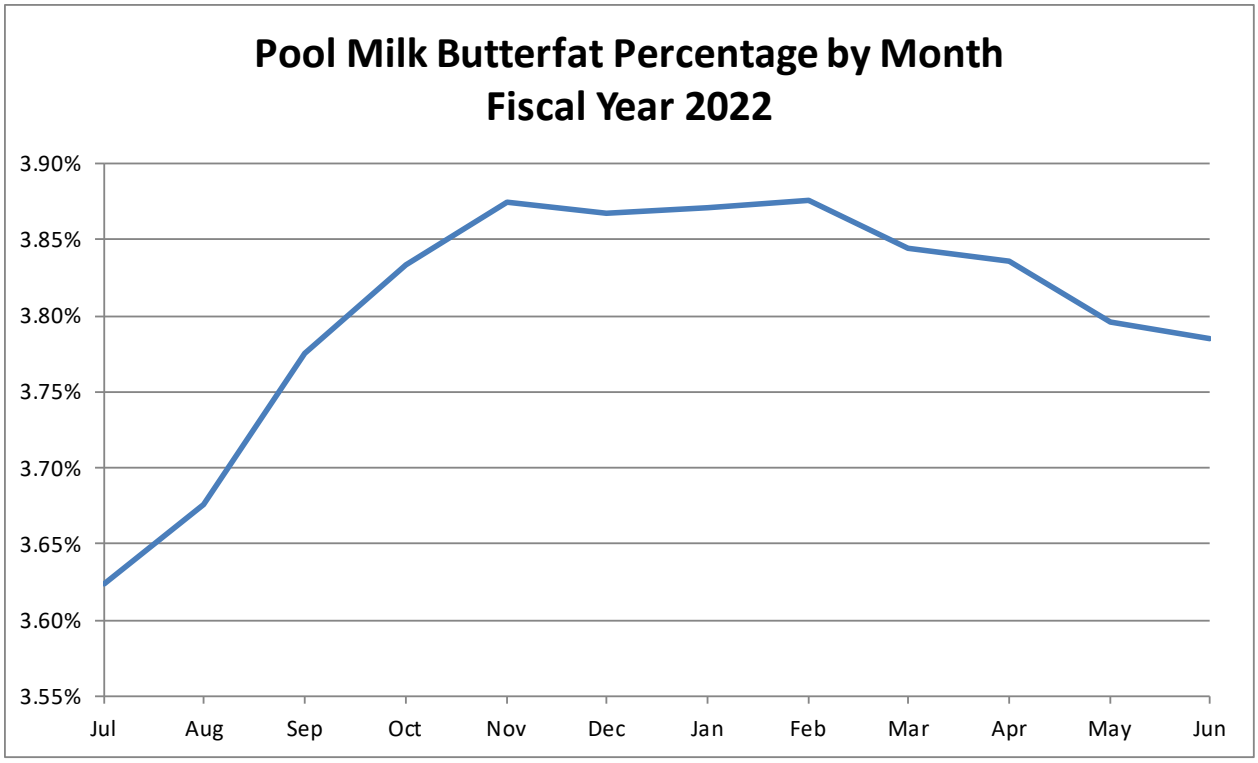
Summarized Pool Information: Fiscal Year 2012 – 2022

Fiscal Year	Production (lbs.)	Butterfat (%)	Weighted Average Price ($/cwt)	Annual Gross Receipts ($)
2012	288,601,895	3.69%	$18.71	$53,989,689
2013	288,126,166	3.73%	$19.01	$54,782,758
2014	286,550,985	3.78%	$21.79	$62,446,124
2015	292,232,179	3.73%	$19.93	$58,232,010
2016	287,449,454	3.72%	$15.39	$44,251,077
2017	280,582,982	3.74%	$16.36	$45,912,344
2018	276,252,329	3.78%	$16.05	$44,351,192
2019	255,057,344	3.81%	$16.78	$42,802,717
2020	249,308,894	3.83%	$18.27	$45,545,253
2021	240,694,786	3.84%	$18.18	$43,769,676
2022	225,997,202	3.80%	$22.12	$49,999,913

The following charts provide information from Fiscal Year 2022 about pool production on a monthly basis to show seasonal aspects of production. The amount (weight) of monthly production is impacted by the number of days of the month, the number of cows being milked, dairy cow productivity, and herd management. The first chart shows milk received from pool producers by each of Montana's pool handlers, plus the Montana Correctional Enterprises plant. Dairy cows experience what is referred to as the "spring flush" and produce more milk in the spring and early summer months. The second chart does not reflect this as much as it would in "normal" years because of the dairy closures in the second half of the Fiscal Year.


Pool Milk Production by Producers Affiliated with Plants (lbs) Fiscal Year 2022
25,000,000
20,000,000
15,000,000
10,000,000
5,000,000
0
Pounds
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Combined
DG-BOZ
MG-GTF
MG-BIL
MCE

