

Overview

The coronavirus has so suddenly transformed the global marketplace that U.S. dairy statistics, which by their nature look backward, resemble glimpses from a vanished world. The entire U.S. dairy industry is now deep in crisis mode, seeking ways to contain the price and supply chain damage brought about by coronavirus and wondering when and how it might eventually emerge from the current emergency.

These factors compound a dairy market where domestic commercial use in all products during the first months of 2020 was already weakening, although U.S. dairy exports were strong. The national dairy cow herd was entering into another cycle of expansion, setting the stage for what could have been two to three percent year-over-year increases in milk production. Butter and nonfat dry milk stocks were building, leading to weakening prices, but cheese was still holding up, relatively speaking. And the DMC margin in February was still over \$10 per hundredweight, above the level necessary to trigger federal assistance. But in late March and early April, as it became clearer that total demand for U.S. produced milk and dairy products would suffer serious losses, cheese prices collapsed in the CME cash markets while butter and nonfat dry milk cash prices continued to erode.

Commercial Use of Dairy Products

U.S. domestic commercial use of milk in all products was below year-ago levels on both a milkfat and a skim solids basis during December–February. The larger drop in domestic skim solids use reflected increased exports of dry skim ingredient products, since total commercial use was essentially flat during the period. Lower domestic

use of many of the major dairy product categories except cheese contributed to the overall loss of domestic dairy use.

U.S. Dairy Trade

U.S. dairy exports showed important gains during the December through February period. Almost all of the high-volume dry skim ingredient exports showed double-digit volume gains

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Domestic Commercial Use	Dec 2019–Feb 2020	Dec 2018–Feb 2019	2019–2020 Change	Percent Change*
	(million pounds)			
Total Fluid Milk Products	NA	11,904	NA	NA
Yogurt	1,059	1,069	-9	-1.9%
Butter	428	440	-12	-3.7%
American-type Cheese	1,244	1,255	-11	-2.0%
All Other Cheese	1,868	1,804	64	2.4%
Total Cheese	3,111	3,058	53	0.6%
Nonfat Dry Milk/Skim Milk Powders	109	232	-123	-53.6%
All Products (milk equiv., milkfat basis)	51,274	50,871	403	-0.3%
All Products (milk equiv., skim solids basis)	44,355	45,030	-675	-2.6%
All Products (milk equiv., total solids basis)	46,497	46,836	-339	-1.8%

*adjusted for leap year

U.S. Dairy Trade *from page 1*

over a year earlier. The exception was dry whey, which finally snapped a 17-month string of China-driven annual losses in February, to register a slight gain for the period. Butter, milkfat and American-type cheese exports were down by double digits, but exports of all other cheese were almost flat. Total exports as a percent of U.S. milk solids production increased by a respectable 1.7 percentage points from a year ago during the period.

U.S. butter imports were down by more than one-third from a year earlier, but imported milk protein concentrate was up by almost a quarter. Casein did not follow this increased demand for imported concentrated milk protein products but stayed basically flat, as did cheese imports.

Milk Production

The U.S. dairy cow herd started growing again, year-over-year, in January, following a 19-month period of shrinkage. Given historical trends, it appeared almost certain that the industry was heading into another herd growth episode, just as the demand shock of the COVID-19 crisis has started gathering steam.

To explain further: For more than twenty years, during which USDA has published monthly estimates of U.S. total dairy cow numbers, almost all of those numbers can be sorted into clear-cut, consecutive cycles, or episodes, of annual growth or decline. These episodes are at least twelve consecutive months during which U.S. total dairy cows are consistently increasing or consistently decreasing year-over-year, with a peak change during that period approaching plus or minus 100 thousand cows, and with

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U.S. Dairy Exports	Dec 2019–Feb 2020	Dec 2018–Feb 2019	2019–2020 Change	Percent Change*
	(metric tons)			
Butter	4,285	5,945	-1,660	-29%
Anhydrous Milk Fat / Butteroil	933	1,219	-286	-24%
Cheddar Cheese	9,426	13,185	-3,759	-29%
American–type Cheese	9,537	13,250	-3,714	-29%
All Other Cheese	75,513	75,988	-475	-2%
Total Cheese	85,050	89,238	-4,189	-6%
Nonfat Dry Milk / Skim Milk Powder	193,204	154,898	38,306	23%
Whole Milk Powder	10,858	7,217	3,640	49%
Dry Whey	41,200	39,679	1,521	3%
Whey Protein Concentrate/Isolate	48,283	32,579	15,704	47%
Lactose	94,606	83,566	11,040	12%
Percent of U.S. Milk Solids Exported	14.9%	13.2%	1.7%	12%
	*adjusted for leap year			

