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United States Department of Agriculture

Situation and Outlook for the U.S. Dairy Industry

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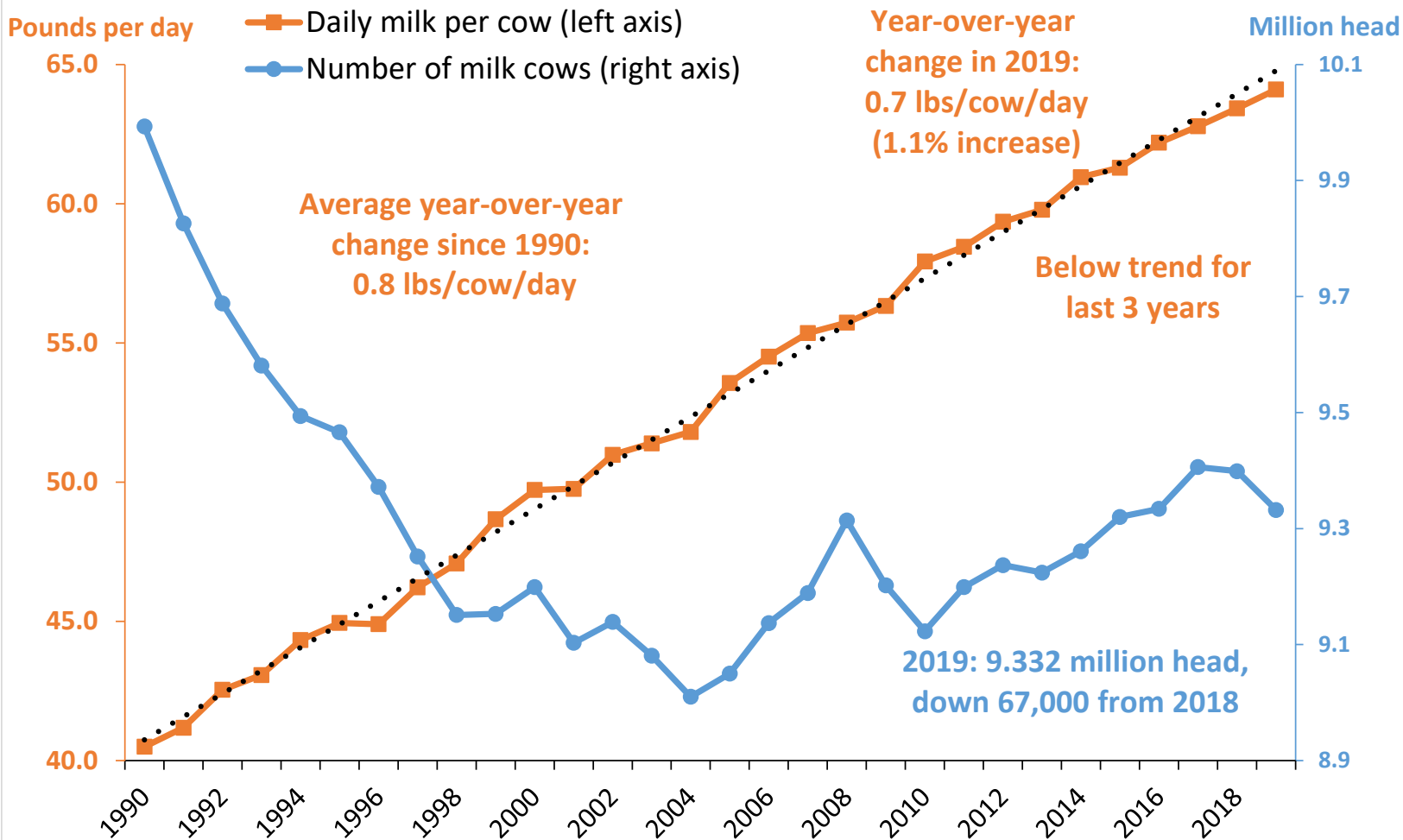


A Perspective on the 2019 Dairy Situation

Note: The data and forecasts do not reflect the latest *Milk Production* report, published by USDA, National Agricultural Statistics Service, on February 20, 2020.



Milk cow numbers and daily milk per cow



Source: U.S. Dept. of Agriculture, National Agricultural Statistics Service.

