

MONTANA BOARD OF MILK CONTROL
MARKET ADMINISTRATION & INDUSTRY REPORT

FISCAL YEAR 2021
ENDED JUNE 30, 2021

SEPTEMBER 2021

MONTANA DEPARTMENT OF LIVESTOCK
MILK CONTROL BUREAU

DARRYL FORD & MARK CURTIS

MONTANA BOARD OF MILK CONTROL

MARKET ADMINISTRATION & INDUSTRY REPORT

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EXECUTIVE SUMMARY

The purpose of the Milk Control Bureau (bureau) 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, setting forth four specific trade practice prohibitions;
- 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 bureau in fiscal year 2021. The board membership and producer committee membership changed during the fiscal year.

The board held three public meetings (October 27, 2020; March 25, 2021; and April 29, 2021). The meetings were held via Zoom due to the COVID-19 pandemic. The board

- amended ARM 32.24.450 to reduce fiscal year 2022 milk control assessment rates by 4.5%;
- ratified producer committee appointments for the 2020 – 2021 term;
- discussed the performance audit being performed by the Legislative Audit Division on the bureau and board, including the process timeline;
- discussed the change in legal representation of the board and bureau from Rob Stutz to Lindsey Simon;
- discussed the proposed 2023 biennium budget;
- had a board orientation provided by prior Bureau Chief Chad Lee, discussing the following topics: introduction of Montana milk market regulation, operation of the board, a walkthrough of monthly milk price regulation;
- discussed the analysis of surplus milk sold in bulk to affiliated businesses with a presentation of the analysis by Lindsey Simon, legal counsel to the board;
- amended administrative rules (MAR Notice 3-21-316) to implement Senate Bill 131 – Milk Price Forward Contracts;
- discussed the departure of Chad Lee, bureau chief, who took an accountant position with

the Office of the Commissioner of Higher Education on May 24, 2021

The producer committee met two times via conference call and approved three quota transfer requests.

Bureau highlights for fiscal year 2021 include:

- The bureau completed the drafting of a board guide as a resource for board members and to provide a means of preserving and perpetuating institutional knowledge. Suggestions from legal counsel will be incorporated into the guide in fiscal year 2021.
- The bureau relocated to its old address at 1225 8th Avenue on July 21, 2020, to make way for the parking lot of the new Montana Historical Museum addition.
- In June 2020, the bureau provided information to the Legislative Audit Division (LAD), which was assessing whether to perform a performance audit on the bureau and board. Subsequently, in August, the department was informed that LAD decided to conduct the performance audit.
- The bureau transitioned from the Montana Interactive (MI) online payment system to the PayZang online payment system.

The majority of milk produced in Montana is utilized as fluid milk consumed in Montana. In fiscal year 2021, Montanans consumed an estimated 21.6 million gallons of fluid milk, 74% 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 5.5 million gallons was consumed in Montana, 15.4% of which was manufactured by Montana plants. Approximately 4.9% 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 bureau 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 (0.3% average annual increase). Fiscal year 2021 saw a 0.9% decrease in the consumption of Class I milk products over fiscal year 2020. 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 2021 was 10.5% lower than fiscal year 2015; the percentage was 4.1% lower in fiscal year 2021 than in fiscal year 2020. 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 bureau from Montana plants reflects this trend. Montana consumption of fluid cream type products increased by almost 8% annually (on average) since fiscal year 2015. Estimates indicate that Montana consumption of ice cream type products decreased by nearly 0.1% in fiscal year 2021 following a nearly 6% annual increase (on average) between fiscal year 2015 and fiscal year 2020. Montana consumption of yogurt decreased by roughly 3% in fiscal years 2018, 2019, 2020, and 2021 after double digit increases in fiscal years 2016 and 2017. Butter consumption decreased by 0.1% in fiscal year 2021 following 8% annual increases (on average) between fiscal years 2018 -

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. The relationships of Montana dairy consumption statistics and tourism in this report are most reflective of the 2019 tourism season. The major impact of the COVID-19 pandemic on Montana's tourism industry in 2020 likely affected fiscal year 2021 dairy consumption because of seasonality. Negative impacts on dairy consumption by decreased tourism may be negated by changes in residential consumption patterns driven by stay-at-home orders, social distancing, and other societal influences.

Due to uncertainty and market instability due to the COVID-19 pandemic, the prices received for milk with 3.5% butterfat in fiscal year 2021 were volatile from July 2020 through January 2021. Beginning with February 2021, prices received for milk with 3.5% buttermilk were more stable with an upward trend. Skim milk prices followed the same trend as milk with 3.5% butterfat. Butterfat prices decreased every month from September 2020 through March 2021. Beginning with April 2021 through the May 2021, butterfat prices increased. The June 2021 butterfat price slightly declined from May 2021.

In fiscal year 2021, Montana dairies produced nearly 247 million pounds of milk, down approximately 8.4 million pounds from fiscal year 2020. Montana dairies produced 294 million pounds of milk in 2000. Montana milk production since 2000 has ranged from 247 million to 298 million pounds per year, averaging roughly 283 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 48 licensed dairies in fiscal year 2021) and a decline in the size of the milking herd (from 13,216 cows in fiscal year 2000 to 9,466 cows in fiscal year 2021). The average number of cows being milked per dairy has increased from 92 cows per dairy in fiscal year 2000 to 197 cows per dairy in fiscal year 2021.

Montana exported 101.4 million pounds of Class I packaged fluid milk products (*compared to imports of 36.5 million milk-equivalent pounds of Class I packaged fluid milk products*) and exported 10.7 million pounds of bulk raw milk (*compared to imports of 32 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 2021, 46 pool dairies produced and delivered milk with an average butterfat content of 3.84% to three pool handlers and the Montana Correctional Enterprises dairy plant, receiving over \$43.8 million at a weighted average price of \$18.18 per hundredweight (cwt). Compared to fiscal year 2020, the weighted average price increased by 0.5%; the 3.9% decrease in gross annual receipts was primarily due to decreased production. While the weighted average price for pool milk was higher than fiscal years 2016 - 2019, it was still 9% lower than fiscal year 2015.

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 55% of pool production in fiscal year 2021, decreasing slightly from 55.2% in fiscal year 2020. 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 141 pounds per year in 2020. 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 \$2.6 million (5.6%), or in other terms, \$1.09/cwt of production. In fiscal year 2021, \$445,921 was deducted from the pool skim milk utilization value to transport approximately 25.2 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 2021, the overall adjustment for surplus sales (bulk and Class I packaged milk) totaled \$2,179,979.

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 2021

In fiscal year 2021, the board held three meetings (October 27, 2020; March 25, 2021; and April 29, 2021).

The following table shows information about the board members and their terms of appointment. With a new governor elected in November 2021, three new board members were appointed: Ken Bryan, Staci Ketchum, and Travis Stroh and two board members were retained: Brian C. Beerman and W. Scott Mitchell. 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 Bureau 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 Bureau
 P.O. Box 202003
 Helena, MT 59620-2003
 (406) 444-2875 or LivMilkControl@mt.gov

PRODUCER COMMITTEE – ACTIVITY IN FISCAL YEAR 2021

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 2021, the producer committee met two times (August 28, 2020; and March 31, 2021) to consider and approve three quota transfer requests, discuss dairy closures and industry developments, and receive updates from the bureau. All meetings were held via conference call.

The following table shows the committee’s membership in fiscal year 2021. Bureau analysis of pool plants’ June 2019 receipts conclude no change in producer representation was required to comply with ARM 32.24.506(3)(b)(i). The board did not make appointments at its meetings in fiscal year 2020. 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 action. The bureau contacted board chair Mitchell and discussed the situation and information provided by legal counsel. Mr. Mitchell instructed the bureau that that the committee should operate based on the first interpretation (automatic renewal) and that the board would discuss the issue at a future meeting. At the beginning of fiscal year 2021, there was one vacancy for a committee position to be filled by a producer delivering milk to Darigold – Bozeman.

Producer Committee Members 2020 – 2021 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

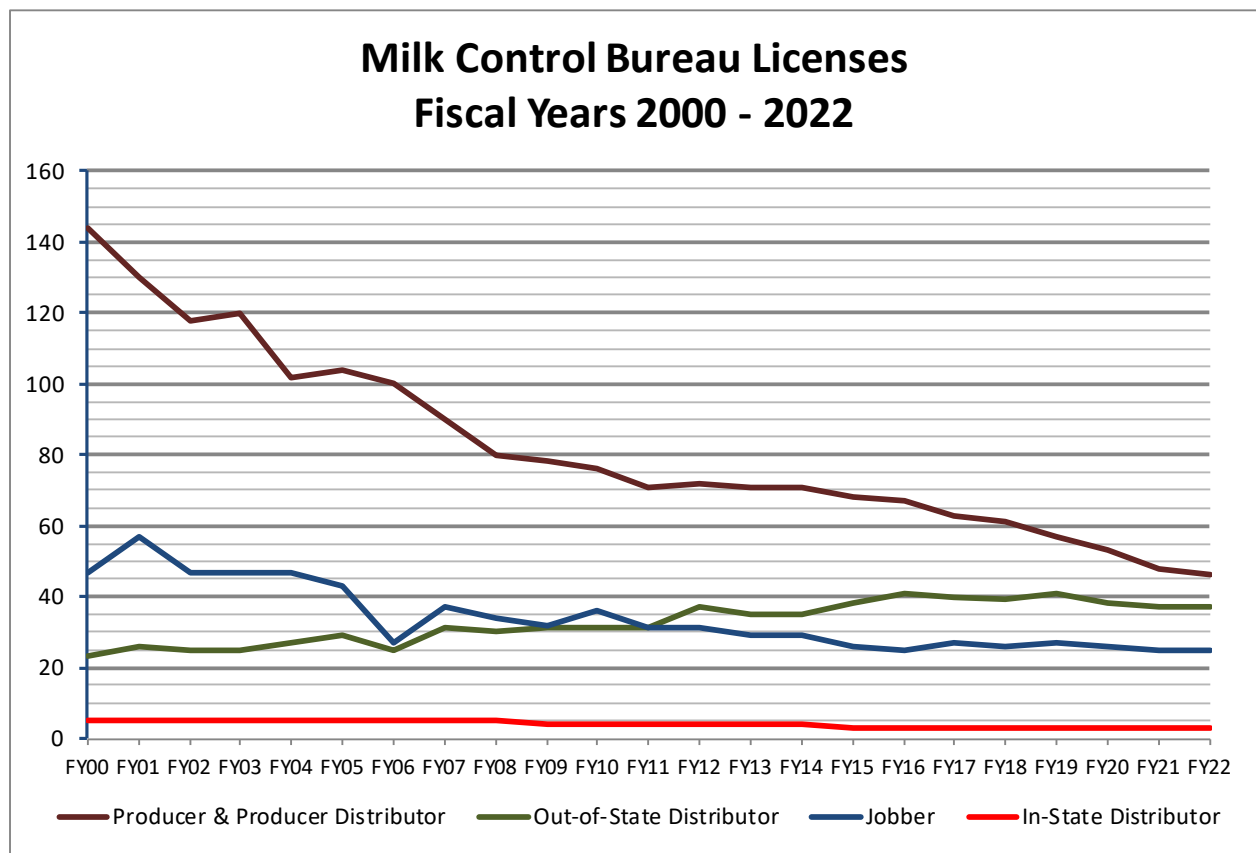
LICENSING SUMMARY

The bureau 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 2021 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 2021

License Type	Number of Licenses
Producer	45
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 2021, 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 bureau.

As required by statute, the board considered the fiscal year 2022 assessment rates (at its October 27, 2020, meeting) and took action to reduce assessment rates for fiscal year 2022. At the time of the meeting, the bureau projected that the program’s cash balance would decrease by approximately \$59,559 during fiscal year 2022 but that sufficient funds would be available to administer the act.

Assessment Rates by License Type for Fiscal Year 2021 & Fiscal Year 2022

License Type	FY2021 Assessment Rates	FY2022 Assessment Rates
Producer	\$0.0275/cwt	\$0.02625/cwt
Distributor	\$0.0275/cwt	\$0.02625/cwt
Producer-Distributor	\$0.0550/cwt	\$0.05250/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 bureau 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 Bureau."