U.S. Dairy Imports	Dec 2019–Feb 2020	Dec 2018–Feb 2019	2019–2020 Change	Percent Change*
	(metric tons)			
Butter	5,048	7,892	-2,844	-37%
Cheese	42,476	40,968	1,508	3%
Nonfat Dry Milk/Skim Milk Powder	107	86	21	23%
MPC (all protein levels)	15,026	12,126	2,900	23%
Casein	16,776	16,260	515	2%
Percent of U.S. Milk Solids Imported	3.4%	3.3%	0.1%	1%
	*adjusted for leap year			

Milk Production *from page 2*

graphs of these monthly changes that closely resemble classic bell-shaped curves. Since late 2004, there have been eight such clearly defined episodes. One of these was a unique period without a clear direction of change, but five were episodes of herd growth, while just two were of herd decline: one during 2009-2010 and the one just ended.

The first three of the five herd growth episodes took place when U.S. dairy exports were growing briskly, resulting in rapid expansion of total demand for U.S. dairy products that required more dairy cows to supply. But the two most recent

growth episodes, following 2014, happened when export growth, and hence total demand growth, had slowed, creating a less favorable supply-demand balance and depressed milk prices. The brief price recovery in the latter part of 2019 was materially aided by reduced cow numbers. Given more than twenty years of history of clearly-defined episodes of dairy herd growth and shrinkage, any reversal in declining cow numbers could presage lower prices.

Dairy Products

Growth in Cheddar and American-type cheese production slightly exceeded that of total milk and milk solids production

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Milk and Dairy Products Production	Dec 2019–Feb 2020	Dec 2018–Feb 2019	2019–2020 Change	Percent Change*
Milk Production				
Cows (1,000 head)	9,358	9,353	5	0.1%
Per Cow (pounds)	5,884	5,747	137	1.3%
Total Milk (million pounds)	55,055	53,748	1,307	1.3%
Total Milk Solids (million pounds)	7,166	6,995	172	1.3%
Dairy Products Production				
		(million pounds)		
Cheese				
American Types	1,311	1,279	33	1.4%
Cheddar	954	930	24	1.5%
Italian Types	1,418	1,400	18	0.2%
Mozzarella	1,120	1,104	16	0.3%
Total Cheese	3,267	3,202	65	0.9%
Butter	549	525	25	3.6%
Dry Milk Products				
Nonfat Dry Milk	497	469	28	4.8%
Skim Milk Powder	134	126	8	5.4%
Dry Whey	241	231	10	3.2%
Whey Protein Concentrate	121	126	-5	-5.4%

*adjusted for leap year

Dairy Product Inventories	Feb 2020	Jan 2019	Feb 2019	2019–2020 Change
		(million pounds)		
Butter	302	247	244	24%
American Cheese	779	780	783	-1%
Other Cheese	581	574	584	-1%
Nonfat Dry Milk	318	281	310	2%
Dry Whey	74	63	69	8%

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during December–February, but production of other cheese increased at a slower rate. Butter and nonfat dry milk/skim milk powder production significantly outpaced milk production growth during the period, which is reflected in changes in their stocks and prices.

Dairy Product Inventories

Butter stocks are strongly seasonal, but they have been becoming excessive even by seasonal standards since the

end of 2019. By the end of February, they were in excess of normal levels for that month by the equivalent of more than two weeks' of total commercial use. Nonfat dry milk stocks were also becoming excessive, but cheese and dry whey had not yet done so.