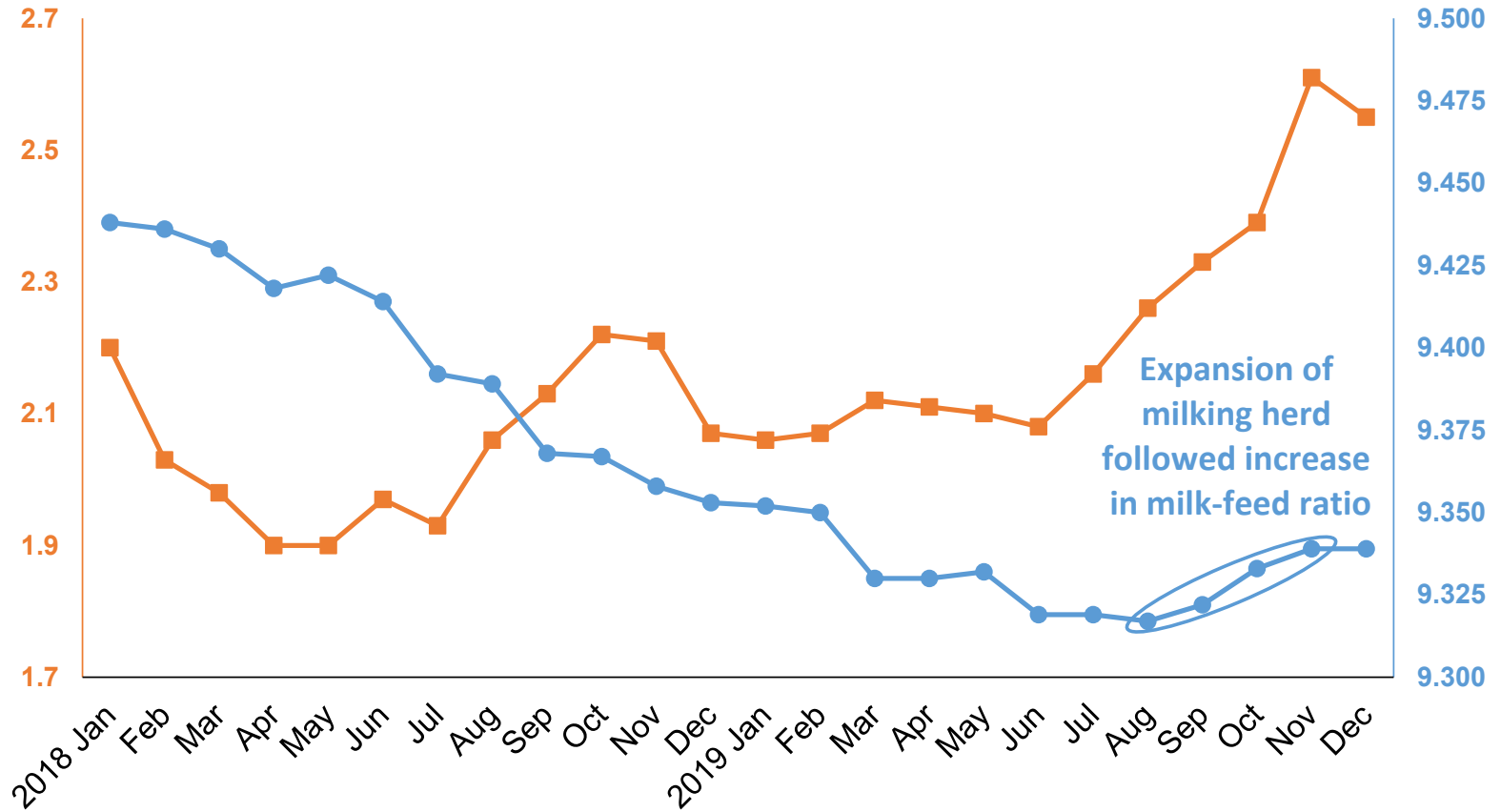


Milk-feed ratio and milk cows

Milk price/
Feed value

■ Milk-feed ratio (left axis) ● Milk cows (right axis)

Million head



Source: USDA, National Agricultural Statistics Service.



A basic understanding of milk equivalence of dairy products is helpful in understanding USDA data and projections.

Approximate milk-equivalent conversion factors

Product	Basis	Pounds of farm milk equivalent to 1 pound of the product
Butter	Milk fat	22
	Skim solids	0.1
NDM	Milk fat	0.2
	Skim solids	12

For imports and exports, conversion factors change each month depending upon the milk-fat and skim-solids content of U.S. milk.



For milk in all products, the increase in domestic use in 2019 was greater than the decline in exports on both milk-fat and skim-solids bases.

Domestic use and exports of milk in all products (billion pounds)

		Milk-equivalent basis	
		Milk fat	Skim solids
Domestic use	2019	215.1	181.8
	Change from 2018	3.0	3.3
Exports	2019	9.1	41.6
	Change from 2018	-1.3	-3.1
Total commercial use	2019	224.2	223.4
	Change from 2018	1.7	0.2

Sources: USDA, National Agricultural Statistics Service; USDA, Farm Service Agency; USDA, Foreign Agricultural Service; U.S. Department of Commerce, Bureau of the Census; and USDA, Economic Research Service calculations.

Numerous sources were used for conversion factors. For more information, see the section for this data set on the ERS Dairy Data Documentation webpage.



Most major dairy products had a year-over-year decline in exports. For most, the increase in domestic use was greater than the decrease in exports.

Domestic use and exports of dairy products (million pounds)

		NDM&					
		Cheese	Butter	SMP ¹	Dry whey	WPC ²	Lactose
Domestic use	2019	12,656	1,937	845	634	283	393
	Chg. from '18	159	36	31	88	15	64
Exports	2019	789	41	1,545	339	274	834
	Chg. from '18	21	-17	-27	-143	-60	-31
Total commercial use	2019	13,445	1,978	2,390	973	557	1,227
	Chg. from '18	180	19	4	-55	-45	33

¹ NDM&SMP = nonfat dry milk and skim milk powder

² WPC = whey protein concentrate

Sources: USDA, National Agricultural Statistics Service; USDA Farm Service Agency; USDA, Foreign Agricultural Service; U.S. Department of Commerce, Bureau of the Census; and USDA Economic Research Service calculations.

Note: Complete 2019 data are not yet available for fluid beverage milk sales. However, partial 2019 data indicate that the long-term decline in fluid milk sales has continued.