FISCAL YEAR 2021: 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	15,575,636	73.81%	5,526,037	26.19%	21,101,673
CLASS II					
Fluid/Whip (gallons)					
Half and Half	50,309	4.43%	1,086,117	95.86%	2,813,382
Whipping Cream	86,445	8.86%	888,985	95.82%	975,430
Creamers			570,542	100.00%	570,542
Aerosol Whip			130,985	100.00%	130,985
Uncultured (gallons)					
Ice Cream / Mix / Ice Milk / Novelties	879,000	16.01%	4,609,719	83.99%	5,488,719
Frozen Yogurt / Mix			228,768	100.00%	228,768
Cream for Candy Products	3,292	100.00%			3,292
Cultured (pounds)					
Cottage Cheese	117,946	3.10%	3,687,904	96.90%	3,805,850
Sour Cream & Dressings			5,982,985	100.00%	5,982,985
Yogurt / Kefir	508,521	3.14%	15,682,778	96.86%	16,191,299
CLASS III (pounds)					
Cream Cheese			2,333,196	100.00%	2,333,196
Cheese	80,187	0.30%	26,582,350	99.70%	26,662,537
Butter	7,655	0.08%	9,584,217	99.92%	9,591,872

DAIRY PRODUCT MILK EQUIVALENT FACTORS USED BY THE MILK CONTROL BUREAU

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 2021: 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	134,261,979	40,598,856	174,860,835
TOTAL CLASS I	134,261,979	40,598,856	174,860,835
CLASS II			
Fluid/Whip			
Half and Half	587,133	13,609,042	14,196,175
Whipping Cream	1,059,183	24,305,669	25,364,852
Creamers		7,148,888	7,148,888
Aerosol Whip		<u>2,284,382</u>	<u>2,284,382</u>
Subtotal	1,646,316	47,347,981	48,994,297
Uncultured			
Ice Cream / Mix / Ice Milk / Novelties	8,848,160	43,930,853	52,779,013
Frozen Yogurt / Mix		2,588,628	2,588,628
Candy Products	<u>76,184</u>		<u>76,184</u>
Subtotal	8,924,344	46,519,482	55,443,826
Cultured			
Cottage Cheese	189,893	5,719,954	5,909,847
Sour Cream & Dressings		10,691,944	10,691,944
Yogurt / Kefir	<u>467,839</u>	<u>14,428,156</u>	<u>14,895,995</u>
Subtotal	657,732	30,840,054	31,497,786
TOTAL CLASS II	11,228,392	124,707,517	135,935,909
CLASS III			
Cream Cheese		8,422,838	8,422,838
Cheese	793,852	130,253,516	131,047,368
Butter	<u>15,310</u>	<u>62,393,251</u>	<u>62,408,561</u>
TOTAL CLASS III	809,162	201,069,605	201,878,767

SUMMARY

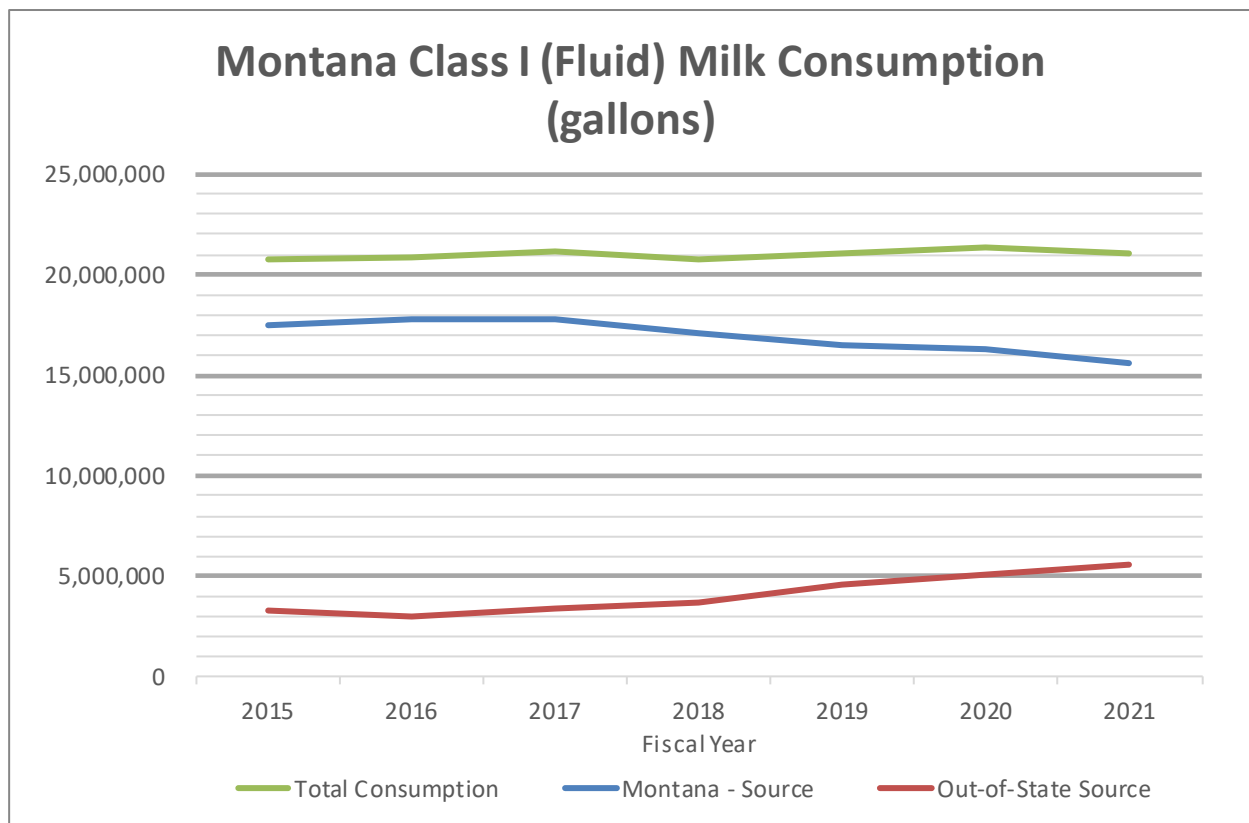
The majority of milk produced in Montana is utilized for fluid milk consumed in Montana. In fiscal year 2021, an estimated 21.6 million gallons of fluid milk was consumed in Montana, 74% of which originated from Montana bottling plants using milk supplied by Montana dairy farmers. The next largest use of Montana-origin milk is for ice cream type products (ice cream, ice milk, and frozen yogurt). An estimated 5.5 million gallons of ice cream type products were consumed in Montana, 16% of which was manufactured by Montana plants. Approximately 4.9% 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.

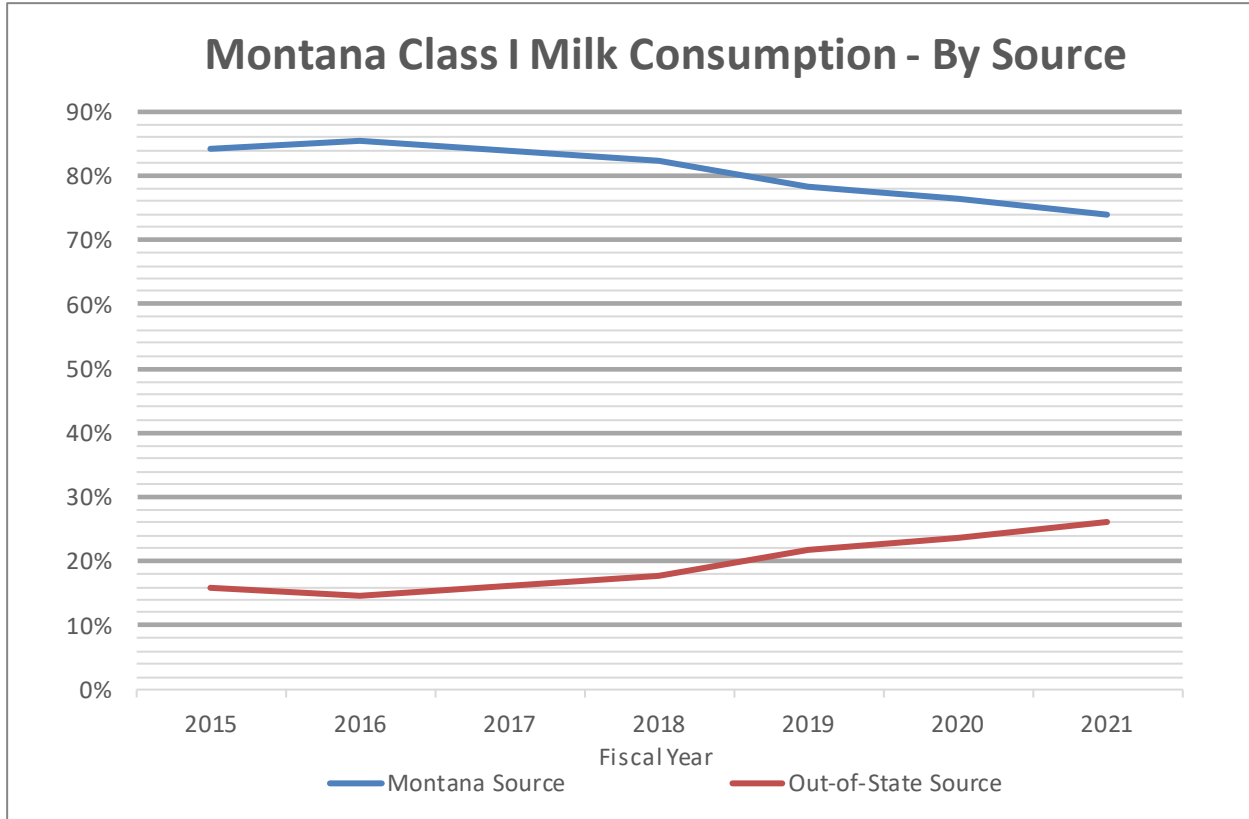
The bureau began preparing dairy consumption estimates beginning with fiscal year 2015. The following describes some observed trends.

- **Class I Fluid Products** The estimated consumption of Class I fluid milk products in Montana since fiscal year 2015 is relatively flat (0.3% average annual increase). Fiscal year 2021 saw a 0.9% decrease in the consumption of Class I milk products over fiscal year 2020. Nationally, since 2010, annual per capita fluid milk consumption experienced an annual decline of over 2% in all but three years. The percentage of Class I milk consumed in Montana that originated in Montana plants was 74% for fiscal year 2021, down 2.6% from fiscal year 2020 and 10.4% 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 bureau has observed a trend of increased overall butterfat content in milk bottled by Montana plants.
- **Fluid Cream Type Products** Estimates indicate that consumption of fluid cream type products increased by almost 8% annually (on average) since fiscal year 2015.
- **Ice Cream Type Products** Estimates indicate that consumption of ice cream type products decreased by 1.9% in fiscal year 2021 following nearly 6.6% annual increases (on average) between fiscal year 2015 and fiscal year 2020. *(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 decreased by roughly 0.9% in fiscal year 2021 following decreases of 3% in fiscal years 2018, 2019, and 2020 after double digit increases in fiscal years 2016 and 2017.
- **Butter** The estimated butter consumption decreased 0.1% in fiscal year 2021 following an increase of over 8% annually (on average) in fiscal years 2018 - 2020.

The U.S. Census Bureau estimates that Montana's population in 2020 was 1.08 million. According to worldpopulationreview.com (accessed on September 30, 2021), Montana's estimated population is 1.085 million. Montana experienced modest population growth of approximately 1% 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 11.32 million nonresident visits in 2020, roughly 5.1 % less than in 2015. The average duration of a visit in 2020 was 4.9 nights according to the University of Montana Institute for Tourism & Recreation Research’s *2020 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 2020 tourism season. The major impact of the COVID-19 pandemic on Montana’s tourism industry in 2020 is more likely to affect fiscal year 2021 dairy consumption because of seasonality. Negative impacts on dairy consumption by decreased tourism may be negated by changes in residential consumption patterns driven by stay-at-home orders, social distancing, and other societal influences.





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 July 2019.

Montana Class I Price Computations per ARM 32.24.480(2) for June 2021	
Federal Order Base Class I Price for Milk Testing 3.5% Butterfat (\$/cwt)	\$18.29
Plus: Montana Differential (\$/cwt)	\$2.55
Montana Class I Milk Price for Milk Testing 3.5% Butterfat (\$/cwt)	\$20.84
Federal Order Advanced Butterfat Pricing Factor (\$/lb.)	\$1.9674
Plus: Montana Differential (\$/lb.)	\$0.0255
Montana Class I Butterfat Price (\$/lb.)	\$1.9929
Value of Montana Class I Butterfat at 3.5 lbs.	\$6.97515
Value of Montana Class I Skim Milk at 96.5 lbs.	\$13.86485
Montana Class I Milk Price for Milk Testing 3.5% Butterfat (\$/cwt)	\$20.84000

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 July 2019.

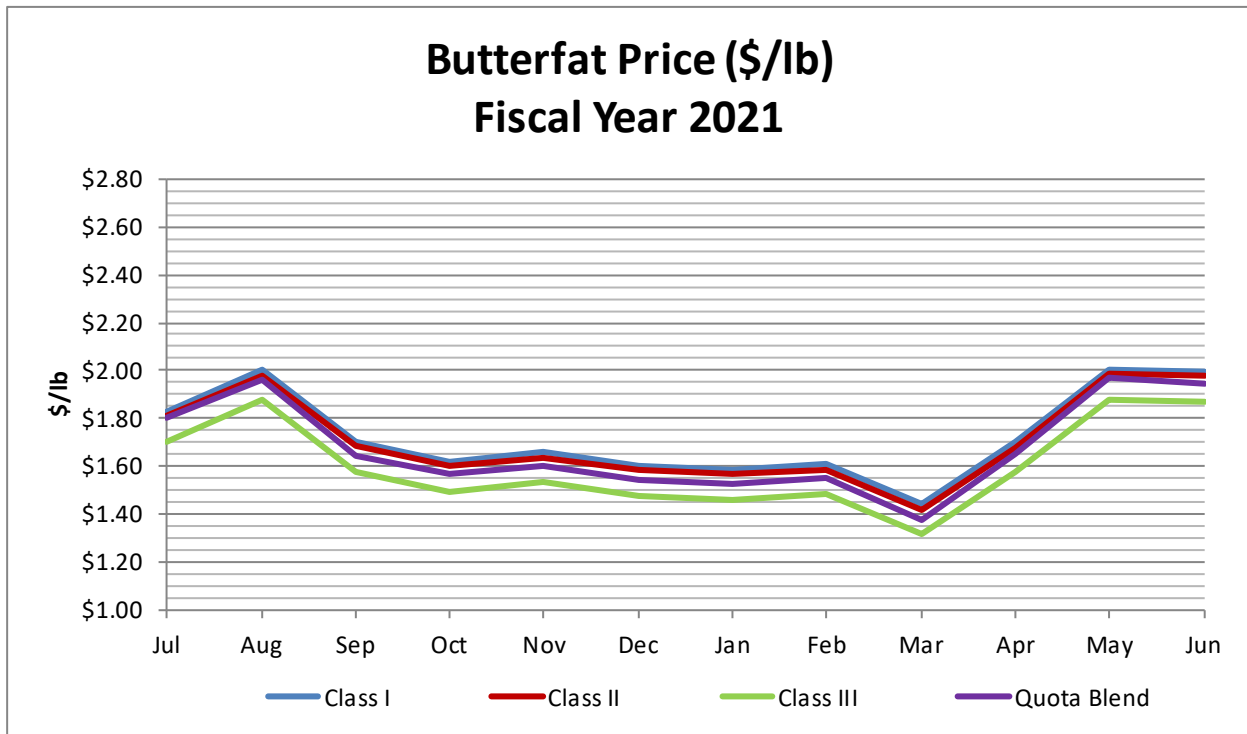
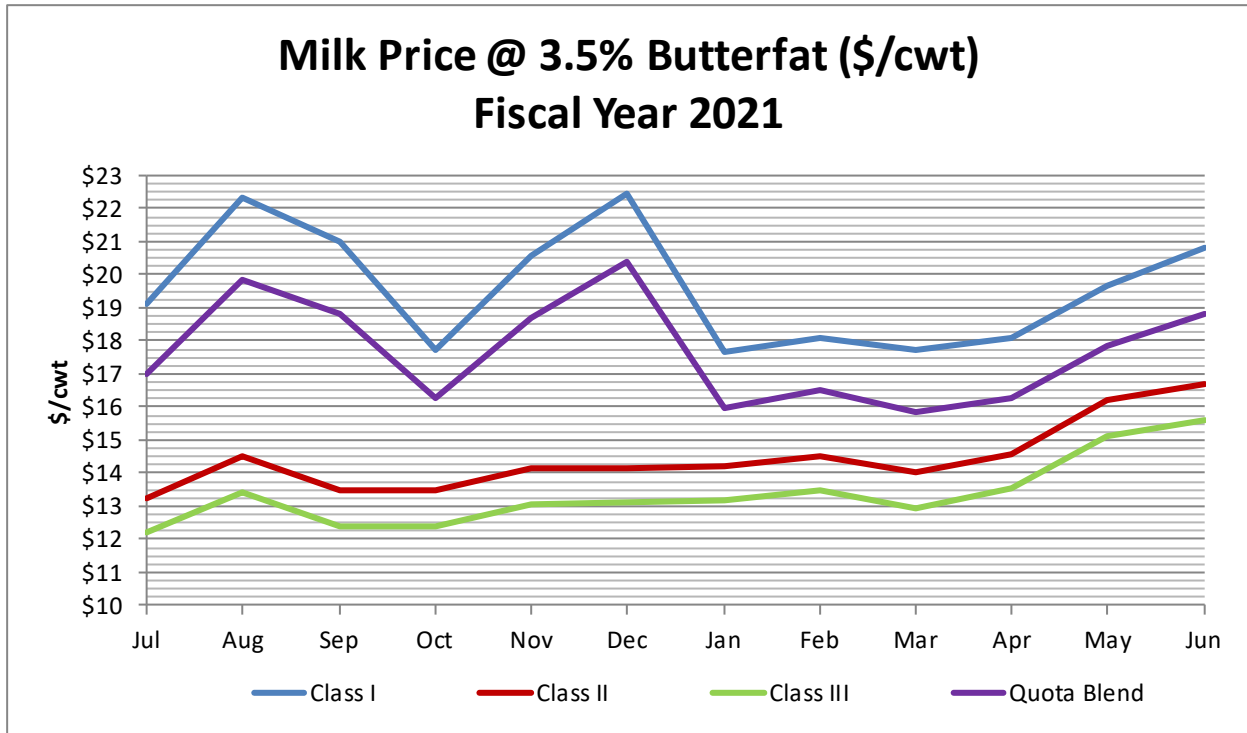
Montana Class II Price Computations per ARM 32.24.480(3) for June 2021	
Advanced Butterfat Pricing Factor (\$/lb.)	\$1.9674
Plus: \$0.007/lb. (\$/lb.)	\$0.0070
Montana Class II Butterfat Price (\$/lb.)	<u>\$1.9744</u>
Montana Class II Skim Milk Price (\$/lb.): federal Class II Skim Milk Price converted to units of dollars per pound of skim milk	<u>\$0.1012</u>
Value of Montana Class II Butterfat at 3.5 lbs.	\$6.91040
Value of Montana Class II Skim Milk at 96.5 lbs.	\$9.76580
Montana Class II Milk Price for Milk Testing 3.5% Butterfat (\$/cwt)	<u>\$16.67620</u>

