

Dairy Outlook: September 2020

Class III highs are receding, and prices in the short term are normalizing. Unknowns of fall consumer and restaurant demands continue to add volatility to futures markets.



"Dairy Farm 4019962" by 177801. pixabay.com

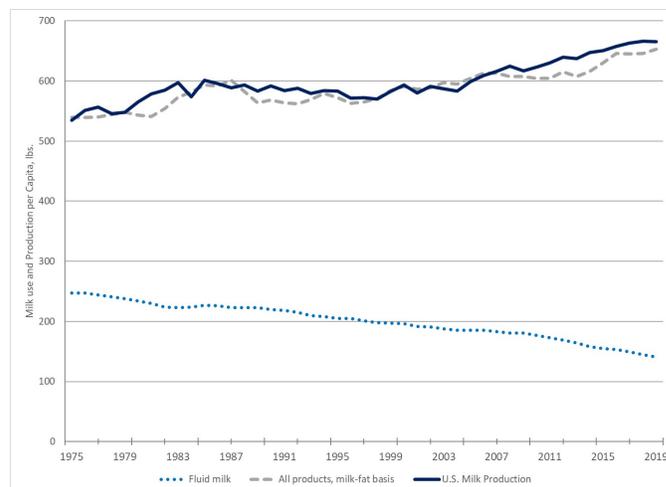
The Mystery of Today's Milk Market Continues

Given the turbulence of the milk markets, and the markets in general, it is hard to predict where things are going with any reasonable sense of assurance. Class III prices have receded from the summer spike which caused most Pennsylvania farms to be impacted by a larger than usual negative Producer Price Differential. Class I and IV milk have improved from the lows of the spring, but are still off the anticipated pace from the end of 2020. Numerous factors continue to influence these futures, but for the time being, it appears both Class III and Class IV are normalizing in the \$17/cwt. and \$14/cwt. range respectfully for the rest of 2020. The Pennsylvania All Milk Price should stabilize around \$19.25/cwt. for the same period (Table 3) if those prices come to fruition.

The Good and Bad of U.S. Dairy Consumption Trends

USDA recently released the 2019 dairy production consumption data per capita. Figure 1 outlines how fluid milk, total milk product (adjusted by milk fat equivalent), and annual U.S. milk production per capita have trended since 1975. No surprise, fluid milk has steadily decreased over the past 45 years, going from roughly 250 lbs. per person in 1975 to only 150 lbs. in 2019. Despite the drop in fluid milk, total dairy consumption has been steadily climbing for the same time. For the same period, average annual U.S. milk production had kept pace with that demand, until the early 2000s. Since then, U.S. production has outpaced per capita consumption. This isn't necessarily a concern, given this data does not reflect any export data for the same time period. When examining the recent trends in commercial disappearance versus milk production, the last two months have seen slightly better disappearance than that months production (Figure 2). However, given the continued influences of changing consumer demands and government interventions, supply and demand will continue to be fragile for the foreseeable future.

Figure 1: U.S. Fluid Milk, Dairy Product, and Milk Production per Capita from 1975-2019

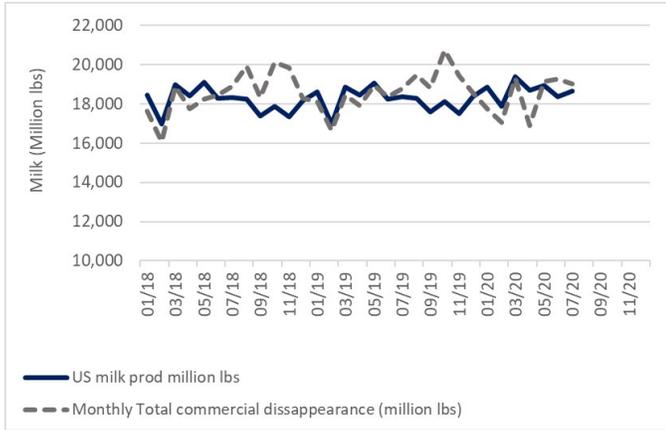


USDA Economic Research Service and USDA National Agricultural Statistics Service, 2020.