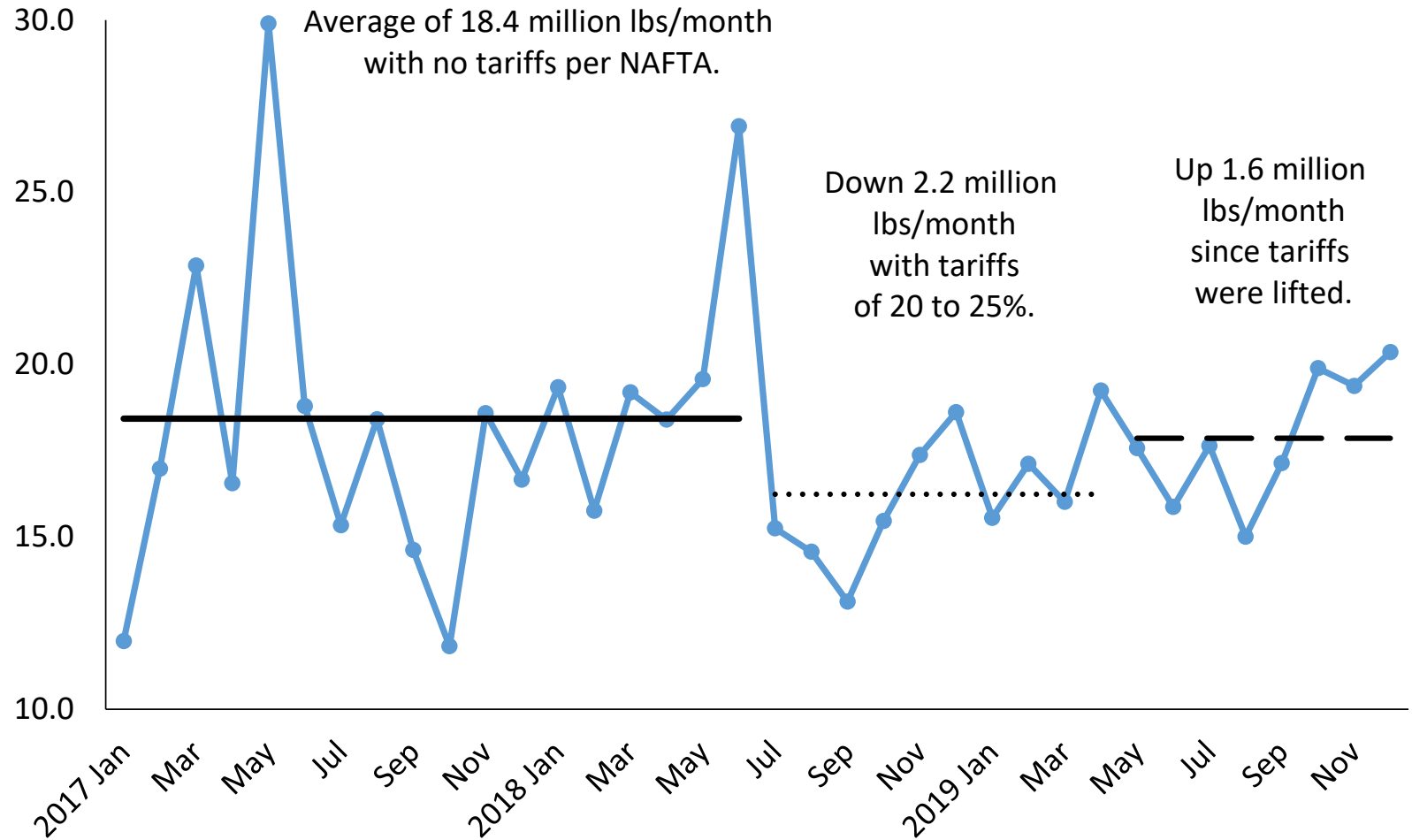
Tariffs Added to Dairy Imports by Major Trading Partners in 2018 and 2019

- Summer of 2018: Mexico, Canada, and China added import tariffs to many products from the United States in response to tariffs added by the U.S. on imports of certain products from those countries.
- Tariffs relevant to U.S. dairy imports:
 - Mexico added tariffs on cheese.
 - Canada added tariffs on yogurt.
 - China added tariffs on a wide variety of dairy products.
- May 2019: Canada and Mexico lifted tariffs in response to the United States' agreement to lift tariffs on steel and aluminum.
- As trade tensions increased, China added more tariffs in June and Sept. 2019.
- Sept. 2019: China exempted some products from tariffs that had previously been imposed. The only dairy product included in this exemption was modified whey for animal use with a lactose content of 76-88 percent. Whey permeate meets this criteria. China is likely trying to rebuild its swine inventory after losses due to African Swine Fever.