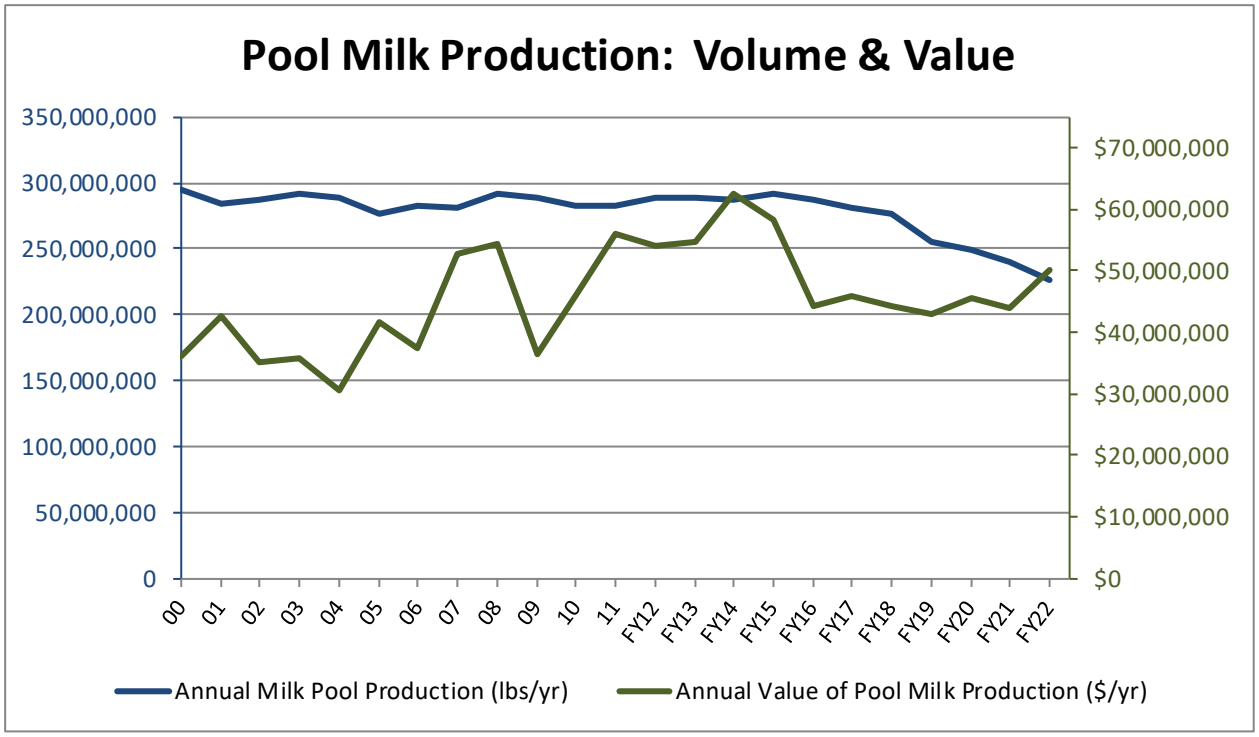

Average Daily Pool Milk Production by Month (lbs) Fiscal Year 2022
700,000
650,000
600,000
550,000
500,000
450,000
400,000
Pounds
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun

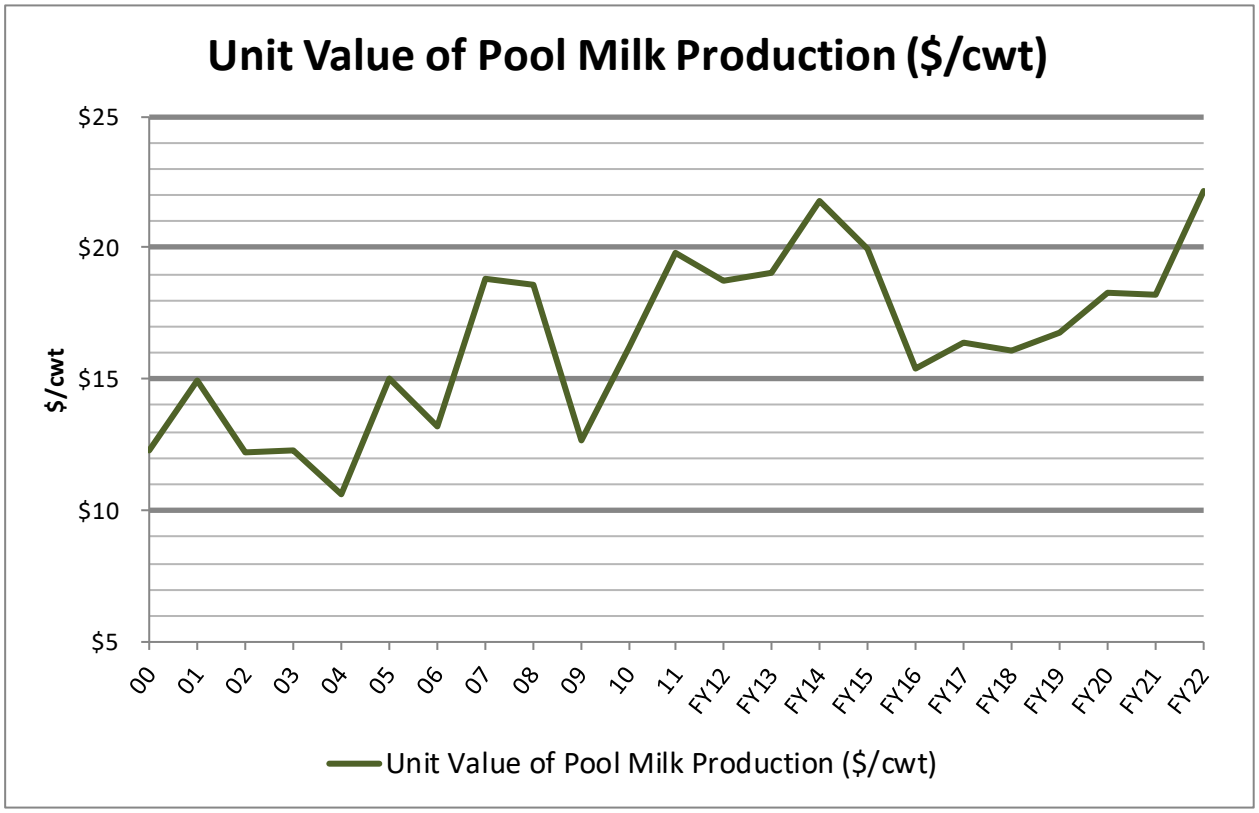


THE PRICE/COST OF POOL MILK

Montana's pool marketing system establishes how pool dairies are compensated for milk. The program announces minimum prices prior to the month of production. Pool handlers report milk receipts and utilization information by the 8th day following the month of production; after which, the program uses the information to calculate quota and excess prices and calculate minimum amounts to be paid to pool producers.

The following charts provide perspective on the volume of pool production, annual value of pool milk sold to pool handlers, and annual weighted average unit price paid for pool production from 2000 through Fiscal Year 2022. Fiscal Year 2022 was the seventh consecutive year that production declined. Over the long term, the value of production has generally trended upward and reflected milk prices. Prices since Fiscal Year 2015 have been lower than the first half of the decade. Milk prices have roughly followed the path of other commodities (such as feedstuffs) during the time period, increasing dramatically in 2007; plunging in 2009; recovering to price levels similar to the 2007 – 2008 time period; setting a record high (at the time) in 2022; and decreasing dramatically in 2016, with only modest recovery until higher prices materialized in Fiscal Year 2022. Milk prices in Fiscal Year 2022 were stable through October 2021 with a strong upward trend beginning in November 2021 and continuing through the end of the Fiscal Year. Milk prices in June 2022 set record highs for Montana.





The following table identifies the key factors that determine the value of Montana pool milk. The production and utilization factors result in a pool wide utilization value calculated for

butterfat and skim milk produced by pool dairies. Adjustments are made to the skim milk utilization value for the transportation charges incurred for shipments of unprocessed pool milk between pool plants and for surplus milk sales.

Key Factors That Determine the Value of Montana Pool Milk

Production & Utilization Factors

- pool wide production and butterfat content
- announced minimum prices for skim milk and butterfat for each class
- percentage of skim milk and butterfat utilized in each class

Transportation Charges for Intrapool Shipments of Unprocessed Milk

- the volume of sales of unprocessed pool milk between pool plants and shipment freight rates

Surplus Sale Factors

- volume of milk exported as Class I packaged surplus milk and location of the receiving market (whether the market is contiguous or non-contiguous to Montana)
- volume of milk exported as bulk surplus milk, the sale proceeds received relative to the Montana classified value of the milk, and the freight costs of shipping the milk to out-of-state processors

Transportation charges incurred for shipments of unprocessed pool milk between pool plants are deducted from the pool skim milk utilization value.