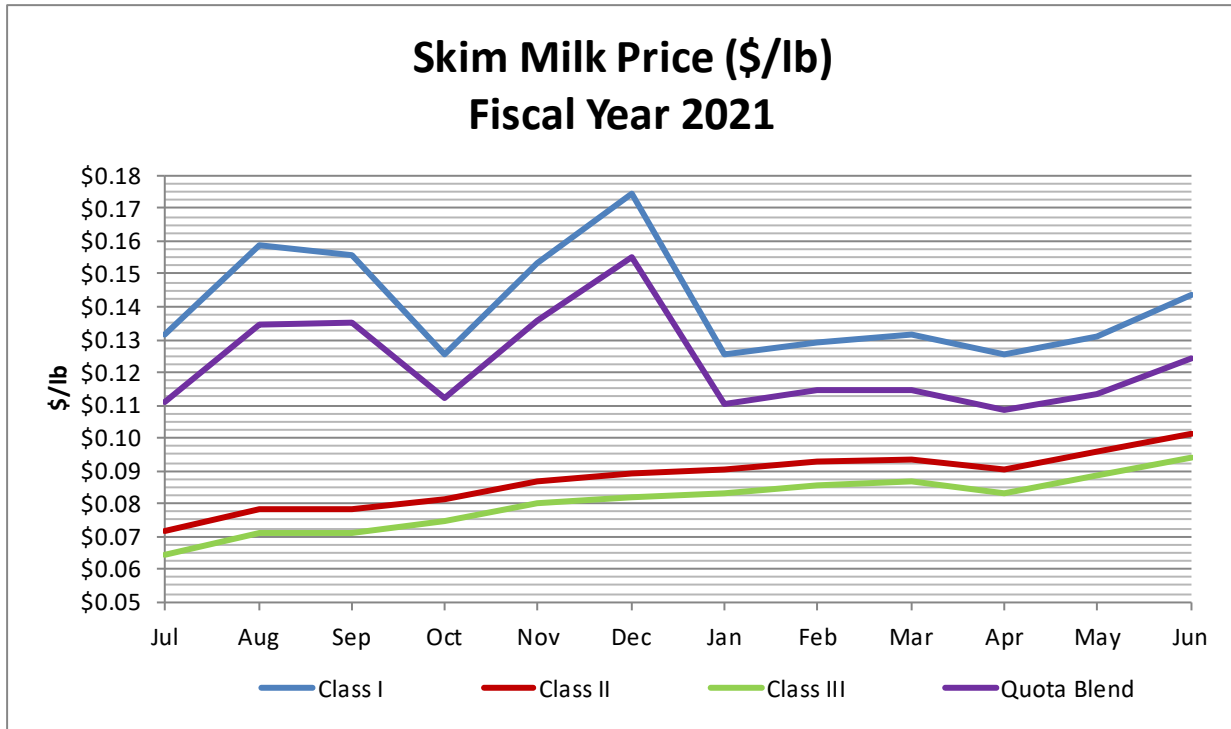
Montana Class III Price Computations per ARM 32.24.480(4) for June 2021	
Advanced Butterfat Pricing Factor (\$/lb.)	\$1.9674
Less: Montana Class III Butterfat Price Differential (\$/lb.)	(\$0.1000)
Montana Class III Butterfat Price (\$/lb.)	<u>\$1.8674</u>
Federal Class III Skim Milk Pricing Factor (\$/cwt)	\$12.73
Federal Class IV Skim Milk Pricing Factor (\$/cwt)	\$9.42
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	<u>\$0.0942</u>
Value of Montana Class III Butterfat at 3.5 lbs.	\$6.53590
Value of Montana Class III Skim Milk at 96.5 lbs.	\$9.09030
Montana Class III Milk Price for Milk Testing 3.5% Butterfat (\$/cwt)	<u>\$15.62620</u>

ANNOUNCED MINIMUM PRICES IN FISCAL YEAR 2021

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.

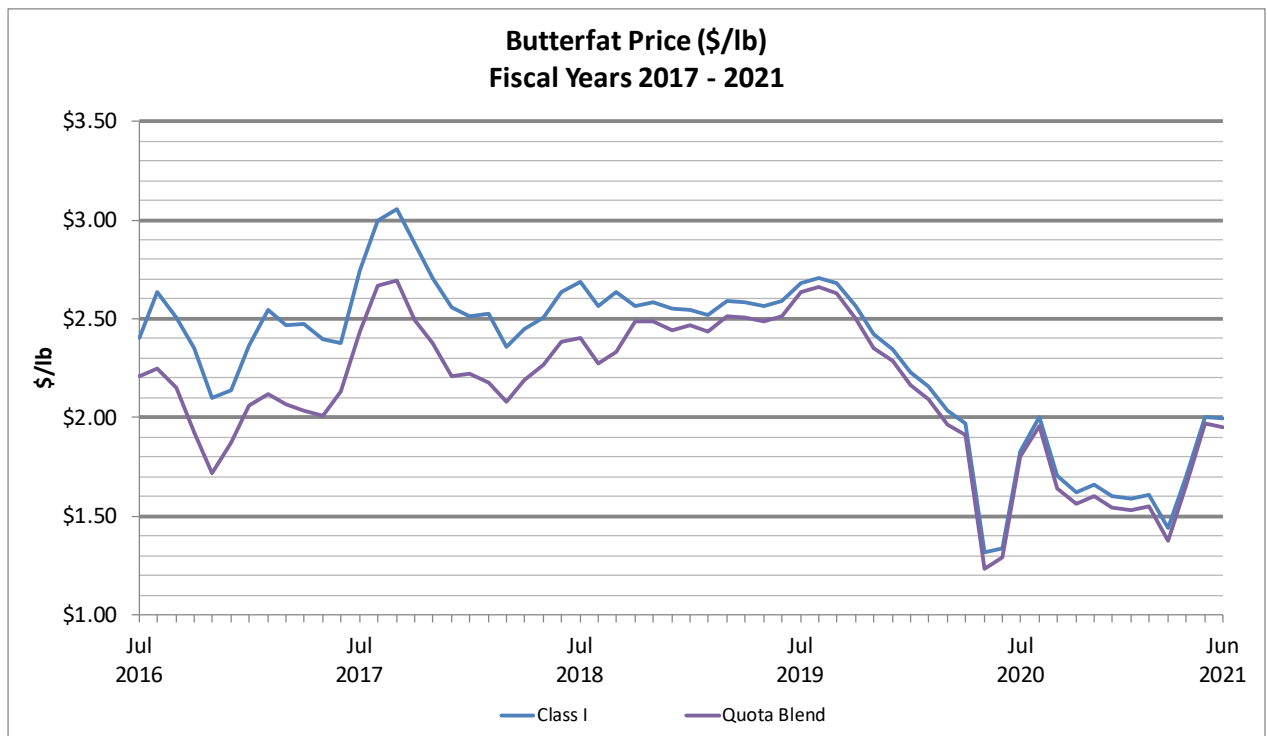
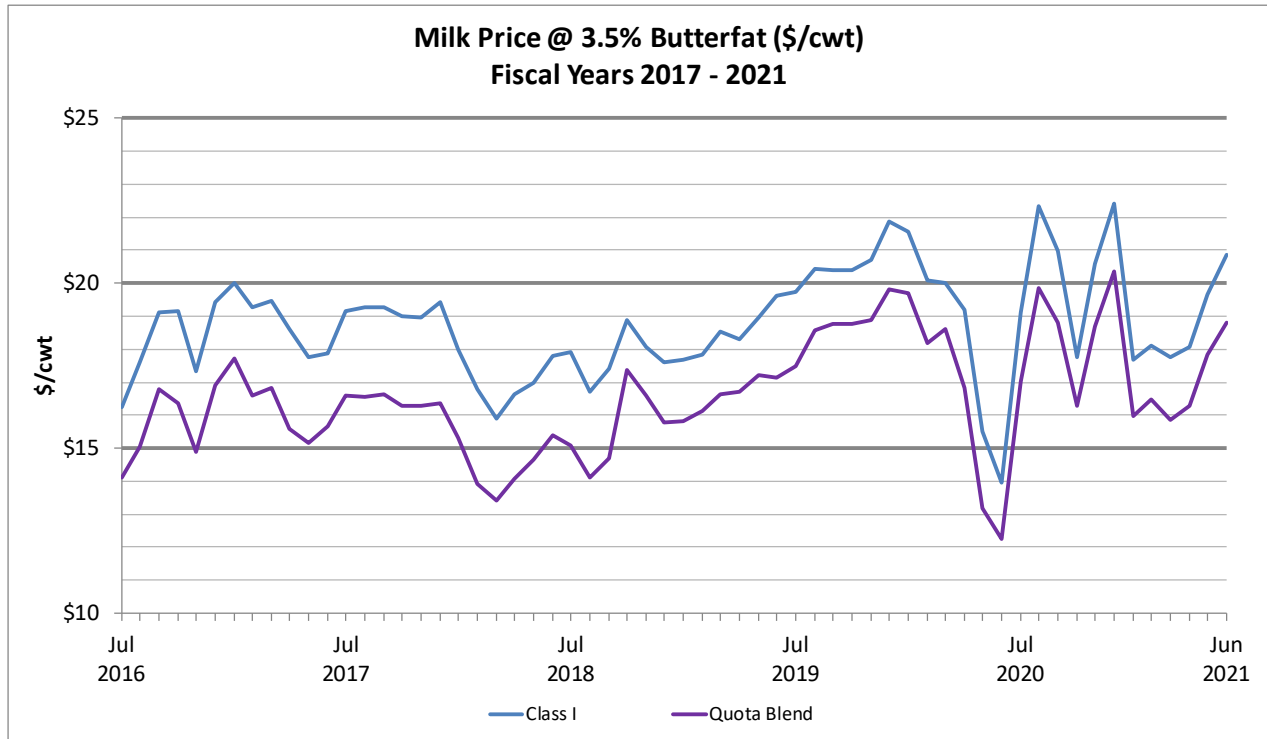
The charts below show announced minimum prices for months in fiscal year 2021 (July 2020 – June 2021) along with the calculated quota price based on actual milk utilization.