U.S. cheese exports to Mexico

Million pounds

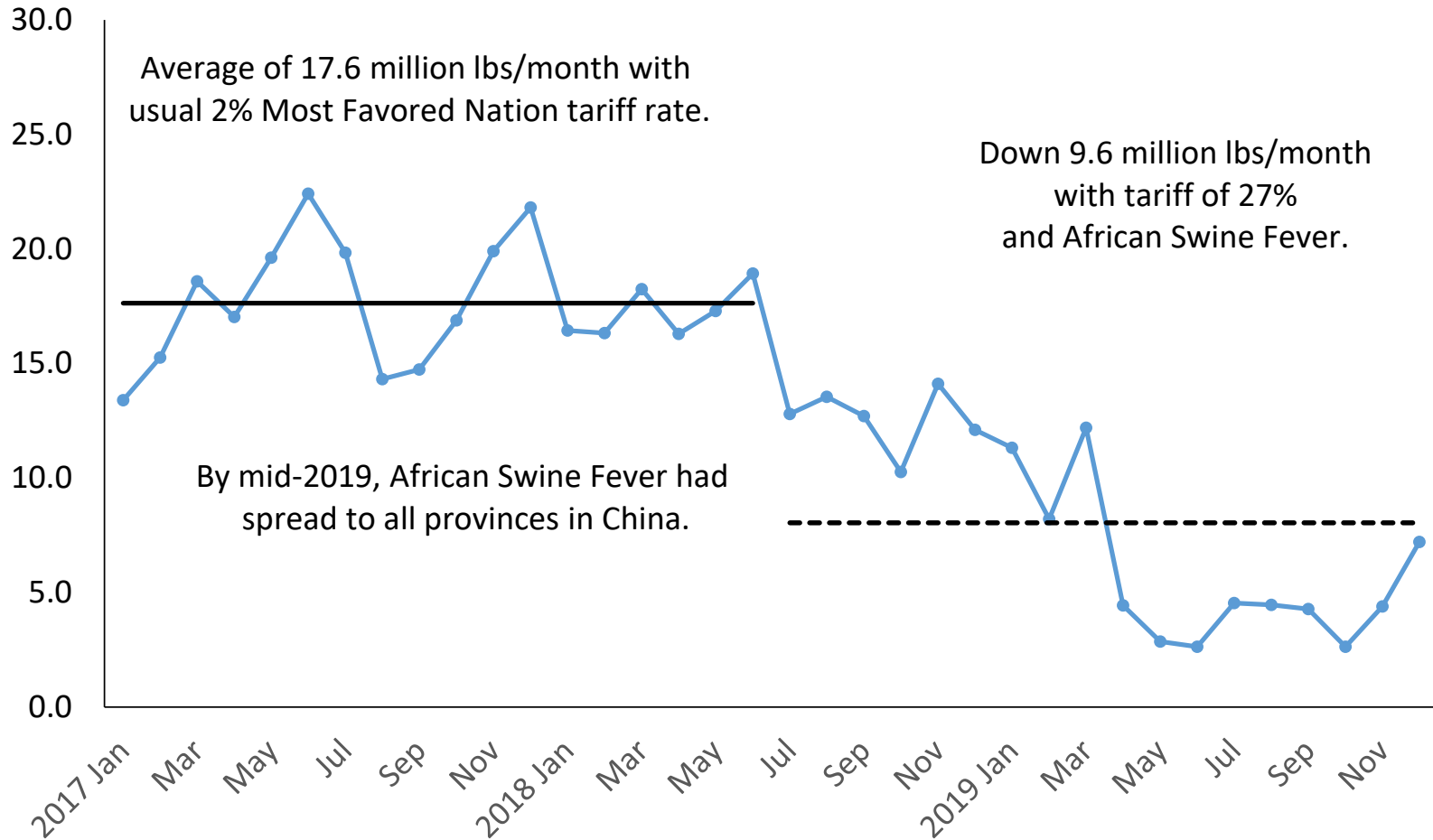


Sources: USDA, Foreign Agricultural Service; U.S. Department of Commerce, Census Bureau.



U.S. exports of dry whey to China

Million pounds



Sources: USDA, Foreign Agricultural Service; U.S. Department of Commerce, Census Bureau.



Additional tariffs on U.S. imports from the European Union

- After finding the EU failed to implement WTO Dispute Settlement Body regulations, the United States began applying tariffs of 25 percent on certain goods from the EU beginning October 18, 2019, including many dairy products.
- These tariffs are in addition to the tariffs already in place for imported goods from most WTO members.
- These tariffs were applied to a complex list of dairy products
 - Includes cheese, butter, butterfat products, whey protein concentrate, yogurt, and fermented products.
 - Not all products within the categories are assessed.
 - Does not apply uniformly to countries within the EU. For example, some apply to only imports from Germany, Spain, and the United Kingdom.



Products from the EU that are subject to additional U.S. tariffs¹ accounted for the following shares of total U.S. dairy imports by value per category in 2018.

Category	Percent of total 2018 imports
Cheese ²	42.3
Butter	82.8
Butterfat products ³	2.8
Whey protein concentrate	6.7
Yogurt/Fermented Milk	1.2

¹The United States began applying tariffs of 25 percentage points (in additional tariffs normally changed) on certain goods from the EU beginning October 18, 2019.