"Surplus" milk is defined by ARM 32.24.150(42). In brief, surplus milk is milk produced in Montana that is not consumed in Montana, excluding sales of cream to out-of-state markets, inventory, shrink, and dumped milk. Surplus sale factors allow for adjustments to the value of pool milk that reflect market dynamics. Surplus milk may be milk sold to out-of-state markets in packaged form or in bulk. The majority of surplus milk is Class I packaged milk sold to out-of-state markets.

- For Class I packaged milk that is surplus milk, pool handlers pay the Montana Class I value less surplus sales adjustments established in rule that depend on whether the market is in a state that is contiguous or non-contiguous to Montana.
- For bulk surplus milk, the class of utilization is based on how the out-of-state receiving plant utilizes the milk. Most often, bulk surplus milk is classified as a Class III utilization because the receiving plants are cheese plants or powdered milk plants. The surplus adjustment for bulk surplus milk is the actual value received from the sales (market value), less an adjustment for freight charges requested by a pool handler, less the initial Montana utilization value (value based on Montana classified prices). Typically, bulk surplus sales adjustments are negative adjustments to the utilization value, but it is possible to have a positive bulk surplus sales adjustment depending on the market value of milk and requested adjustment for freight charges.

Dairy Payroll: Quota / Excess Prices

The price an individual dairy is paid for the milk it sells in a month is based on whether the milk produced is within that dairy's quota right and the extent to which production exceeds quota. Quota milk production is priced $1.50/cwt higher than excess production. For each dairy, payment is based on the actual butterfat content of the dairy's monthly milk production.

The following table provides a schematic of the sequence for determining prices to be paid to individual dairies for milk produced in quota and milk produced in excess of quota. The quota price shown for milk in the Montana minimum price charts is for milk with 3.5% butterfat content. The quota price is determined by calculating the statewide pool's value of skim milk and butterfat (utilization of skim milk and butterfat multiplied by minimum prices for the associated class of milk); making adjustments to the pool skim milk value for transportation charges for shipments of unprocessed pool milk between pool plants and surplus sales adjustments; making adjustments to the pool skim milk value that maintain a stable balance in the producers' settlement fund; and applying calculations that create a $1.50/cwt differential between the quota milk price and excess milk price.

Skim Milk Portion of Milk	**Butterfat Portion of Milk**
Classification by Utilization for Skim Milk & Butterfat: I, II, III	
Pool wide Skim Milk Utilization Value *(Classified announced prices multiplied by weight of Class I, II, III utilization)* Adjustments to Skim Milk Utilization Value: - Transportation Charges for Intrapool Shipments + / - Surplus Sales Adjustments + / - Settlement Fund Adjustments = Adjusted Pool wide Skim Milk Utilization Value	Pool wide Butterfat Utilization Value *(classified announced prices multiplied by weight of Class I, II, III utilization)*
Adjustments to create Quota / Excess Price Differential ($1.50/cwt)	
Skim Milk & Butterfat Quota / Excess Unit Prices ($/lb.)	
Blend Price to be Paid to an Individual Dairy Based Upon Actual Butterfat Content	

Utilization of Pool Milk Receipts

Pool handlers submit reports to the program that are used to determine the utilization of pool milk received. These reports show the weight of milk and butterfat used to produce products in the various classes of milk utilization. Ending inventory of Class I packaged milk is reported as a Class I utilization; and ending inventory of bulk milk is reported as a Class III utilization. Milk dumped is classified as a Class III utilization. Shrinkage, which is the difference between milk receipts and milk otherwise accounted for, is classified as a Class III utilization, except any shrinkage in excess of two percent of producer receipts is classified as a Class I utilization. The purpose of classifying shrinkage exceeding the two percent threshold as a Class I utilization is to encourage pool handlers to be efficient in processing milk and to protect producers from

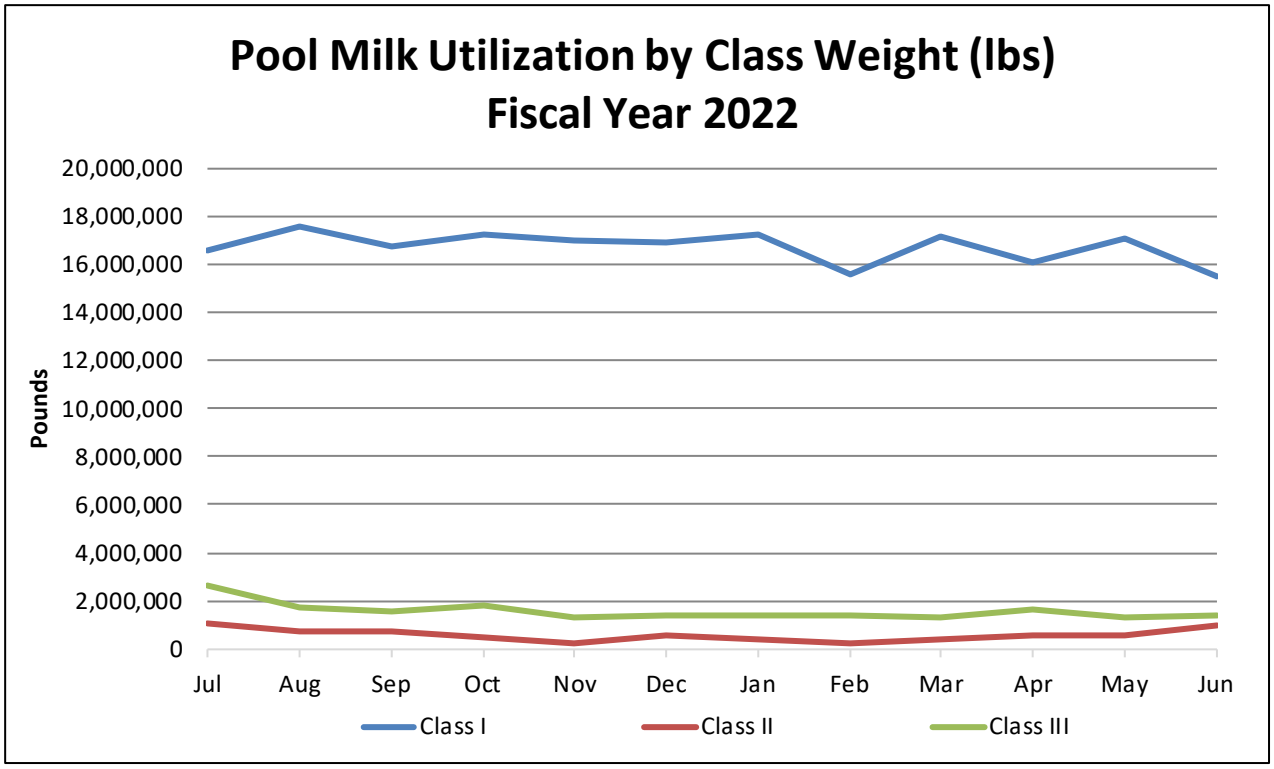
bearing a cost for inefficient milk processing. The classification of unprocessed milk sold to other pool handlers is based on the receiving pool handler's utilization of the milk.