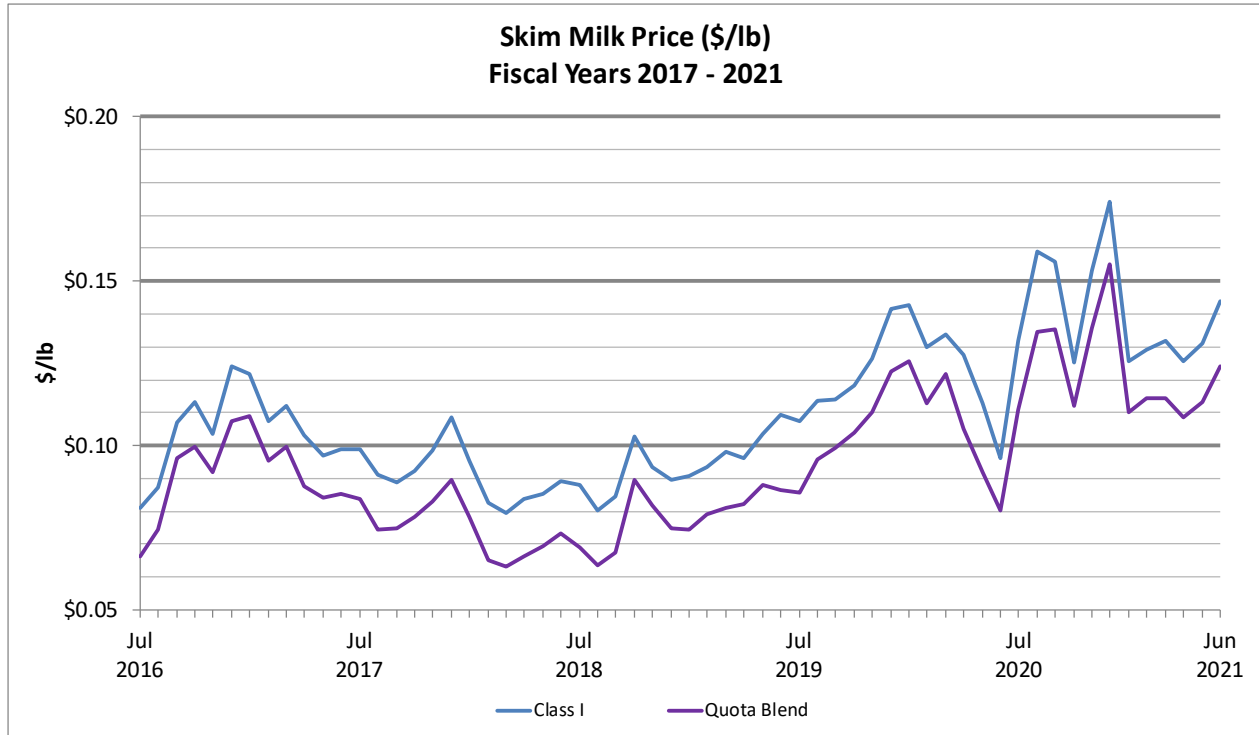




PRICE CHARTS JULY 2015 – JUNE 2021

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.

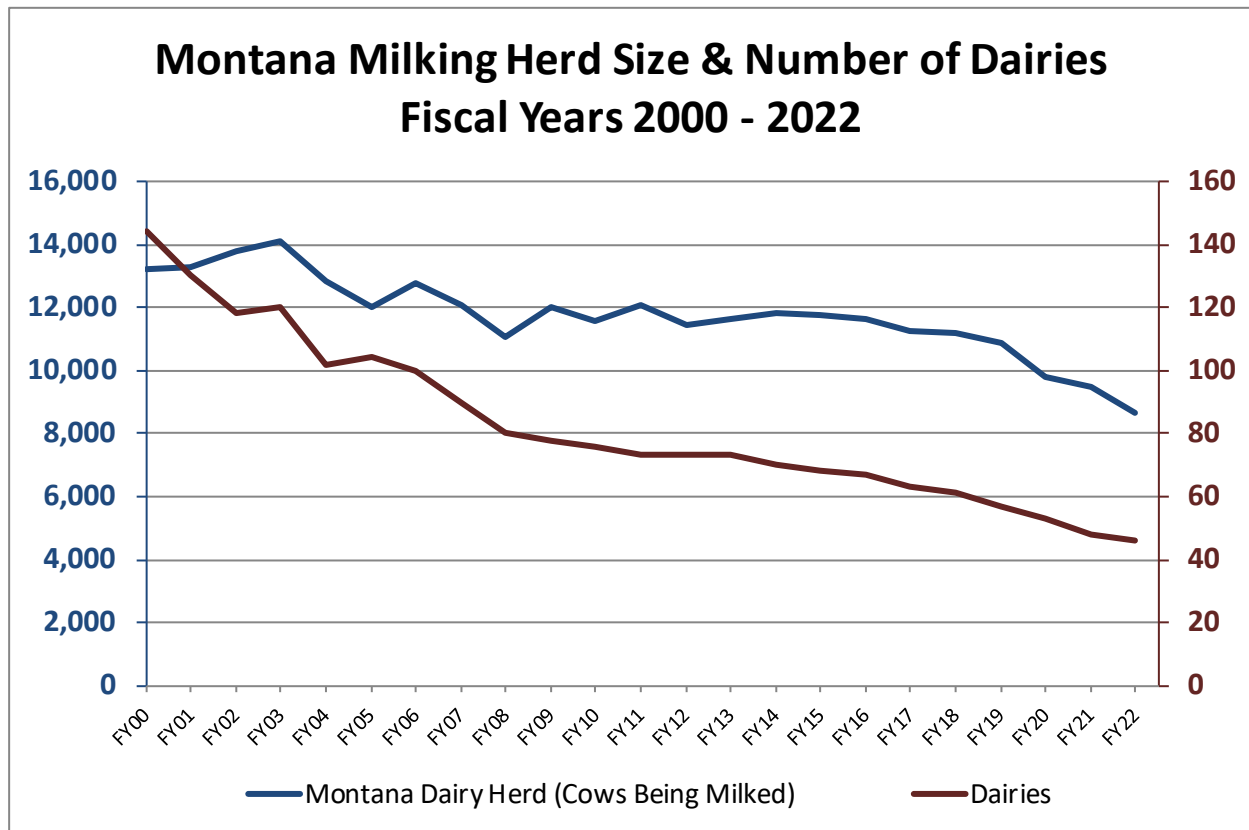


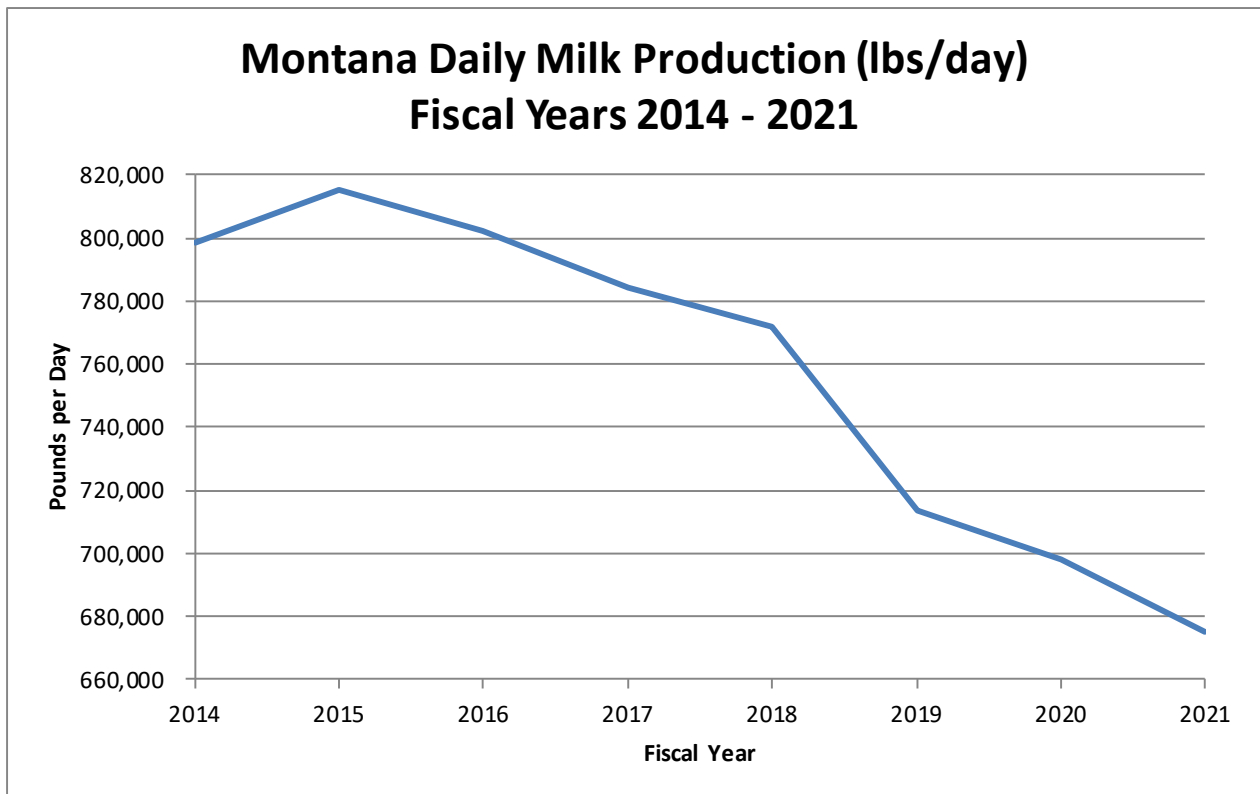
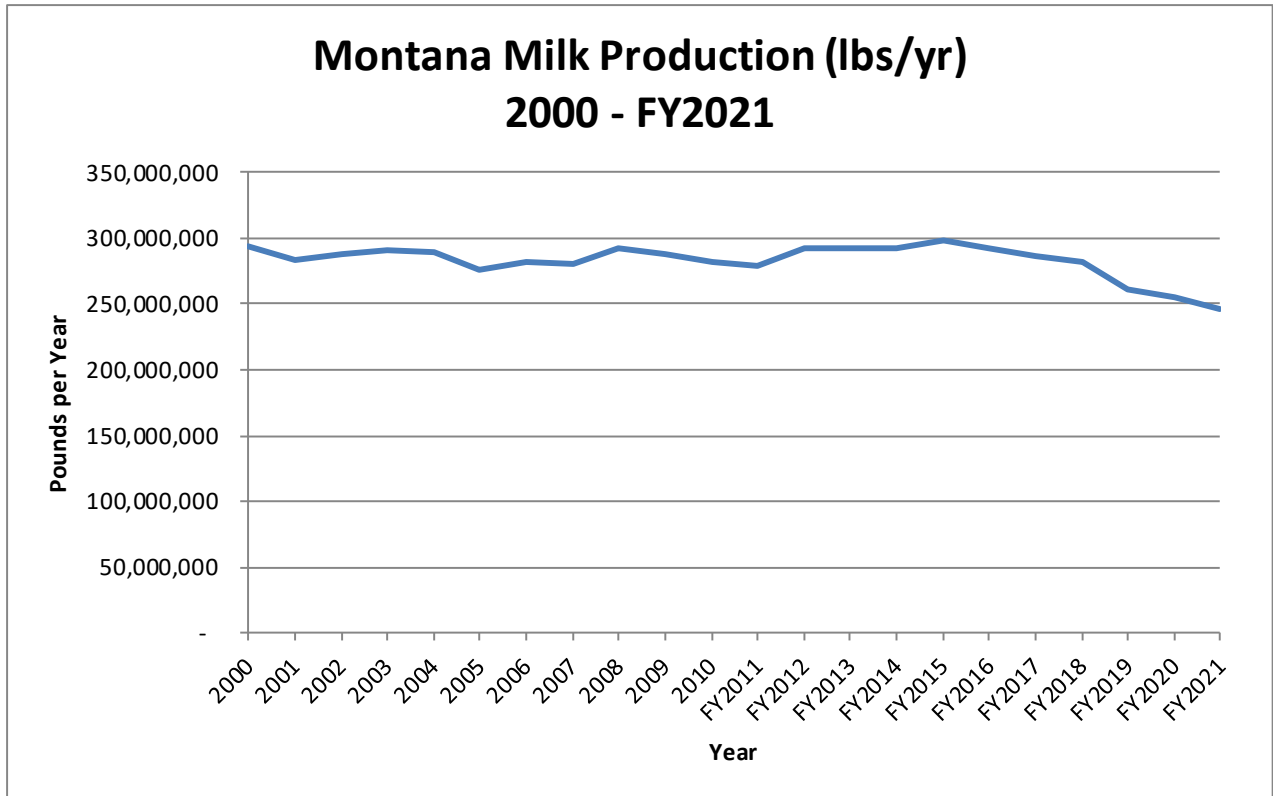


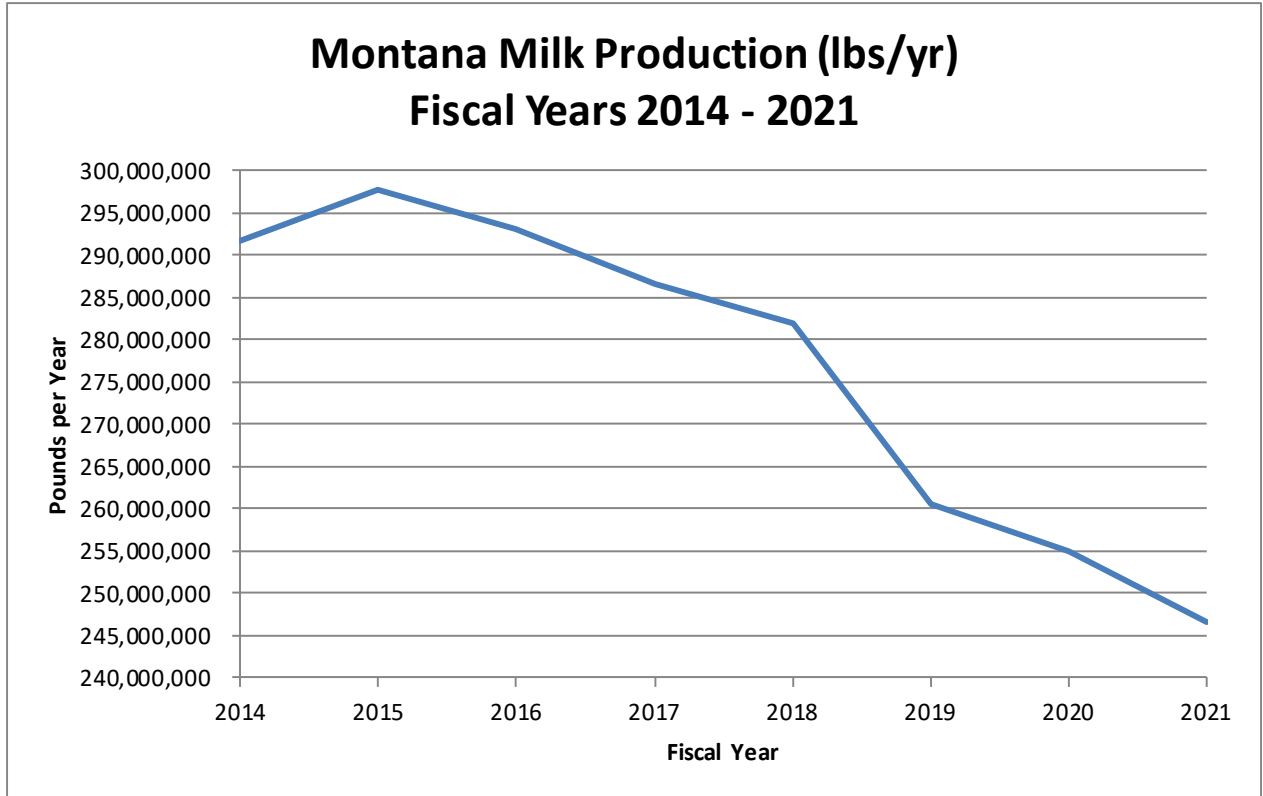
MONTANA MILK PRODUCTION

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. Montana Correctional Enterprise’s dairy and processing plant in Deer Lodge are also included in pool statistics. 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 2022.