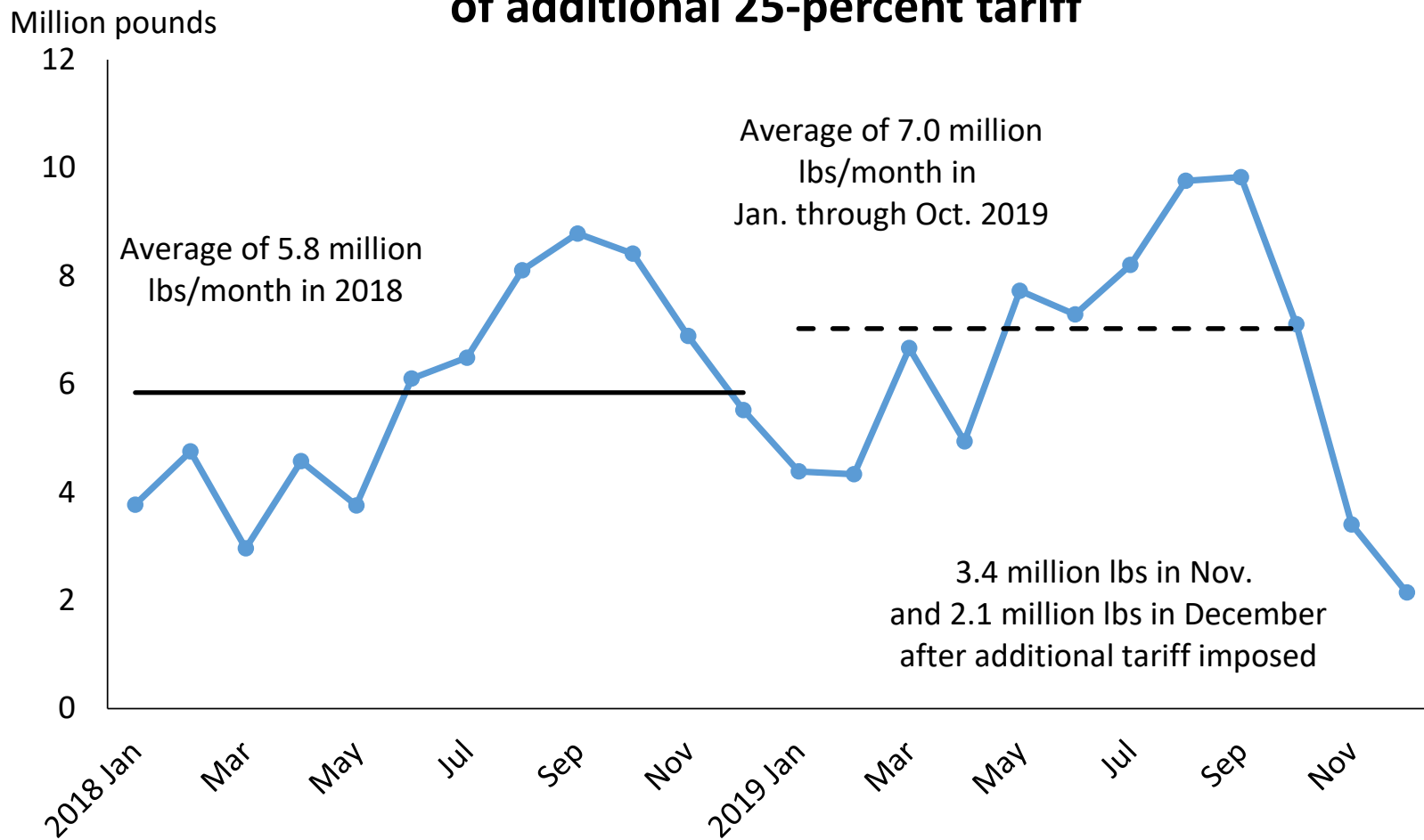
²The cheese quantities include cheese from cows and other animals.

³ Butterfat products include anhydrous milkfat, butteroil, butter substitutes, and high-fat dairy spreads.

Sources: USDA, Foreign Agricultural Service and Economic Research Service calculations; U.S. Census Bureau; Office of the United States Trade Representative.



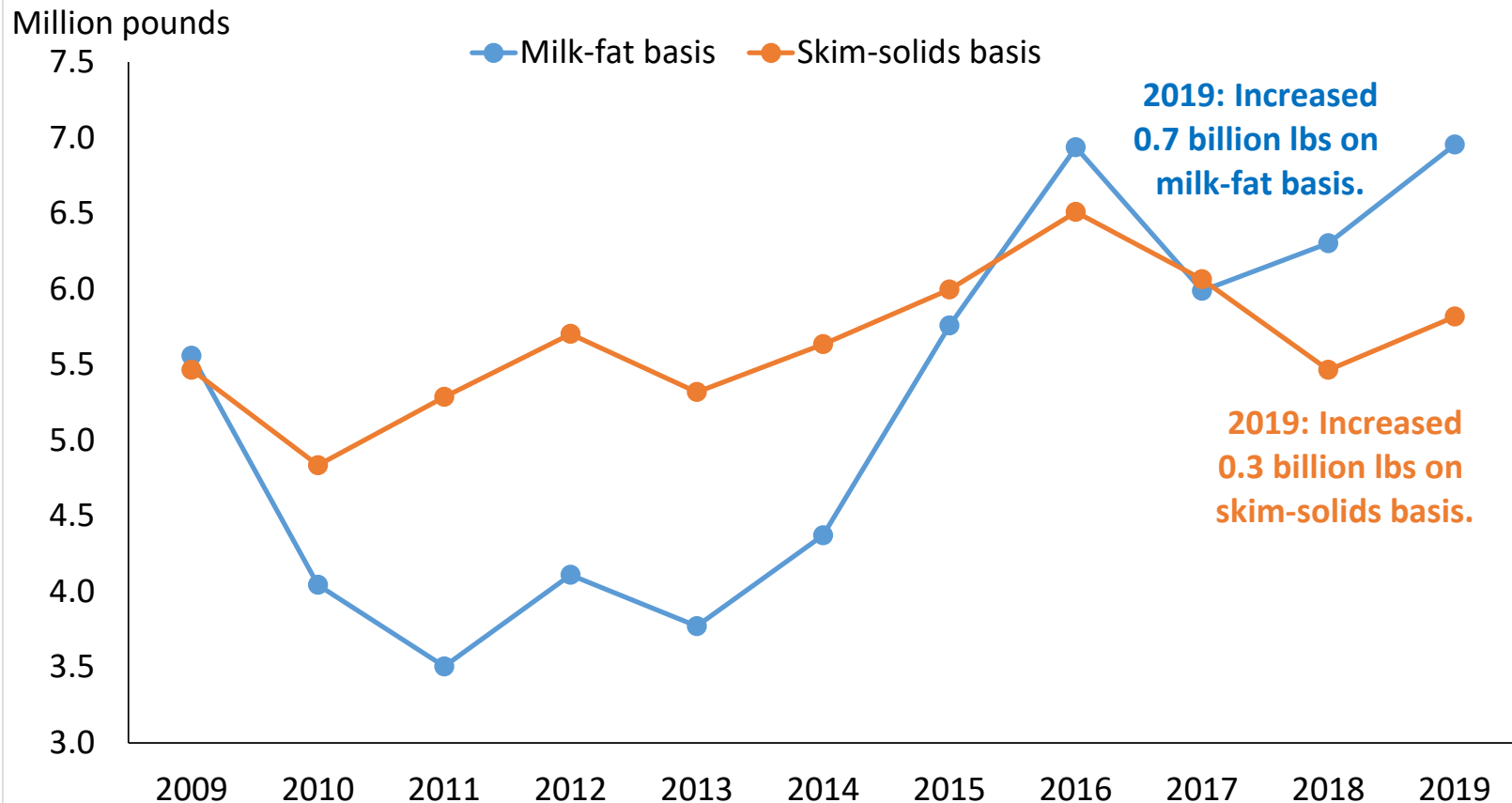
U.S. butter imports from the EU and apparent effect of additional 25-percent tariff



Sources: USDA, Foreign Agricultural Service; U.S. Department of Commerce, Census Bureau. and USDA, Economic Research Service calculations.