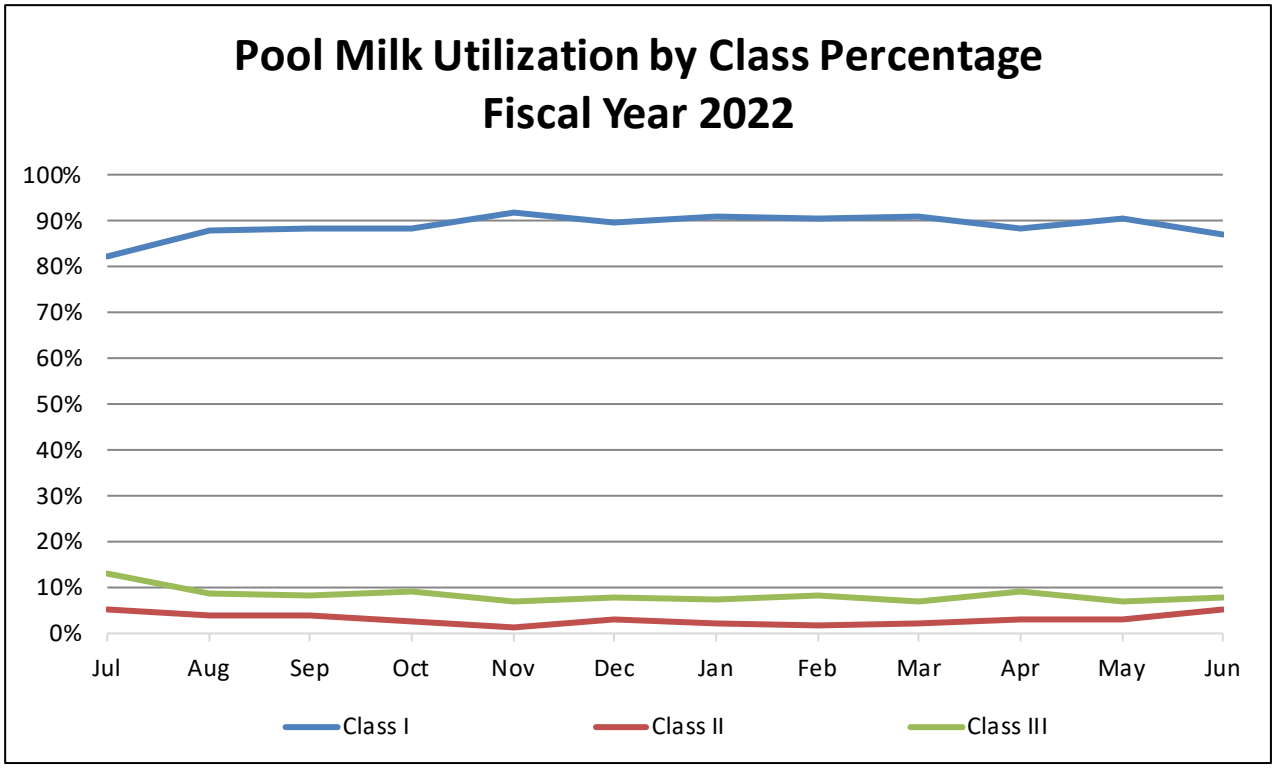
The following table summarizes the utilization of skim milk and butterfat by class, value of utilization, and weighted average unit value.

Fiscal Year 2022 Pool Milk Utilization Volume, Value, Average Unit Value Before Adjustments

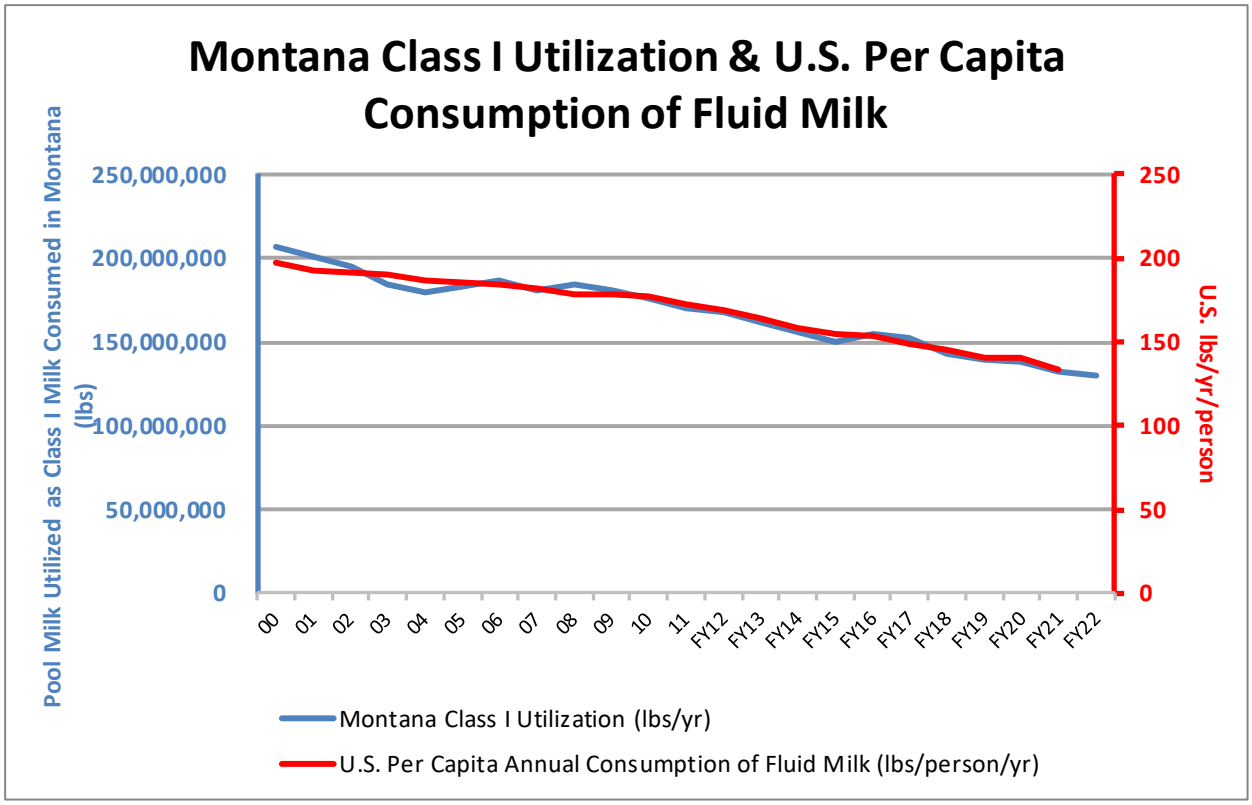
	CLASS I	CLASS II	CLASS III	All Classes – Before Adjustments
Skim Milk Utilization (lbs.)	196,038,622	5,584,685	15,780,620	217,403,927
Skim Milk Utilization ($)	$29,292,792	$789,676	$1,754,481	$31,836,949
Skim Milk Utilization – Unit Value ($/lb.)	$0.1494236	$0.1414003	$0.1111795	$0.1464415
Butterfat Utilization (lbs.)	4,466,900	1,162,465	2,963,910	8,593,275
Butterfat Utilization ($)	$10,850,725	$2,820,375	$6,880,451	$20,551,550
Butterfat Utilization – Unit Value ($/lb.)	$2.4291399	$2.4262019	$2.3214102	$2.3915853