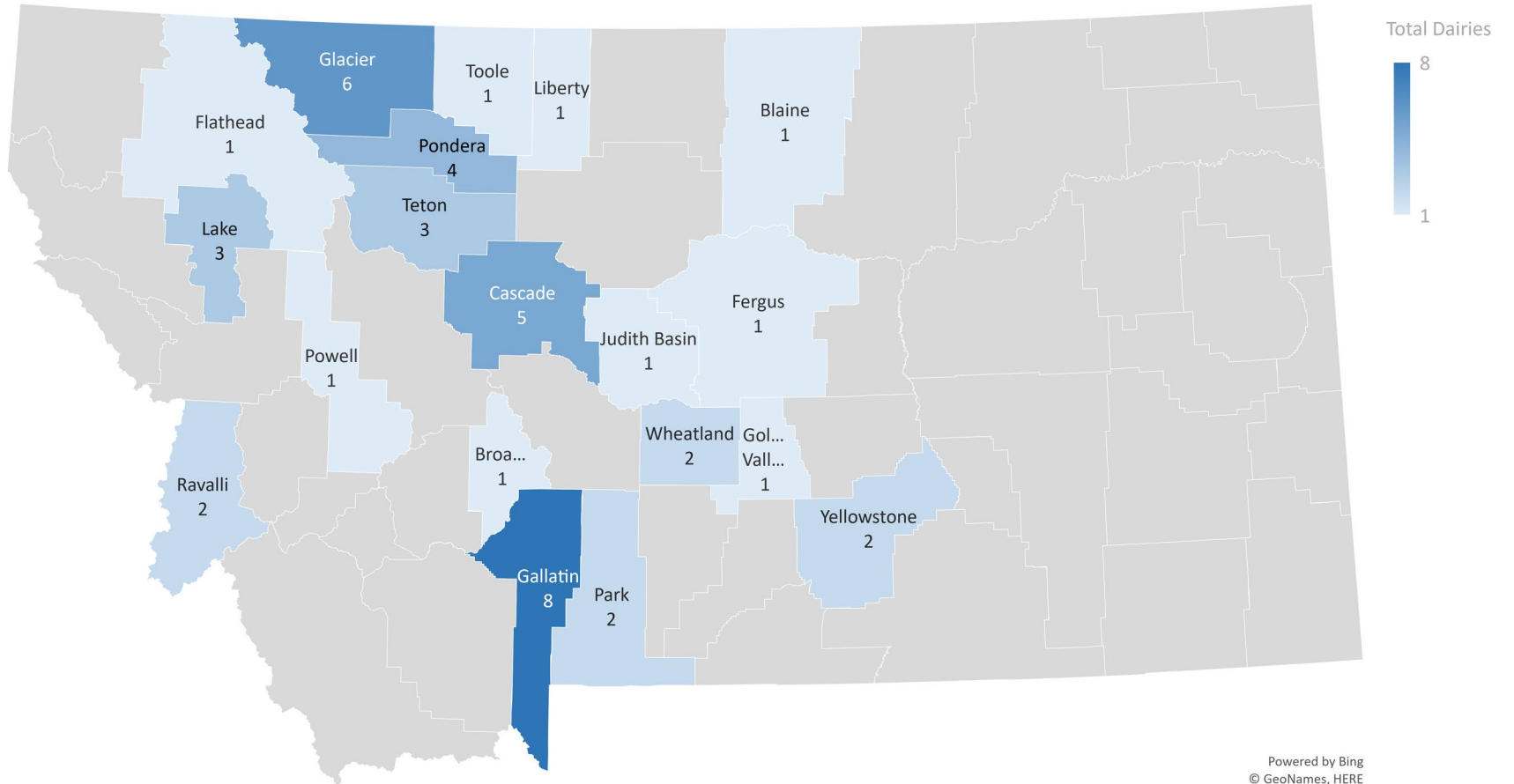
The following charts show the size of Montana’s dairy herd and the number of dairies licensed in fiscal year 2000 through fiscal year 2022, Montana milk production from 2000 through fiscal year 2021, and total milk production (per year and per day) for fiscal year 2014 through fiscal year 2021. The size of Montana’s milking herd is based on information provided by producers and producer-distributors in annual license applications. From fiscal year 2000 to fiscal year 2021, the number of cows being milked declined by 28%, while the number of dairies declined by 67%. The average number of cows being milked per dairy increased from 92 cows per dairy in fiscal year 2000 to 197 cows per dairy in fiscal year 2021. 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 2021 was 18.3% lower than in 2000, with most of the decrease occurring in fiscal year 2019. Production in fiscal year 2021 was the lowest in the 22 years shown in the charts and was 14.3% lower than the average of the 2000 – 2021 time period.







Montana Dairies per County Licensed for Fiscal Year 2022



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 2021, pool handlers imported 32 million pounds of bulk unpasteurized milk, an average of approximately 2.7 million pounds per month. In comparison, Montana producers delivered over 240 million pounds of milk to pool handlers in fiscal year 2021, an average of approximately 20.06 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 3.3 million pounds in fiscal year 2021.

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 2021 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 2021

Product Description	Imports (lbs. milk equivalent)
Class I Fluid Milk Products	40,598,856
Class II Fluid Cream Products	47,347,981
Class II Uncultured Products (<i>ice cream & frozen yogurt</i>)	46,519,482
Class II Cultured Products (<i>cottage cheese, sour cream, yogurt</i>)	30,840,054
Class III Products (<i>cream cheese, cheese, butter</i>)	201,069,605

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 bureau estimates that bulk cream exported from Montana could have produced approximately 4.3 million pounds of butter. In fiscal year 2021, approximately 9.6 million pounds of butter were consumed in Montana, almost all of it imported from outside of Montana.

Montana Milk Exports – Fiscal Year 2021

Product Description	Exports (lbs.)
Bulk Cream	8,584,441
Bulk Milk	10,650,839
Class I Packaged Fluid Milk Products	101,429,217
Total	120,664,497

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, plus the Montana Correctional Enterprises dairy plant. 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 0.62% of production in fiscal year 2021, down from 0.86% in fiscal year 2020. The decrease resulted from the sale of quota from dairies that went out of business to dairies that used the quota to reduce the portion of their production that was in excess of quota.

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 2020, 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 4.5 million pounds compared to 2018. Because of 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.

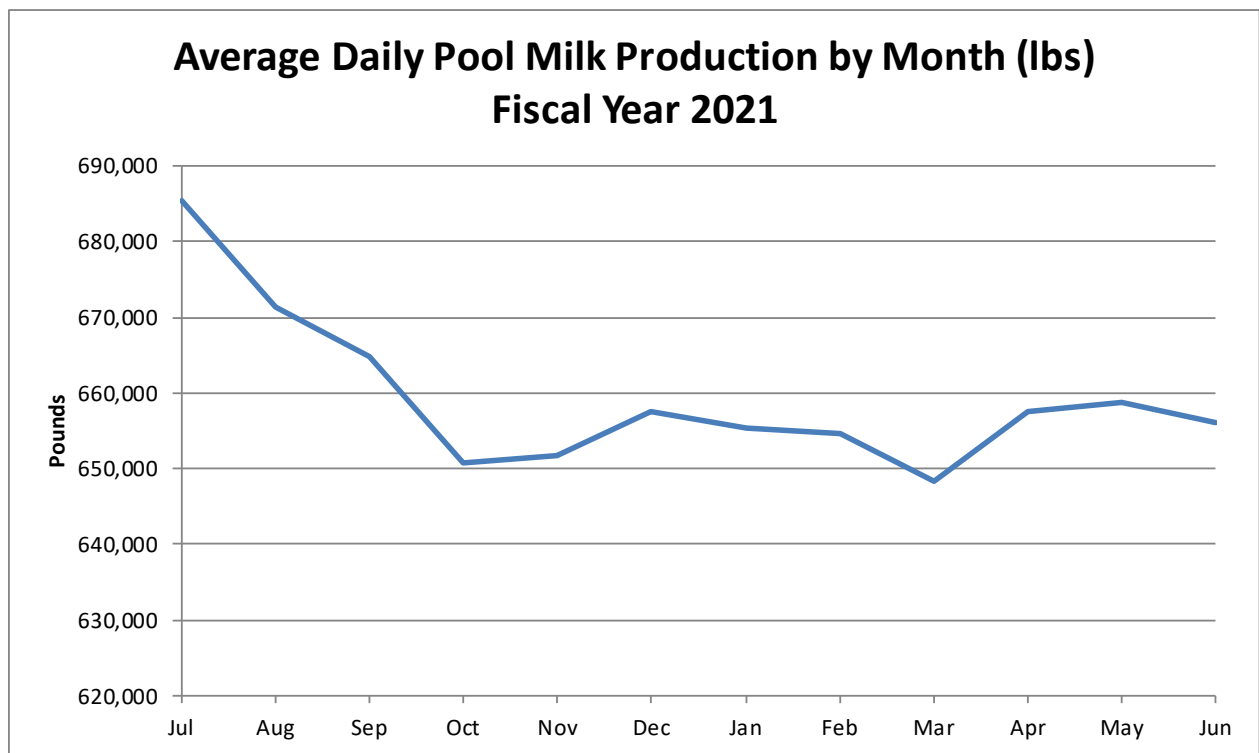
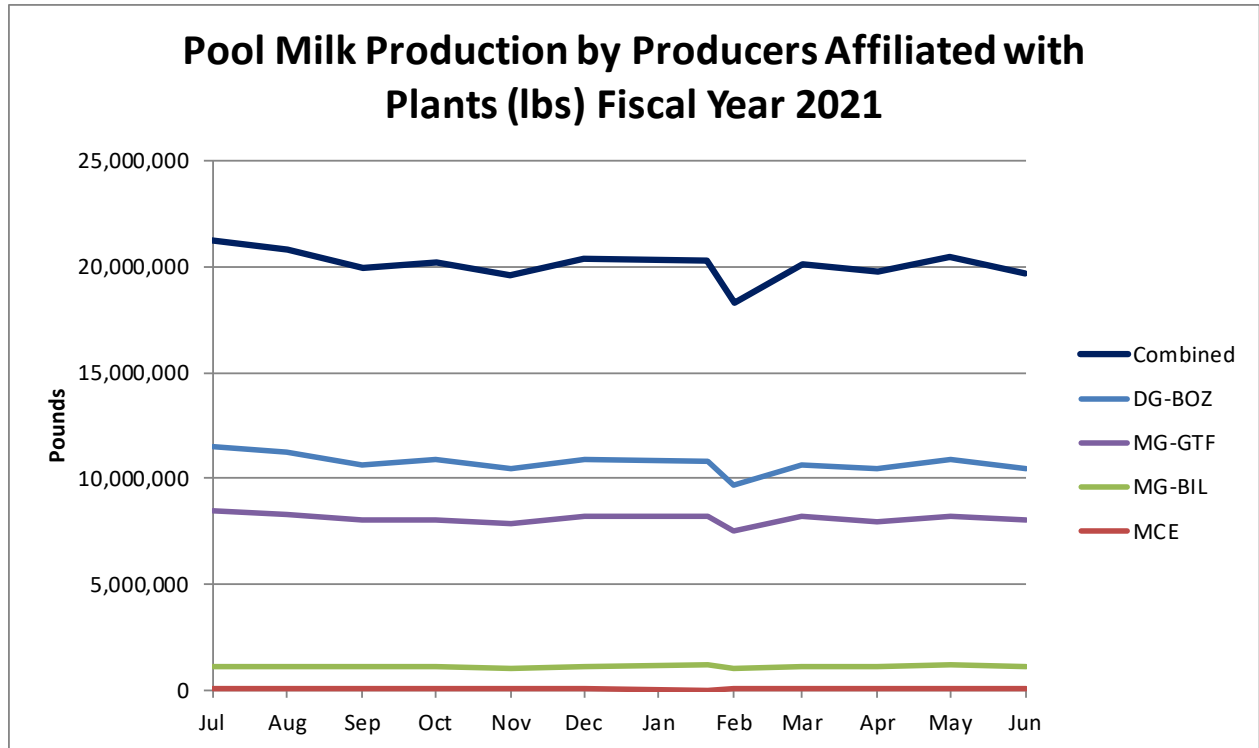
POOL PRODUCTION