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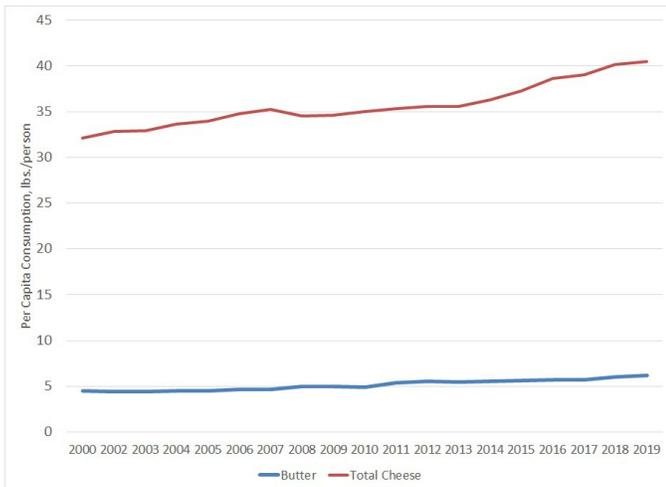
Figure 2: Monthly U.S. Milk Production vs. Commercial Disappearance



USDA Economic Research Service and USDA National Agricultural Statistics Service, 2020.

There are some positive trends from consumer markets that exist beyond the reduced fluid milk and stagnant yogurt trends. Figure 3 takes a closer look at butter and total cheese (American, other than American, and Cottage) for the past twenty years. In that time, per capita consumption has increased nearly 26% for total cheeses (from 32 total pounds to nearly 42.5 lbs) and butter has increased by 38% (going from 4.5 lbs. in 2000 to over 6 lbs. in 2019). Hopefully these trends will continue to improve under the pandemic related shifts in eating patterns by consumers.

Figure 3: U.S. Per Capita Consumption of Butter and Total Cheese, 2000-2019



USDA Economic Research Service and USDA National Agricultural Statistics Service, 2020.

Income Over Feed Cost, Margin, and All Milk Price Trends

Table 1: 12 month Pennsylvania and U.S. All Milk Income, Feed Cost, Income over Feed Cost (\$/milk cow/day)

	PA All Milk Income	PA Feed Cost ¹	PA IOFC	3 yr avg. breakeven IOFC ²	US All Milk Income	US Feed Cost ¹	US IOFC
Aug-19	\$ 14.55	\$ 5.00	\$ 9.55	\$ 9.00	\$ 14.18	\$ 4.47	\$ 9.71
Sep-19	\$ 14.70	\$ 4.82	\$ 9.88	\$ 9.00	\$ 14.48	\$ 4.44	\$ 10.04
Oct-19	\$ 15.08	\$ 5.26	\$ 9.81	\$ 9.00	\$ 14.93	\$ 4.44	\$ 10.48
Nov-19	\$ 15.75	\$ 5.43	\$ 10.32	\$ 9.00	\$ 15.75	\$ 4.28	\$ 11.47
Dec-19	\$ 15.68	\$ 5.34	\$ 10.34	\$ 9.00	\$ 15.53	\$ 4.32	\$ 11.20
Jan-20	\$ 15.15	\$ 5.32	\$ 9.83	\$ 9.00	\$ 14.70	\$ 4.30	\$ 10.40
Feb-20	\$ 14.55	\$ 5.40	\$ 9.15	\$ 9.00	\$ 14.18	\$ 4.29	\$ 9.88
Mar-20	\$ 14.18	\$ 5.75	\$ 8.43	\$ 9.00	\$ 13.50	\$ 4.33	\$ 9.17
Apr-20	\$ 11.48	\$ 5.28	\$ 6.20	\$ 9.00	\$ 10.80	\$ 4.23	\$ 6.57
May-20	\$ 10.50	\$ 5.40	\$ 5.10	\$ 9.00	\$ 10.20	\$ 4.15	\$ 6.05
Jun-20	\$ 12.23	\$ 5.14	\$ 7.08	\$ 9.00	\$ 13.58	\$ 4.13	\$ 9.44
Jul-20	\$ 14.48	\$ 4.98	\$ 9.50	\$ 9.00	\$ 15.38	\$ 4.09	\$ 11.28
Aug-20	\$ 13.98	\$ 5.03	\$ 8.95	\$ 9.00	\$ 13.67	\$ 4.10	\$ 9.57
Sep-20	\$ 13.12	\$ 5.01	\$ 8.11	\$ 9.00	\$ 12.45	\$ 4.08	\$ 8.37
12 mo. Avg.	\$ 14.03	\$ 5.26	\$ 8.76		\$ 13.93	\$ 4.29	\$ 9.64
12 mo. change	\$ 0.52	\$ 0.09	\$ 0.43		\$ 1.01	\$ (0.13)	\$ 1.13
% change	3.8%	1.7%	5.2%		7.8%	-2.9%	13.3%