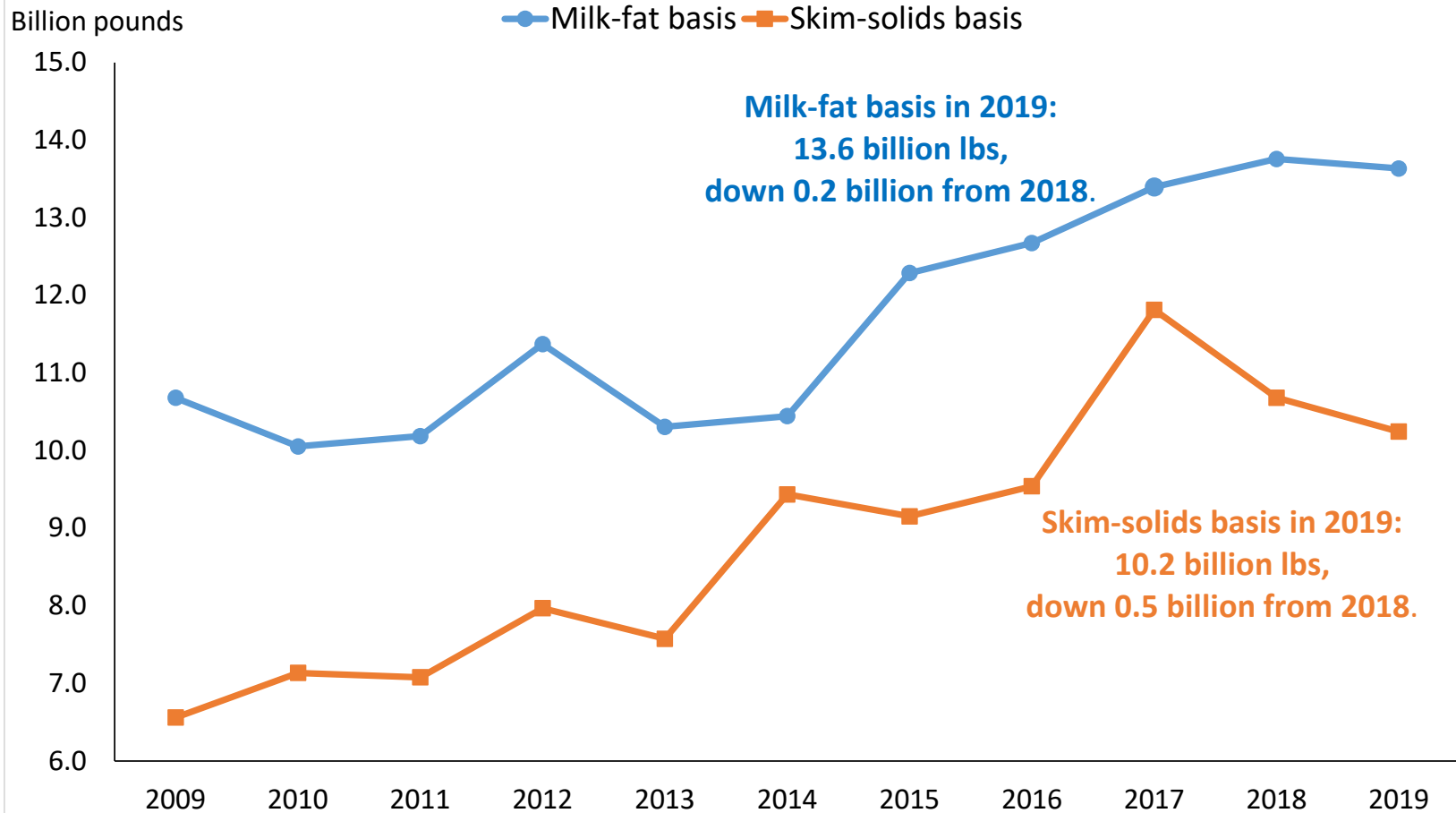
U.S. dairy imports, milk-equivalent bases



Sources: USDA, National Agricultural Statistics Service; USDA, Farm Service Agency; USDA, Foreign Agricultural Service; U.S. Department of Commerce, Bureau of the Census; and USDA, Economic Research Service calculations. Numerous sources were used for conversion factors. For more information, see the ERS Dairy Data Documentation webpage.



U.S. dairy stocks, milk-equivalent bases



Sources: USDA, National Agricultural Statistics Service; USDA, Farm Service Agency; USDA, Foreign Agricultural Service; U.S. Department of Commerce, Bureau of the Census; and USDA, Economic Research Service calculations. Numerous sources were used for conversion factors. For more information, see the ERS Dairy Data Documentation webpage.



While 2019 ending stocks for cheese and nonfat dry milk were lower than 2018, ending stocks for butter were higher.