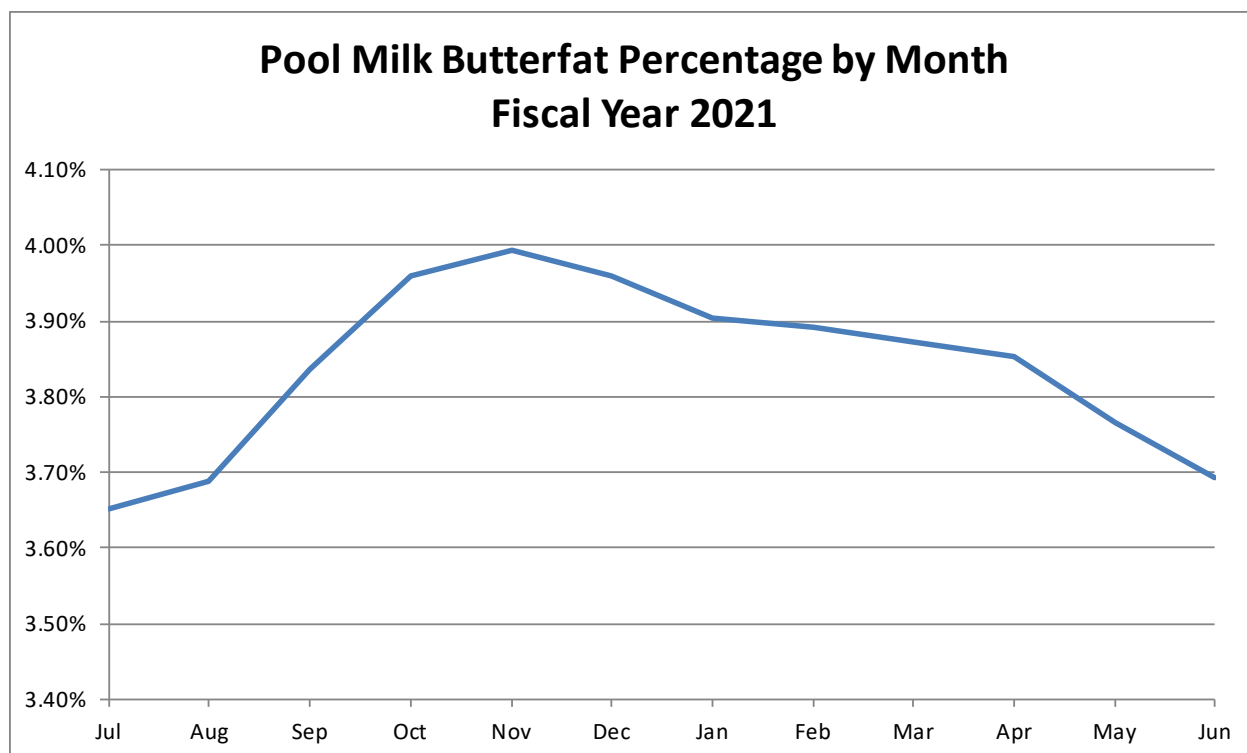
In fiscal year 2021, 46 dairies produced and delivered milk to three pool handlers, plus the Montana Correctional Enterprises plant. The following table shows the Montana milk pool's annual production, average butterfat content, weighted average pool price, and gross receipts for fiscal year 2012 through fiscal year 2021. The butterfat content was the highest in the ten-year period. In fiscal year 2021 (relative to fiscal year 2020), production decreased by 3.46%; the weighted average price decreased by 0.5%; and annual gross receipts decreased by 3.9%.

Summarized Pool Information: Fiscal Year 2012 – 2021

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

The following charts provide information from fiscal year 2021 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.

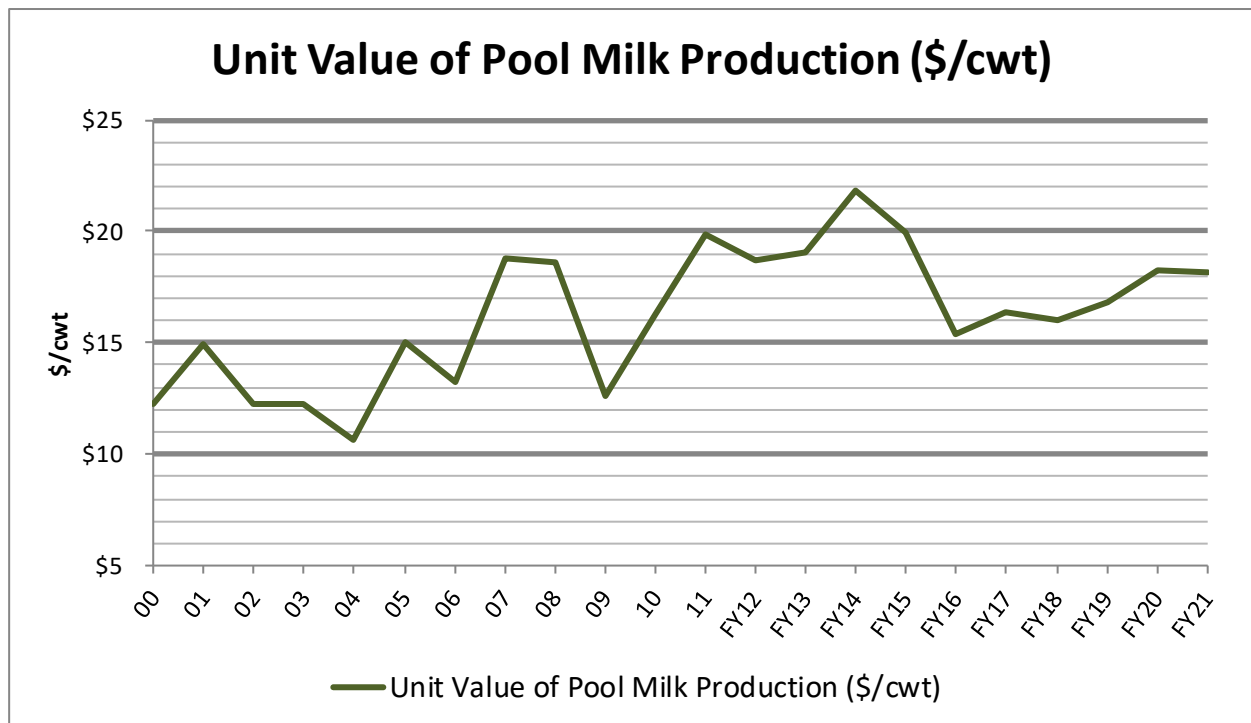
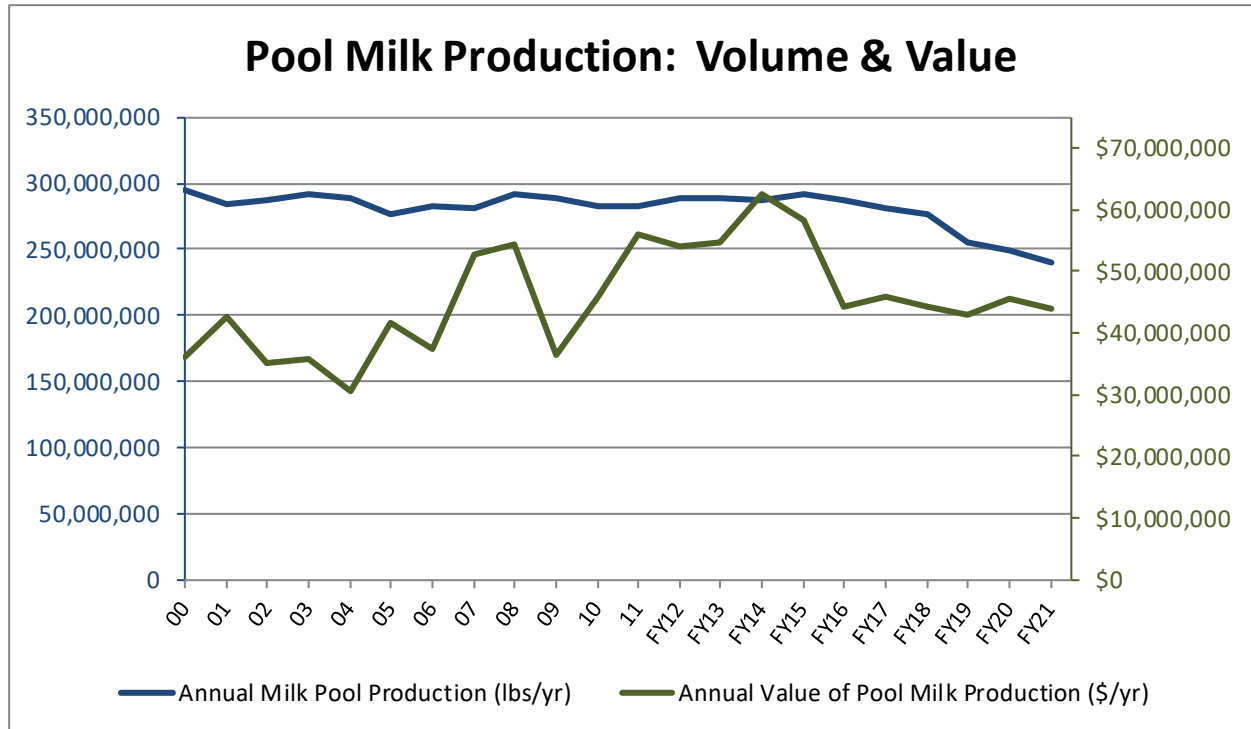




THE PRICE/COST OF POOL MILK

Montana’s pool marketing system establishes how pool dairies are compensated for milk. The bureau 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 bureau 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 2021. Fiscal year 2021 was the sixth 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 in 2014; and decreasing dramatically in 2015, with only modest recovery until higher prices materialized in fiscal year 2020, tempered by drastic declines in the last quarter due to COVID-19 market impacts. Milk prices volatility continued into fiscal year 2021 through January 2021. Beginning in February 2021, there was a stabilization of milk prices with a mild upward trend through the end of fiscal year 2021.



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
<p><i>Production & Utilization Factors</i></p> <ul style="list-style-type: none"> • 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
<p><i>Transportation Charges for Intrapool Shipments of Unprocessed Milk</i></p> <ul style="list-style-type: none"> • the volume of sales of unprocessed pool milk between pool plants and shipment freight rates
<p><i>Surplus Sale Factors</i></p> <ul style="list-style-type: none"> • 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 <i>(Classified announced prices multiplied by weight of Class I, II, III utilization)</i> Adjustments to Skim Milk Utilization Value: - Transportation Charges for Intrapool Shipments + / - Surplus Sales Adjustments + / - <u>Settlement Fund Adjustments</u> = Adjusted Pool wide Skim Milk Utilization Value	Pool wide Butterfat Utilization Value <i>(classified announced prices multiplied by weight of Class I, II, III utilization)</i>
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 bureau 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

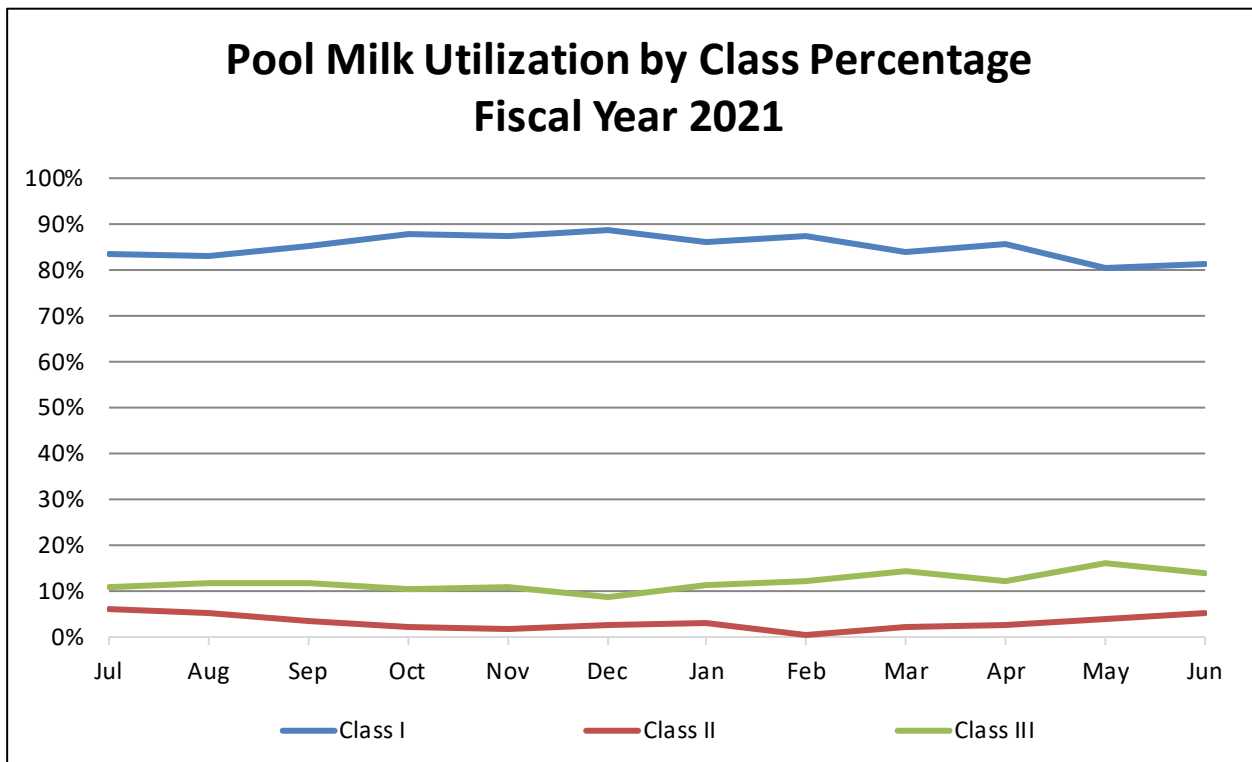
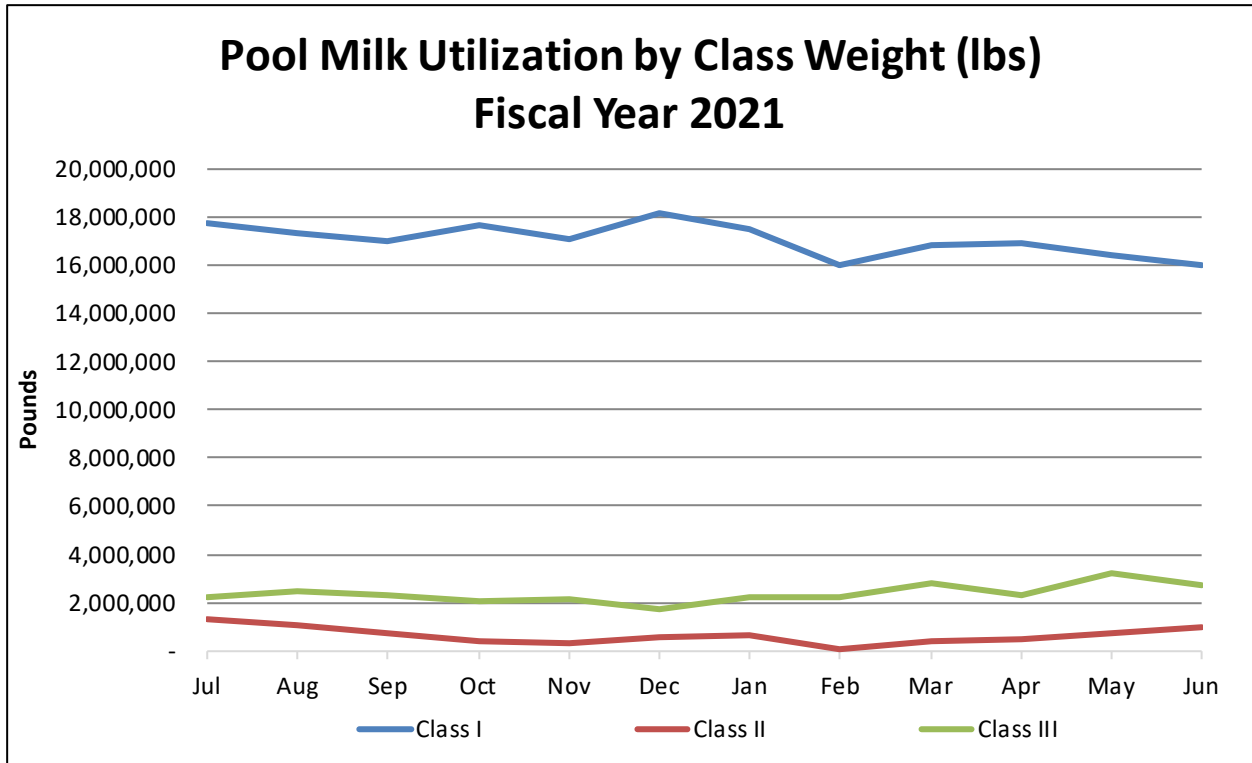
bearing a cost for inefficient milk processing. The classification of unprocessed milk sold to other pool handlers is based on the receiving pool handler's utilization of the milk.