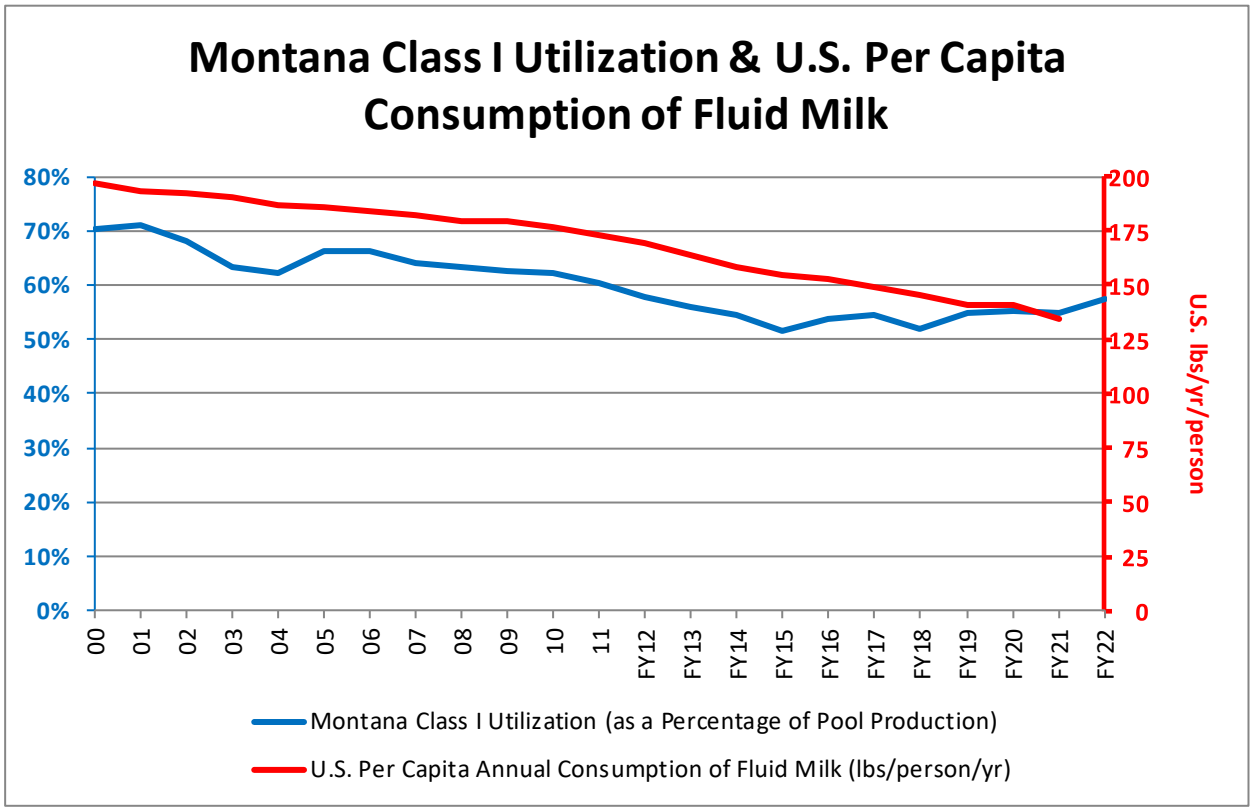
The following two charts show monthly pool wide utilization of milk in terms of pounds per month and percentage of production. Viewing utilization by percentage of production eliminates variation that is based on the number of days in a month. In terms of total utilization and utilization as a percentage of production, Class I utilization peaks in the fall months and is lowest in the spring and summer months. This seasonal trend is influenced by seasonal sales patterns (strongly influenced by school milk sales) and seasonality in milk production. Class II utilization peaks in the summer months and is driven by sales of ice cream and ice cream mix products.


Pool Milk Utilization by Class Weight (lbs)
Fiscal Year 2022
Pounds
20,000,000
18,000,000
16,000,000
14,000,000
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
0
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Class I
Class II
Class III


Pool Milk Utilization by Class Percentage
Fiscal Year 2022
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Class I
Class II
Class III

The following chart shows the percentage of Montana pool milk utilized as Class I milk consumed in the Montana market and the per capita consumption of fluid milk in the United States since 2000. The USDA Economic Research Service was the source of per capita consumption information (http://www.ers.usda.gov/data-products/dairy-data, accessed September 30, 2022). From Calendar Year 2000 through Fiscal Year 2016, pool production was stable, averaging about 287 million pounds per year. Starting in Fiscal Year 2017 through Fiscal Year 2022, milk production declined 11.76%, an average reduction of approximately 4.21%. Montana's population increased from approximately 904,000 in 2000 to 1,103,187 in 2022 according to the U.S. Census Bureau. The trend for the percentage of pool milk utilized as Class I milk consumed in Montana is one of decline, which corresponds to the trend of declining per capita consumption of fluid milk in the United States. Total utilization of pool milk as Class I milk consumed in Montana has decreased by roughly 37% since 2000. Annual U.S. per capita consumption of fluid milk has declined by about 32%, from 197 pounds in 2000 to 134 pounds in 2021. The percentage of pool milk utilized as Class I milk consumed in Montana decreased from accounting for 70% of pool production in 2000 to 51% in Fiscal Year 2015. In Fiscal Year 2022, the percentage of pool milk utilized as Class I milk consumed in Montana was about 58%. The increased percentage in Fiscal Year 2022 vs. 2015 is a function of pool production decreasing more than Class I milk utilization decreased (for the Montana market). Potential factors influencing the long-term decline of the percentage of Class I pool milk consumed in Montana include increased availability and possibly market share of ultra-pasteurized products (such as organic milk, lactose-free milk, and other specialty or branded products) that are imported into the state; loss of market share to a myriad of new beverage products, including plant-based milk substitutes; and changes in food distribution systems that have led to an increased imports of fluid milk by out-of-state distributors supplying Montana stores. Class II manufacturing in Montana accounts for a relatively small amount of utilization. Because production has been steadily declining and Montana dairy processors do not utilize a large percentage of pool milk for production of Class II and Class III products, the decrease in the percentage of pool milk utilized as Class I milk that is consumed in Montana is being offset by exports of surplus milk.