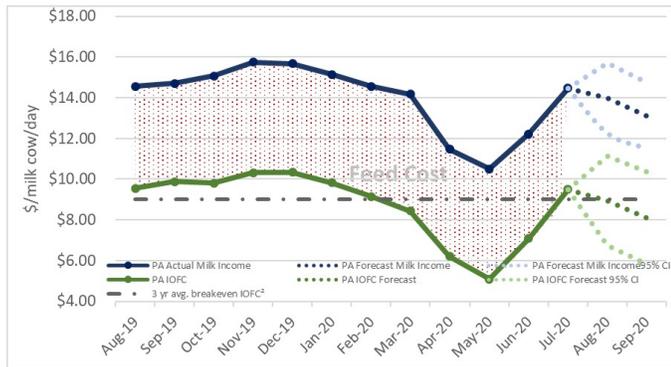
¹Based on corn, alfalfa hay, and soybean meal equivalents to produce 75 lbs. of milk (Bailey & Ishler, 2007) ²The 3 year average actual IOFC breakeven in Pennsylvania from 2015-2017 was \$9.00 ± \$1.67 (\$/milk cow/day) (Beck, Ishler, Goodling, 2018).

Table 2: 12 month Pennsylvania and U.S. All Milk Price, Feed Cost, Milk Margin (\$/cwt for lactating cows)

	PA All Milk Price	PA Feed Cost ¹	PA Milk Margin	3 yr avg. breakeven Milk Margin ²	US All Milk Price	US Feed Cost ¹	US Milk Margin
Aug-19	\$ 19.40	\$ 6.67	\$ 12.73	\$ 12.33	\$ 18.90	\$ 5.96	\$ 12.94
Sep-19	\$ 19.60	\$ 6.43	\$ 13.17	\$ 12.33	\$ 19.30	\$ 5.91	\$ 13.39
Oct-19	\$ 20.10	\$ 7.01	\$ 13.09	\$ 12.33	\$ 19.90	\$ 5.92	\$ 13.98
Nov-19	\$ 21.00	\$ 7.24	\$ 13.76	\$ 12.33	\$ 21.00	\$ 5.71	\$ 15.29
Dec-19	\$ 20.90	\$ 7.12	\$ 13.78	\$ 12.33	\$ 20.70	\$ 5.76	\$ 14.94
Jan-20	\$ 20.20	\$ 7.10	\$ 13.10	\$ 12.33	\$ 19.60	\$ 5.74	\$ 13.86
Feb-20	\$ 19.40	\$ 7.20	\$ 12.20	\$ 12.33	\$ 18.90	\$ 5.72	\$ 13.18
Mar-20	\$ 18.90	\$ 7.66	\$ 11.24	\$ 12.33	\$ 18.00	\$ 5.77	\$ 12.23
Apr-20	\$ 15.30	\$ 7.03	\$ 8.27	\$ 12.33	\$ 14.40	\$ 5.63	\$ 8.77
May-20	\$ 14.00	\$ 7.21	\$ 6.79	\$ 12.33	\$ 13.60	\$ 5.54	\$ 8.06
Jun-20	\$ 16.30	\$ 6.86	\$ 9.44	\$ 12.33	\$ 18.10	\$ 5.51	\$ 12.59
Jul-20	\$ 19.30	\$ 6.63	\$ 12.67	\$ 12.33	\$ 20.50	\$ 5.46	\$ 15.04
Aug-20	\$ 18.63	\$ 6.70	\$ 11.93	\$ 12.33	\$ 18.23	\$ 5.47	\$ 12.77
Sep-20	\$ 17.49	\$ 6.68	\$ 10.81	\$ 12.33	\$ 16.60	\$ 5.45	\$ 11.15
12 mo. Avg.	\$ 18.70	\$ 7.01	\$ 11.69		\$ 18.58	\$ 5.72	\$ 12.86
12 mo. change	\$ 0.69	\$ 0.12	\$ 0.58		\$ 1.34	\$ (0.17)	\$ 1.51
% change	3.8%	1.7%	5.2%		7.8%	-2.9%	13.3%