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

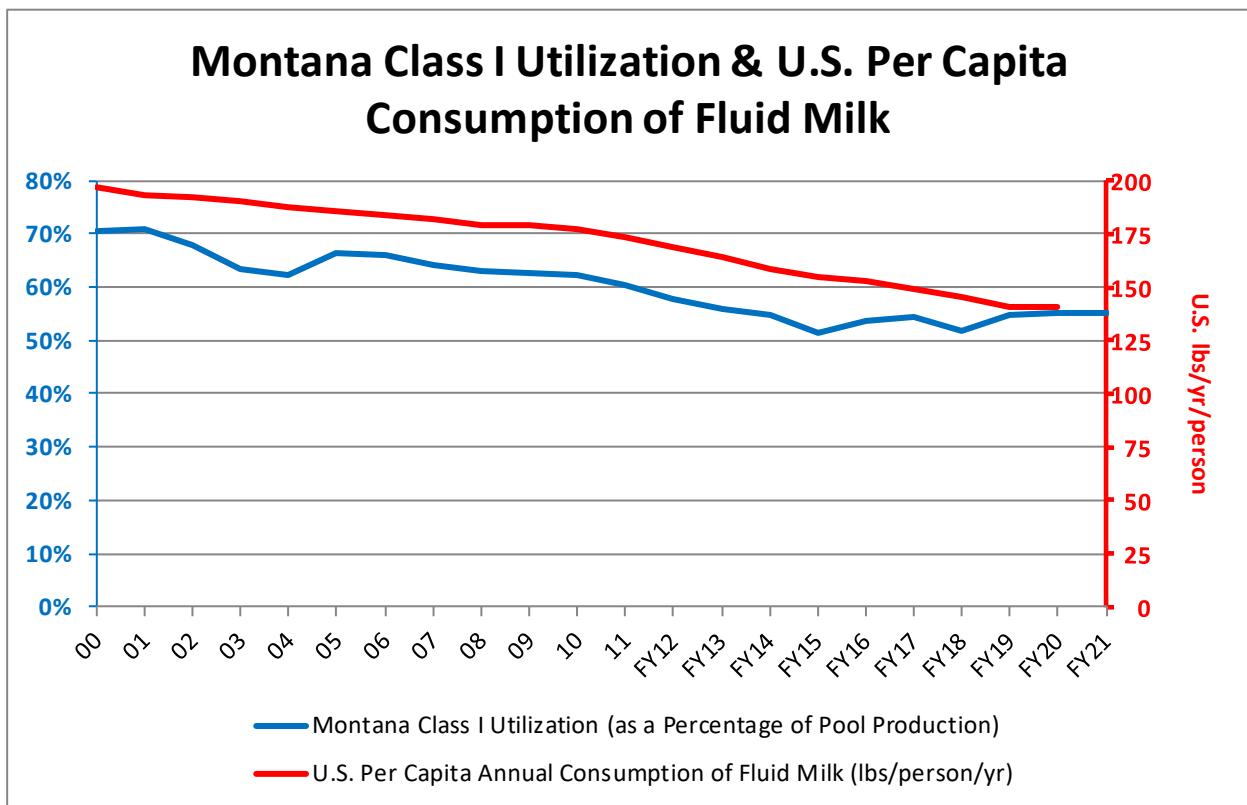
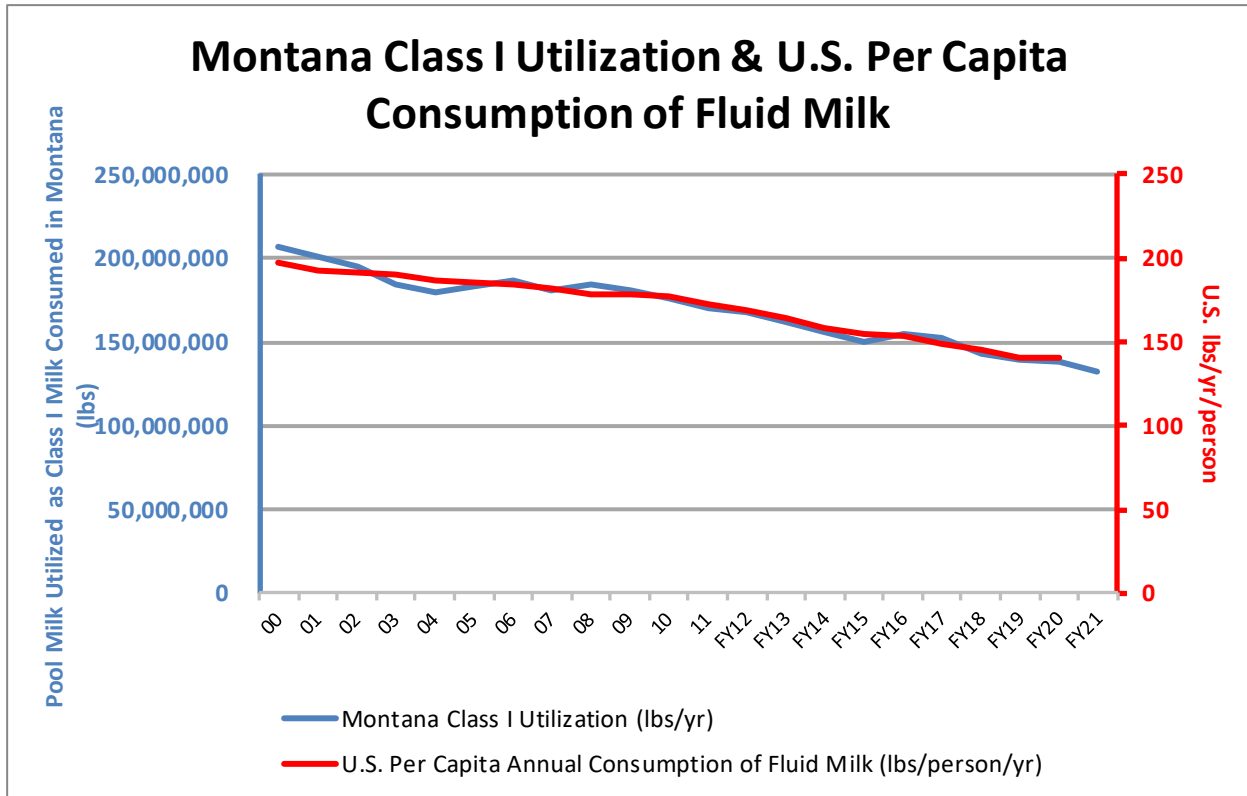
Fiscal Year 2021 Pool Milk Utilization Volume, Value, Average Unit Value Before Adjustments

	CLASS I	CLASS II	CLASS III	All Classes – Before Adjustments
Skim Milk Utilization (lbs.)	200,024,727	6,539,441	24,894,578	231,458,746
Skim Milk Utilization (\$)	\$28,286,959	\$611,457	\$2,105,344	\$31,003,759
Skim Milk Utilization – Unit Value (\$/lb.)	\$0.1414173	\$0.0935029	\$0.0845704	\$0.1339494
Butterfat Utilization (lbs.)	4,407,954	1,167,651	3,660,435	9,236,040
Butterfat Utilization (\$)	\$7,380,468	\$2,170,540	\$5,840,808	\$15,391,817
Butterfat Utilization – Unit Value (\$/lb.)	\$1.6743523	\$1.8588947	\$1.5956596	\$1.6664952

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.



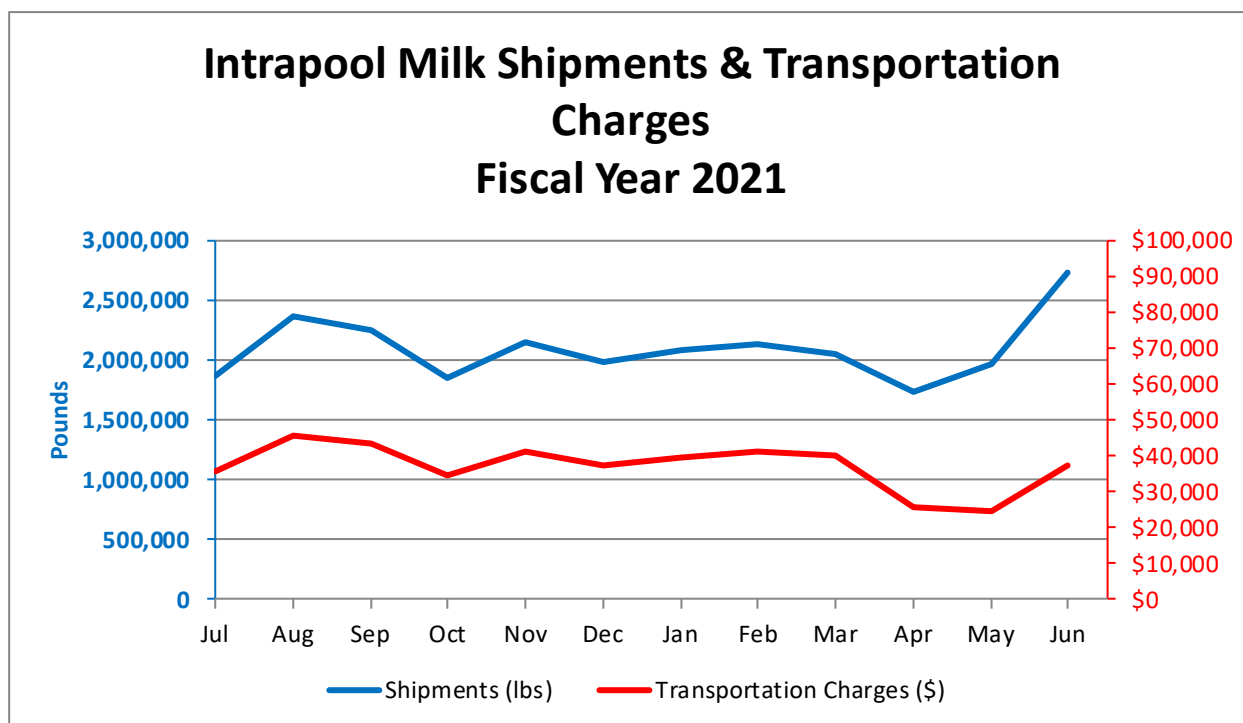
The following chart shows the percentage of Montana pool milk utilized as Class I milk consumed in the Montana market and the per capita consumption of fluid milk in the United States since 2000. The USDA Economic Research Service was the source of per capita consumption information (<http://www.ers.usda.gov/data-products/dairy-data>, accessed September 30, 2021). Since 2000, pool production has been relatively stable, and Montana's population increased from approximately 904,000 in 2000 to 1,080,000 in 2020 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 36% since 2000. Annual U.S. per capita consumption of fluid milk has declined by over 28%, from 197 pounds in 2000 to 141 pounds in 2020. The percentage of pool milk utilized as Class I milk consumed in Montana declined from accounting for 70.4% of pool production in 2000 to 51.4% in fiscal year 2015. In fiscal year 2021, the percentage of pool milk utilized as Class I milk consumed in Montana was 55%. The increased percentage in fiscal year 2021 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 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.



Adjustment for Transportation Charges of Intrapolar 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 2021, the skim milk utilization value was reduced by \$445,921 for shipment of 25.2 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 \$0.185/cwt.

The following chart shows the volume of the intrapool shipments and total transportation charges for each month in fiscal year 2021. The charges were primarily driven by shipments from Meadow Gold – Great Falls to Meadow Gold – Billings. In fiscal year 2021, 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.