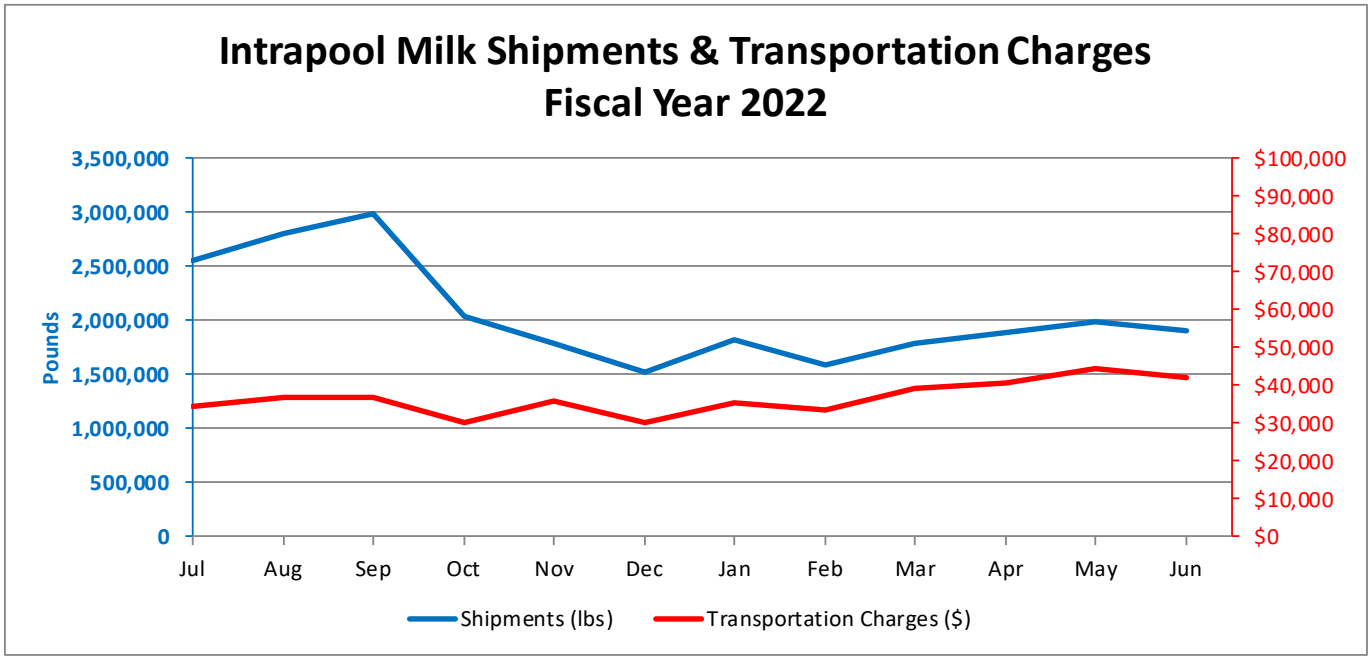

Montana Class I Utilization & U.S. Per Capita Consumption of Fluid Milk
Pool Milk Utilized as Class I Milk Consumed in Montana (lbs)
250,000,000
200,000,000
150,000,000
100,000,000
50,000,000
0
250
200
150
100
50
0
U.S. lbs/yr/person
00 01 02 03 04 05 06 07 08 09 10 11 FY12 FY13 FY14 FY15 FY16 FY17 FY18 FY19 FY20 FY21 FY22
Montana Class I Utilization (lbs/yr)
U.S. Per Capita Annual Consumption of Fluid Milk (lbs/person/yr)


Montana Class I Utilization & U.S. Per Capita Consumption of Fluid Milk
80%
70%
60%
50%
40%
30%
20%
10%
0%
200
175
150
125
100
75
50
25
0
U.S. lbs/yr/person
00 01 02 03 04 05 06 07 08 09 10 11 FY12 FY13 FY14 FY15 FY16 FY17 FY18 FY19 FY20 FY21 FY22
Montana Class I Utilization (as a Percentage of Pool Production)
U.S. Per Capita Annual Consumption of Fluid Milk (lbs/person/yr)

Adjustment for Transportation Charges of Intrapool Milk Shipments

A negative adjustment to the skim milk utilization value is made for transportation charges for shipments of unprocessed pool milk between pool plants. In Fiscal Year 2022, the skim milk utilization value was reduced by $440,242 for shipment of 24.7 million pounds of unprocessed pool milk ($1.78/cwt average freight rate). Overall, the adjustment for intrapool milk shipments reduced the value of pool production by approximately $0.20/cwt.

The following chart shows the volume of the intrapool shipments and total transportation charges for each month in Fiscal Year 2022. The charges were primarily driven by shipments from Meadow Gold – Great Falls to Meadow Gold – Billings. In Fiscal Year 2022, intrapool shipments of unprocessed pool milk also occurred from Meadow Gold – Great Falls to Meadow Gold – Billings; Meadow Gold – Great Falls to Darigold – Bozeman; and Darigold – Bozeman to Meadow Gold – Billings.