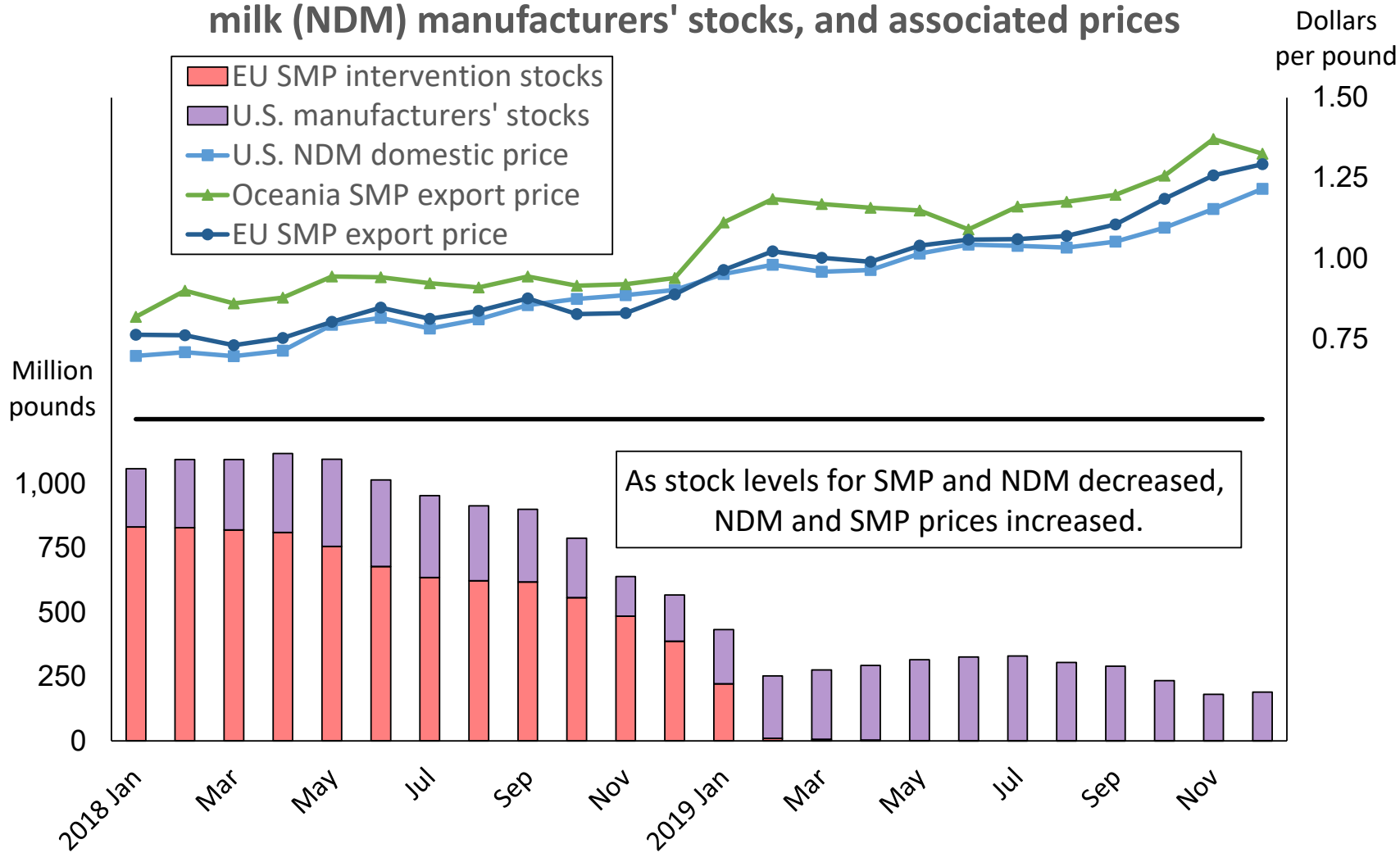
Ending stocks of major dairy products (million pounds)

	Cheese	Nonfat dry milk	Butter
2018	1,345	277	179
2019	1,316	248	190
Change	-29	-28	11

Source: USDA, National Agricultural Statistics Service.



EU skim milk powder (SMP) intervention stocks, U.S. nonfat dry milk (NDM) manufacturers' stocks, and associated prices



Sources: European Commission; USDA, National Agricultural Statistics Service; USDA, Agricultural Marketing Service.