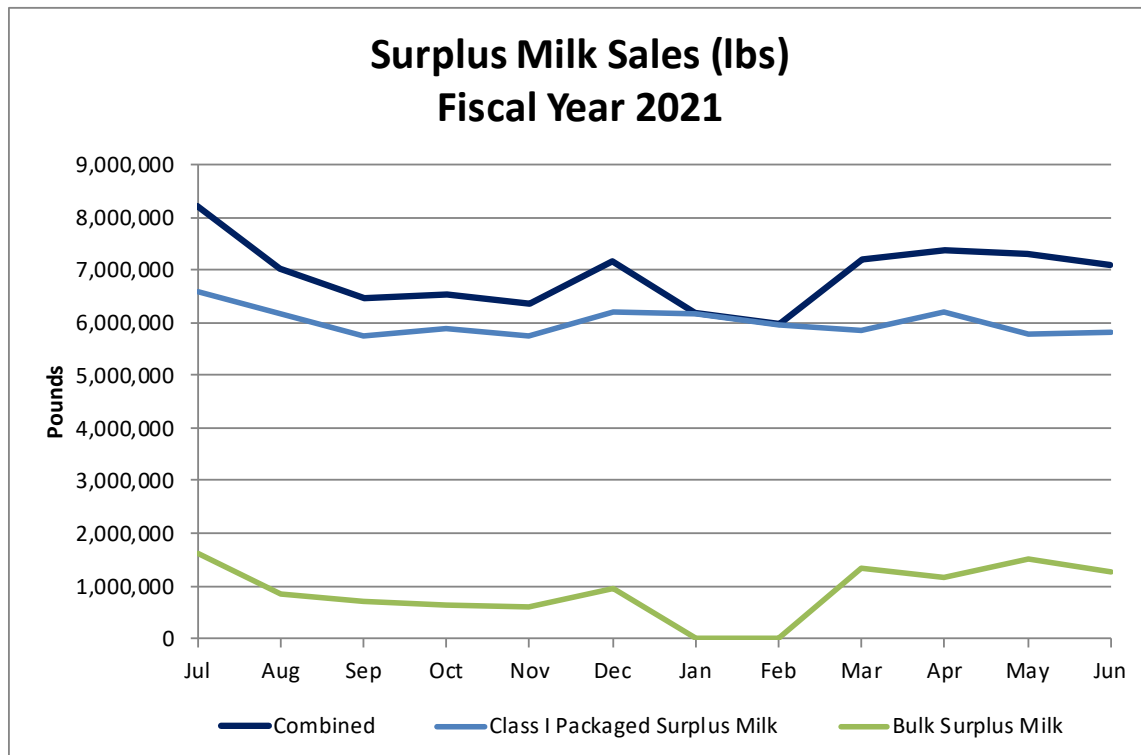


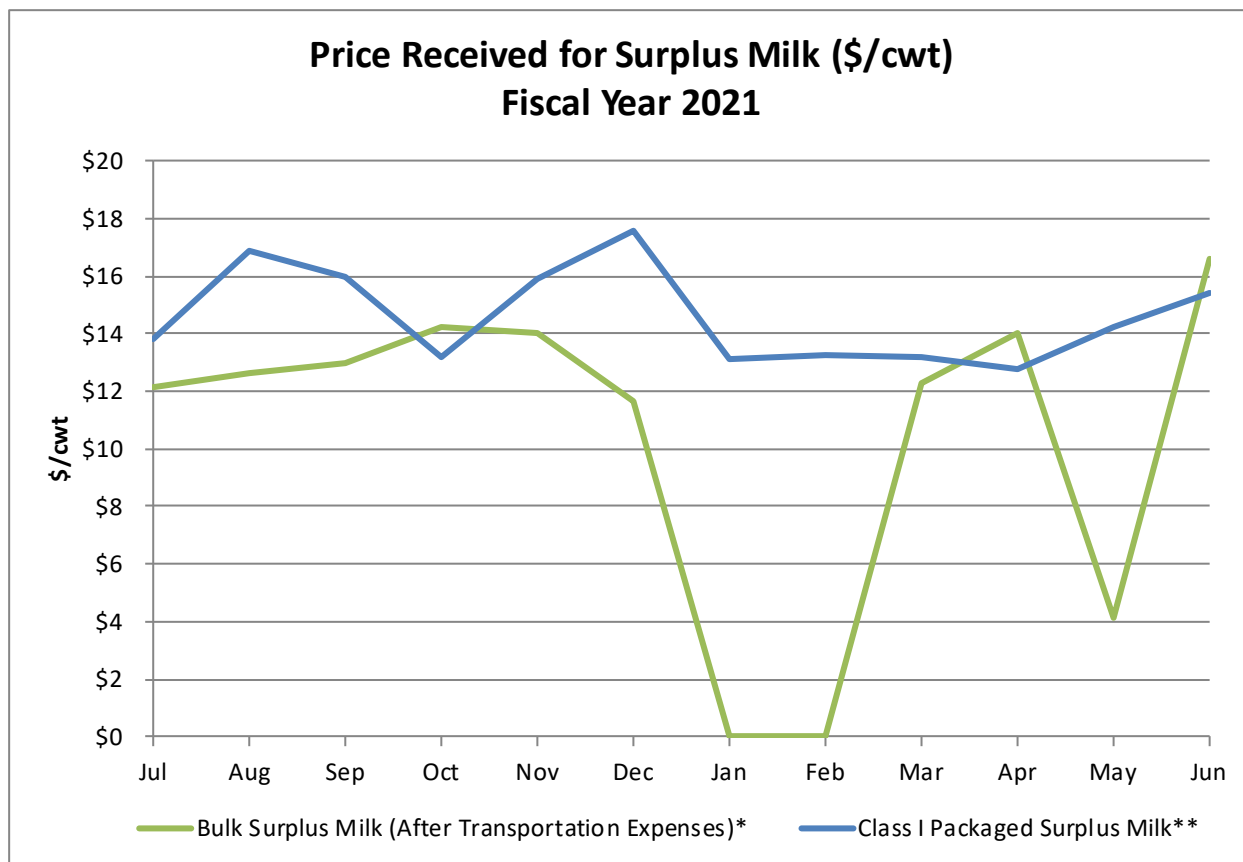
Sales of Surplus Milk

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 2021, butterfat was over 12 1/2 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 2021 and February 2021

**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 2021, surplus sales adjustments for Class I packaged surplus milk reduced the utilization value by \$2,094,318 (an approximate \$2.90/cwt negative adjustment on approximately 30% of pool production). Overall, the adjustment for Class I packaged surplus milk sales reduced the value of pool production by approximately \$0.87/cwt.

Bulk Surplus Milk

In fiscal year 2021, surplus sales adjustments for bulk surplus milk reduced the utilization value by \$85,661 (an approximate \$0.80/cwt negative adjustment on approximately 4.4% of pool production). The adjustment was a negative adjustment every month but October 2020 and November 2020. Overall, the adjustment for bulk surplus milk sales reduced the value of pool production by approximately \$0.036/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 2020, 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

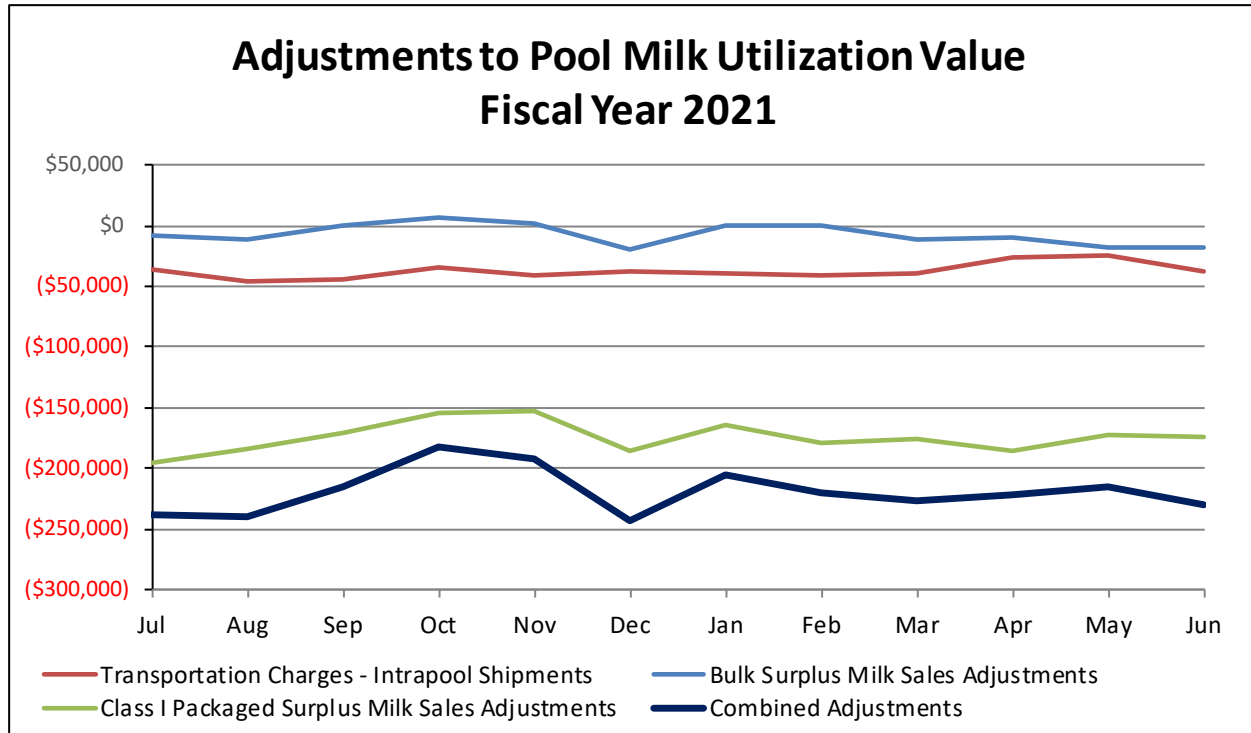
In fiscal year 2021, adjustments made for transportation charges for shipments of unprocessed pool milk between pool plants, Class I packaged surplus milk sales, and bulk surplus milk sales decreased the pool utilization value by 5.65%. The table below summarizes the adjustments and their impact in terms of dollars per hundredweight of pool production and percentage of unadjusted utilization value.

Adjustments to Pool Milk Utilization Value in Fiscal Year 2021

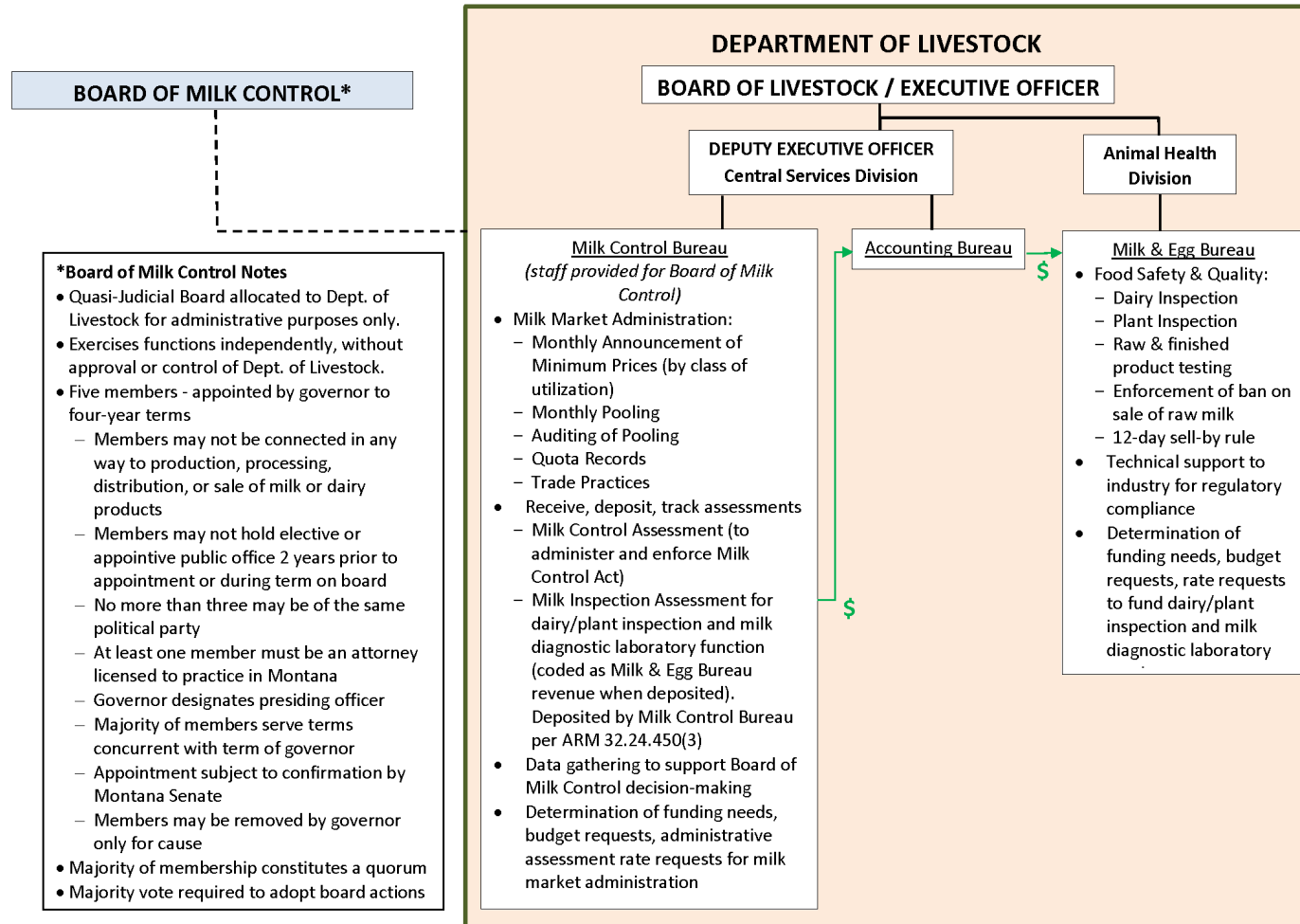
Adjustment Description	Adjustment to Pool Milk Utilization Value (\$)	Adjustment to Pool Milk Utilization Value (\$/cwt of Pool Production)	Adjustment as a Percentage of Unadjusted Utilization Value
Transportation Charges - Intrapool	(\$445,921)	(\$0.1853)	(0.96%)
Class I Packaged Surplus Milk Sales	(\$2,094,318)	(\$0.8701)	(4.51%)
Bulk Surplus Milk Sales	(\$85,661)	(\$0.0356)	(0.18%)
Subtotal	(\$2,625,900)	(\$1.0910)	(5.65%)

	Pool Milk Utilization Value (\$)	Pool Milk Utilization Value (\$/cwt at actual butterfat)
Unadjusted Value	\$46,395,576	\$19.2757
Adjustments	(\$2,625,900)	(\$1.0910)
Adjusted Value	\$43,769,676	\$18.1847

The following chart shows the adjustments made to the pool utilization value throughout fiscal year 2021.



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



APPENDIX B – PENALTY PROCESS SCHEMATIC