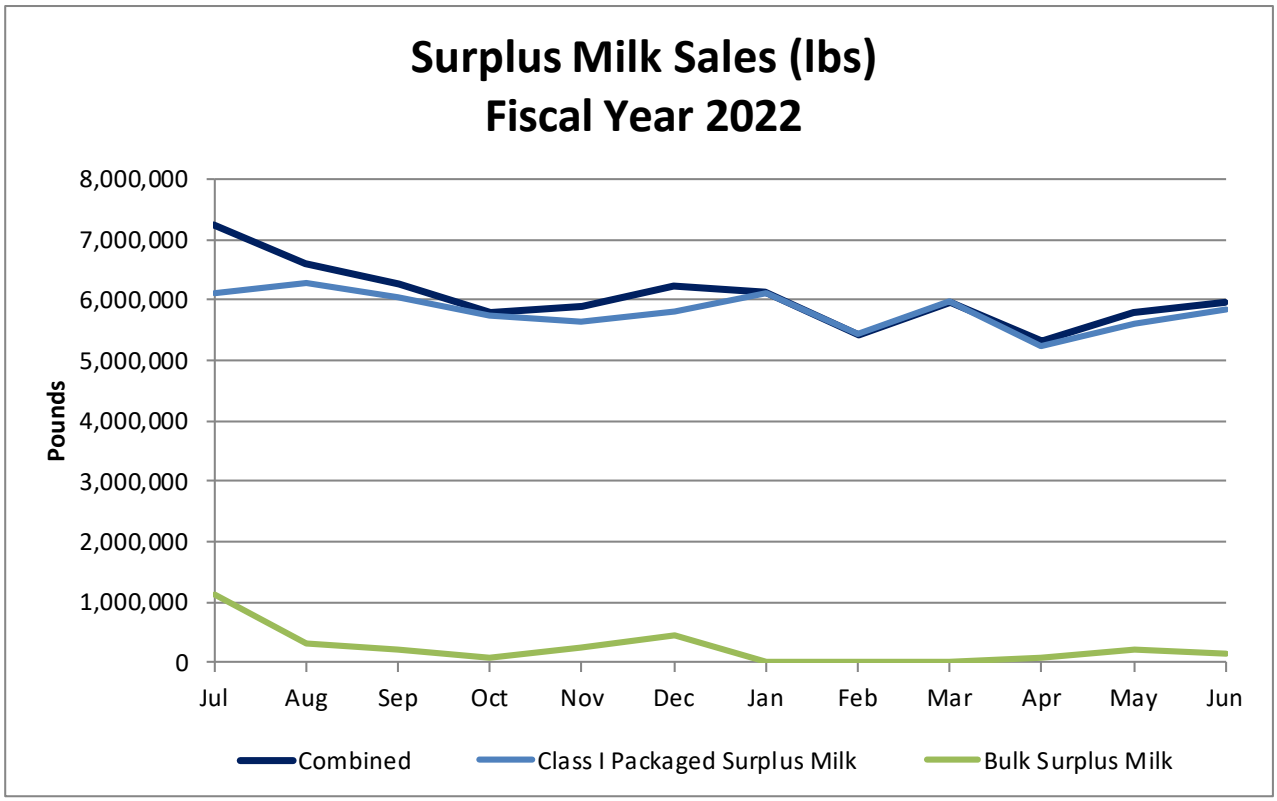


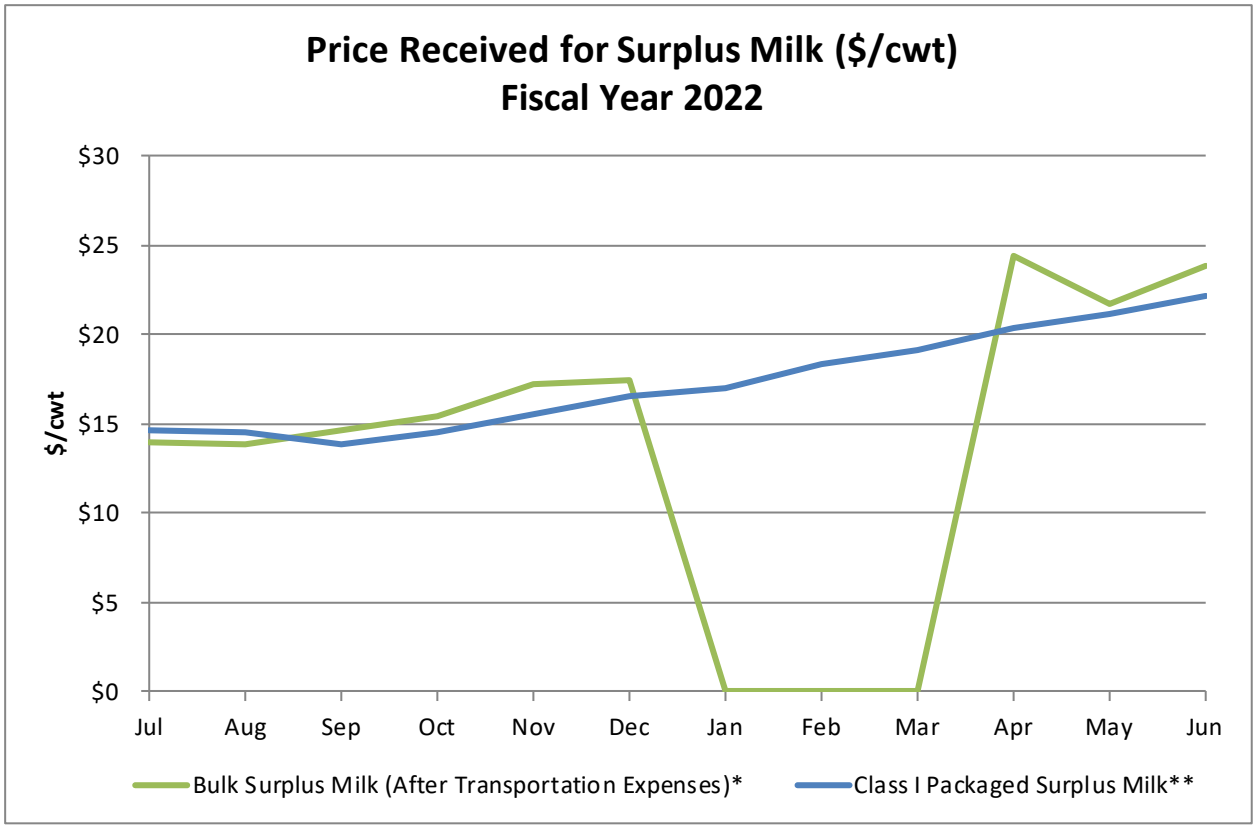
Sales of Surplus Milk

The following two charts show the monthly volume of sales of surplus milk by pool handlers and the unit price received for surplus milk sales after transportation expenses. Bulk surplus milk sales peak in the summer months because less Montana milk is utilized for Class I milk sold to schools and because Montana production peaks in late spring to early summer.