Dairy Product and Federal Order Class Prices

Federal milk marketing order prices for March show the effects of the COVID-19 just starting to show up in the monthly dairy

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Dairy Product and Federal Order Prices	Mar 2020	Feb 2020	Mar 2019	2019–2020 Change
AMS Commodity Prices				
		(per pound)		
Butter	\$1.755	\$1.808	\$2.274	-\$0.519
Cheddar Cheese	\$1.709	\$1.788	\$1.538	\$0.171
40-Pound Blocks	\$1.813	\$1.947	\$1.599	\$0.214
500-Pound Barrels	\$1.576	\$1.601	\$1.452	\$0.124
Nonfat Dry Milk	\$1.116	\$1.245	\$0.959	\$0.157
Dry Whey	\$0.375	\$0.369	\$0.413	-\$0.038
Class Prices for Milk				
		(per hundredweight)		
Class I Mover	\$17.46	\$17.55	\$15.98	\$1.48
Class III	\$16.25	\$17.00	\$15.04	\$1.21
Class IV	\$14.87	\$16.20	\$15.71	-\$0.84
Retail Dairy Product Prices				
Fluid Whole Milk (per gallon)	\$3.248	\$3.196	\$2.944	\$0.304
Lowfat Fluid Milk (per gallon)	\$2.913	\$2.882	\$2.670	\$0.243
Cheddar Cheese (per pound)	\$5.329	\$5.381	\$5.193	\$0.136
Butter (per pound)	\$3.857	\$3.762	\$4.261	-\$0.404
Milk and Feed Prices	Feb 2020	Jan 2020	Feb 2019	2019–2020 Change
Producer Prices				
All Milk (per cwt.)	\$18.90	\$19.60	\$16.80	\$2.10
Feed Prices				
Corn (per bushel)	\$3.78	\$3.79	\$3.60	\$0.18
Soybean Meal (per ton)	\$295	\$300	\$307	-\$12
Alfalfa Hay (per ton)	\$191	\$191	\$203	-\$12
DMC Feed Cost (per cwt.)	\$8.84	\$8.88	\$8.89	-\$0.06
DMC Margin (per cwt.)	\$10.06	\$10.72	\$7.91	\$2.16

Dairy Product and Federal Order Class Prices *from page 4*

price statistics. Butter prices had been weakening steadily since late last summer and were more than half a dollar a pound below a year ago, but nonfat dry milk prices had been improving steadily through February, when developing weakness in world markets reversed this trend. Cheese prices were still above year-ago levels but starting to weaken. Class I, III and IV prices were all lower in March than a month earlier, particularly the butter and powder-driven Class IV price. March retail cheddar cheese prices were down from a month earlier, retail butter was well below a year earlier, while fluid milk at retail was up on the month and the year.

Milk and Feed Prices

February data illustrate how strikingly different in behavior are the two basic components of the Dairy Margin Coverage (DMC) margin formula in their current market environments. The all-milk price for the month was down by \$2.10 per cwt. from three months earlier but was also \$2.10 per cwt. higher than February a year earlier. The February DMC feed cost, by contrast, is down by just six cents a hundredweight from a year earlier and 4 cents higher than three months earlier. All three components of the feed cost formula are relatively low and stable, due to large supplies and stocks and continued uncertainty about export demand. But milk prices have been volatile due to the shifting outlook for domestic milk

production and developing uncertainty about foreign import demand, even before the coronavirus began to have a serious impact on the domestic and global economies, and they will become much more so.

Looking Ahead

USDA's April dairy outlook, the first forecast to incorporate market impacts of the Covid-19 pandemic, projected a starkly lower 2020 average milk price than it had just a month earlier. Its April estimate of the 2020 U.S. all-milk price was \$14.35/cwt., almost \$4 below its March estimate of \$18.25/cwt. At the same time, CME dairy futures were indicating a 2020 all-milk average price is the range of \$16.35/cwt. to \$16.45/cwt. The futures indications for this year's prices had dropped fairly steadily through March, but bottomed out at around \$16 at the end of the month and even rebounded a bit since then, even in the face of the late March–early April CME cash market meltdown.

USDA's April forecast held its estimate of 2020 annual milk marketed unchanged from a month earlier, at 221.2 billion pounds, but a new footnote indicated that this estimate included milk that would not be processed. This would be milk that was dumped but for which producers would receive some level of compensation, which would be consistent with its low estimate of average milk prices for the year.

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