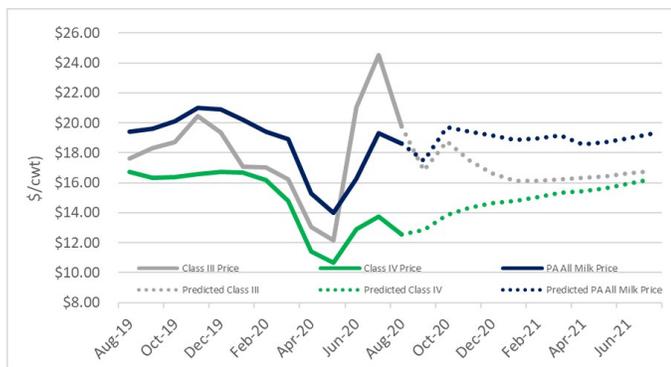
¹Based on corn, alfalfa hay, and soybean meal equivalents to produce 75 lbs. of milk (Bailey & Ishler, 2007) ²The 3 year average actual Milk Margin breakeven in Pennsylvania from 2015-2017 was \$12.33 ± \$2.29 (\$/cwt) (Beck, Ishler, Goodling, 2018).

Figure 4: Twelve month Pennsylvania Milk Income and Income Over Feed Cost (\$/milk cow/day)



²The 3 year average actual IOFC breakeven in Pennsylvania from 2015-2017 was \$9.00 ± \$1.67 (\$/milk cow/day) (Beck, Ishler, Goodling, 2018).

Figure 5: Twenty-four month Actual and Predicted* Class III, Class IV, and Pennsylvania All Milk Price (\$/cwt)



*Predicted values based on Class III and Class IV futures regression (Goodling, 2020).

Table 3: Twenty-four month Actual and Predicted* Class III, Class IV, and Pennsylvania All Milk Price (\$/cwt)

Month	Class III Price	Class IV Price	PA All Milk Price
Aug-19	\$17.60	\$16.74	\$19.40
Sep-19	\$18.31	\$16.35	\$19.60
Oct-19	\$18.72	\$16.39	\$20.10
Nov-19	\$20.45	\$16.60	\$21.00
Dec-19	\$19.37	\$16.70	\$20.90
Jan-20	\$17.05	\$16.65	\$20.20
Feb-20	\$17.00	\$16.20	\$19.40
Mar-20	\$16.25	\$14.80	\$18.90
Apr-20	\$13.07	\$11.40	\$15.30
May-20	\$12.14	\$10.67	\$14.00
Jun-20	\$21.04	\$12.90	\$16.30
Jul-20	\$24.54	\$13.76	\$19.30
Aug-20	\$19.77	\$12.53	\$18.63
Sep-20	\$16.84	\$12.85	\$17.49

Oct-20	\$18.79	\$13.82	\$19.72
Nov-20	\$17.48	\$14.34	\$19.41
Dec-20	\$16.62	\$14.62	\$19.18
Jan-21	\$16.14	\$14.79	\$18.85
Feb-21	\$16.13	\$15.02	\$18.97
Mar-21	\$16.25	\$15.32	\$19.18
Apr-21	\$16.31	\$15.44	\$18.55
May-21	\$16.44	\$15.64	\$18.71
Jun-21	\$16.64	\$15.94	\$18.96
Jul-21	\$16.80	\$16.22	\$19.26
Aug-21	\$16.86	\$16.38	\$19.37

* *Italicized predicted values based on Class III and Class IV futures regression (Beck, Ishler, and Goodling 2018; Gould, 2019).*

To look at feed costs and estimated income over feed costs at varying production levels by zip code, check out the Penn State Extension Dairy Team's [DairyCents](#) or [DairyCents Pro](#) apps today.

Data sources for price data

- All Milk Price: Pennsylvania and U.S. All Milk Price (USDA National Ag Statistics Service, 2020)
- Current Class III and Class IV Price (USDA Ag Marketing Services, 2020)
- Predicted Class III, Class IV Price (CME Group, 2020)
- Alfalfa Hay: Pennsylvania and U.S. monthly Alfalfa Hay Price (USDA National Ag Statistics Service, 2020)
- Corn Grain: Pennsylvania and U.S. monthly Corn Grain Price (USDA National Ag Statistics Service, 2020)
- Soybean Meal: Feed Price List (Ishler, 2020) and average of Decatur, Illinois Rail and Truck Soybean Meal, High Protein prices, National Feedstuffs (USDA Ag Marketing Services, 2020)

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