The value received for Class I packaged surplus milk is not directly comparable to the value received for bulk surplus milk (net of transportation expenses) because of the difference in butterfat content. The butterfat content in bulk milk tends to exceed 3.5%, whereas the butterfat content of Class I packaged milk tends to be about 2%. Butterfat is valuable. For Montana pool milk in Fiscal Year 2022, butterfat was over 16 1/3 times more valuable than skim

milk. In determining whether Class I packaged surplus milk sales or bulk surplus milk sales are more economically advantageous to pool producers, an accounting of the value of butterfat removed from the milk processed into Class I packaged surplus milk is needed that considers bulk cream sales and Class III shrink of milk associated with processing raw milk for Class I packaged milk surplus sales. Bureau analysis of December 2018 surplus milk sales showed that, all things considered, processing raw milk for Class I packaged surplus sales contributed $4.06/cwt more to the pool utilization value than bulk surplus milk marketed to Class III processors. The bureau believes that the conclusion of this economic comparison is valid for other months, with the economic advantage of processing surplus milk being higher or lower depending on the strength of the spot market in Idaho and Utah and the transportation expenses included in bulk surplus sales adjustments requested by pool handlers.





*No bulk surplus milk in January 2022 – March 2022

**The price received for surplus Class I packaged milk excludes the value of associated cream and shrink.

Adjustments for Surplus Sales

Class I Packaged Surplus Milk

In Fiscal Year 2022, surplus sales adjustments for Class I packaged surplus milk reduced the utilization value by $1,901,871. Overall, the adjustment for Class I packaged surplus milk sales reduced the value of pool production by $0.84/cwt.

Bulk Surplus Milk

In Fiscal Year 2022, surplus sales adjustments for bulk surplus milk reduced the utilization value by $46,474. The adjustment was a negative adjustment almost every month apart from January 2022 – March 2022 having no adjustment and November 2021 and April 2022 having a positive adjustment. Overall, the adjustment for bulk surplus milk sales reduced the value of pool production by $0.02/cwt.

Each bulk surplus milk sale is classified (Class I, Class II, or Class III) based upon how the purchasing plant utilizes the milk. In Fiscal Year 2022, all bulk surplus milk sales were Class III utilizations, and the adjustment was calculated by subtracting the Montana Class III value and transportation expenses from the value received for the sale of bulk surplus milk.

Combined Adjustments to Pool Milk Utilization Value

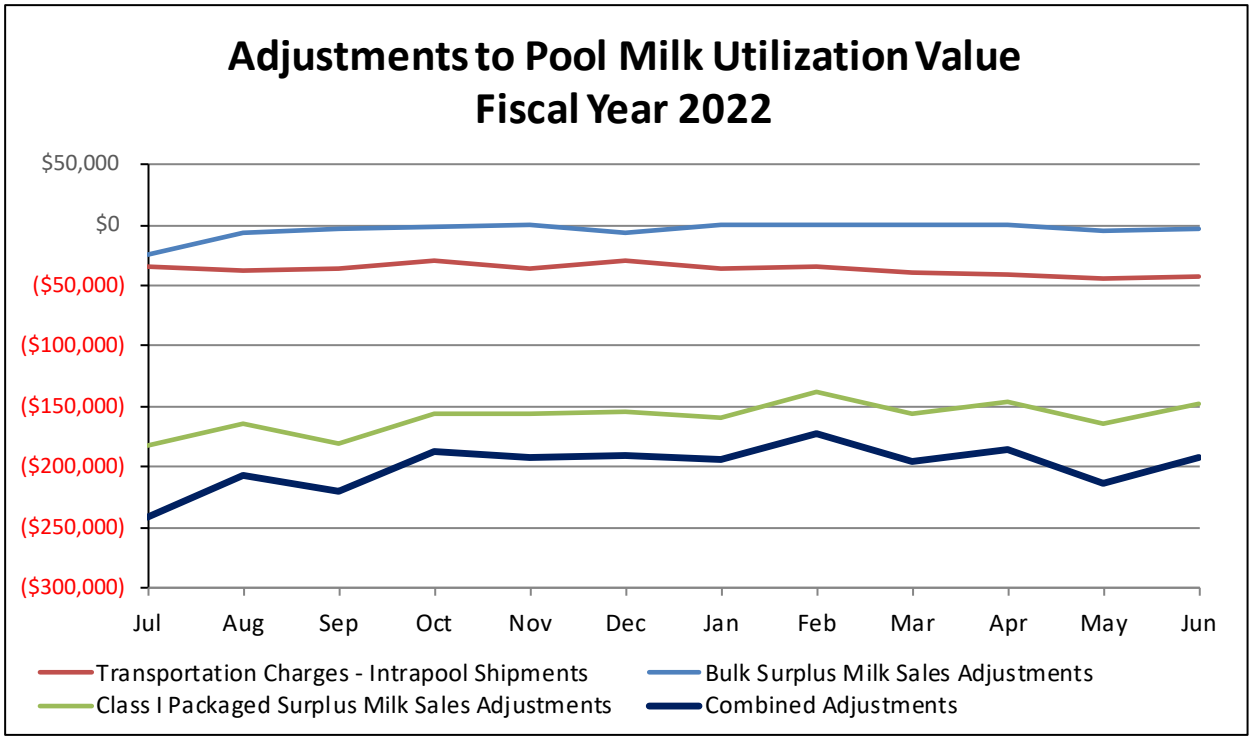
In Fiscal Year 2022, adjustments made for transportation charges for shipments of unprocessed pool milk between pool plants, Class I packaged surplus milk sales, and bulk surplus milk sales decreased the pool utilization value by about 4.6%. The table below summarizes the adjustments and their impact in terms of dollars per hundredweight of pool production and percentage of unadjusted utilization value.

Adjustments to Pool Milk Utilization Value in Fiscal Year 2022

Adjustment Description	Adjustment to Pool Milk Utilization Value ($)	Adjustment to Pool Milk Utilization Value ($/cwt of Pool Production)	Adjustment as a Percentage of Unadjusted Utilization Value
Transportation Charges - Intrapool	($440,242)	($0.1948)	(0.84%)
Class I Packaged Surplus Milk Sales	($1,901,871)	($0.8415)	(3.63%)
Bulk Surplus Milk Sales	($46,474)	($0.0206)	(0.09%)
Subtotal	($2,388,587)	($1.0569)	(4.56%)

	Pool Milk Utilization Value ($)	Pool Milk Utilization Value ($/cwt at actual butterfat)
Unadjusted Value	$52,388,500	$23.1810
Adjustments	($2,388,587)	($1.0569)
Adjusted Value	$49,999,913	$22.1241

The following chart shows the adjustments made to the pool utilization value throughout Fiscal Year 2022.


Adjustments to Pool Milk Utilization Value
Fiscal Year 2022
$50,000
$0
($50,000)
($100,000)
($150,000)
($200,000)
($250,000)
($300,000)
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Transportation Charges - Intrapool Shipments
Bulk Surplus Milk Sales Adjustments
Class I Packaged Surplus Milk Sales Adjustments
Combined Adjustments

APPENDIX A – BOARD OF MILK CONTROL & RELATIONSHIP WITH MONTANA DEPARTMENT OF LIVESTOCK