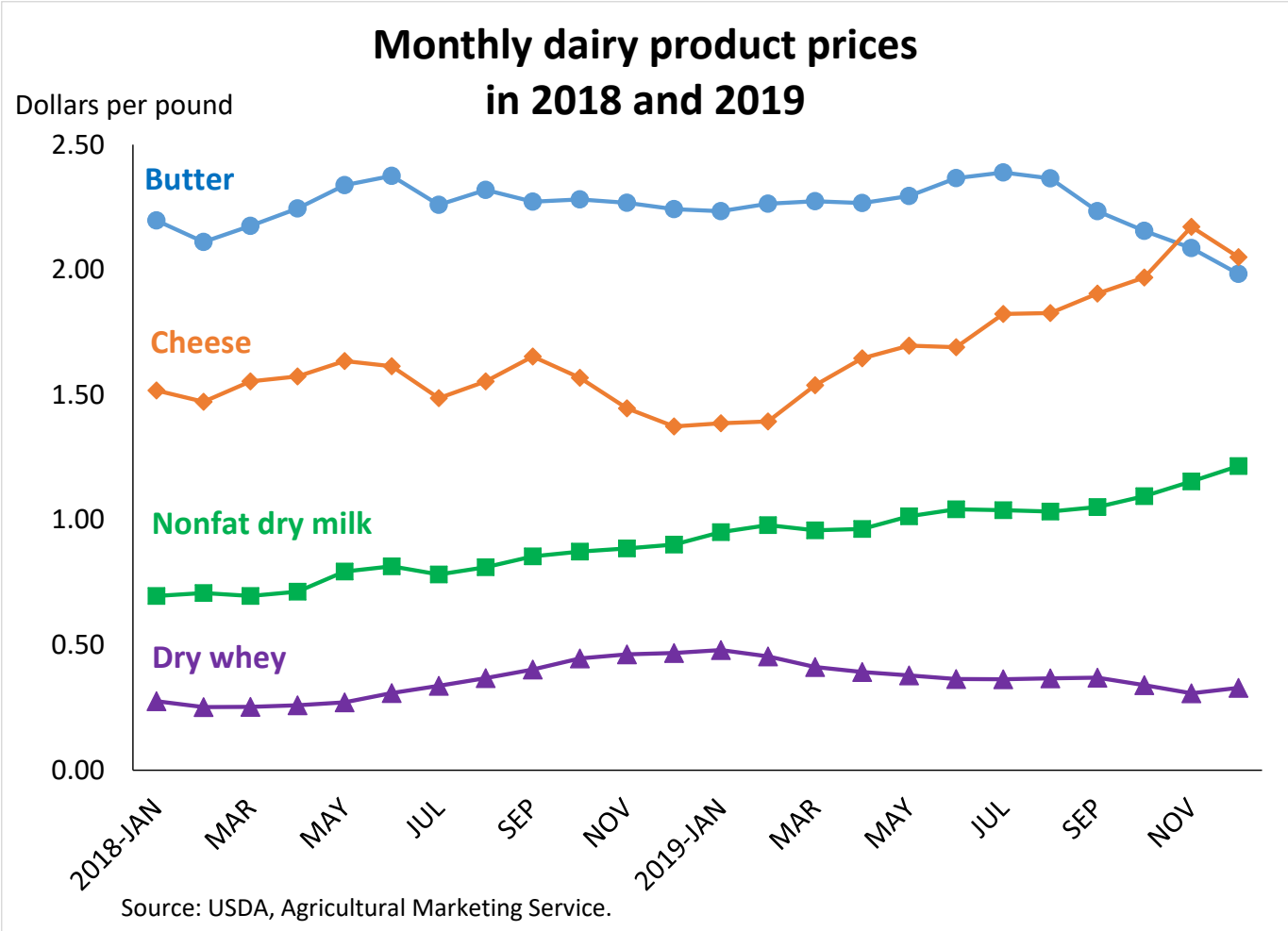


Butter price: Declined last 5 months of 2019. Year-over-year stocks increased as production and imports rose, and exports declined.

Cheese price: increased for most of 2019 before falling in December. Year-over-year stocks declined as total commercial use increased and milk flowed toward butter/powder production.

NDM price: Increased through 2019 as international export prices rose and stock levels declined.

Dry whey price: Averaged higher than 2018, but declined through most of the year as exports of whey products to China fell due to tariffs and African Swine Fever.



Federal Government Assistance to the Dairy Industry in 2019 and 2020



Dairy Margin Coverage (DMC)

- Administered by USDA Farm Service Agency.
- Offers protection to dairy producers when the difference between the all milk price and the average feed price (the margin) falls below a certain dollar amount selected by the producer.
- About 82 percent of dairy operations participated in the DMC program for 2019.
- Estimated indemnity payments are \$312 million for 2019.
- At the time of signup for the 2020 program in late 2019, it appeared that 2020 margins for dairy operations would be higher than they were in 2019. Only about 43 percent of dairy operations enrolled in the 2020 program.



Dairy Revenue Protection (Dairy-RP) and Livestock Gross Margin for Dairy (LGM-Dairy)

- Both programs administered by USDA, Risk Management Agency.
- Dairy-RP
 - Designed to insure against unexpected declines in the quarterly revenue from milk sales relative to a guaranteed coverage level.
 - 2019:
 - Total premiums \$95.1 million
 - Government subsidies: \$41.8 million
 - Indemnity payments: \$5.7 million
- LGM-Dairy
 - Provides protection when feed costs rise or milk prices drop.
 - Can be tailored to any size farm.
 - 2019:
 - Total premiums: \$6.1 million
 - Government subsidies: \$2.5 million
 - Indemnity payments: \$5.4 million



Trade Mitigation Programs

Food Purchase and Distribution Program (FPDP).

- Administered by USDA Agricultural Marketing Service using Commodity Credit Corporation (CCC) funds.
- CCC is a Government-owned and operated entity that supports farm income.
- Most purchased food is provided to States for food banks and pantries.
- \$78 million in contracts for 2019; \$68 million target for 2020.
- Shown as CCC donations in USDA *World Agricultural Supply and Demand Estimates* (WASDE).

	CCC Donations (billion pounds)	
	Milk-equivalent basis	
	Milk-fat	Skim-solids
2019	0.2	0.2
2020 forecast	0.3	0.1

Market Facilitation Payments (MFP)

- May 23, 2019, announcement: USDA would again provide aid of \$14.5 billion in direct payments to farmers for 2019.
- Dairy producers were included in the aid package; payment rates are per cwt on production history as calculated for DMC.
- Payments made in 3 tranches with last tranche in February 2020.





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Recent Developments in Dairy Markets



Dairy wholesale product prices (dollars per pound)

	For the week ending		Change
	Jan. 4	Feb. 8	
Butter	1.9789	1.8561	-0.1228
Cheddar cheese			
40-pound blocks	1.8873	1.9639	0.0766
500-pound barrels	1.7511	1.6242	-0.1269
Nonfat dry milk	1.2356	1.2542	0.0186
Dry whey	0.3331	0.3634	0.0303

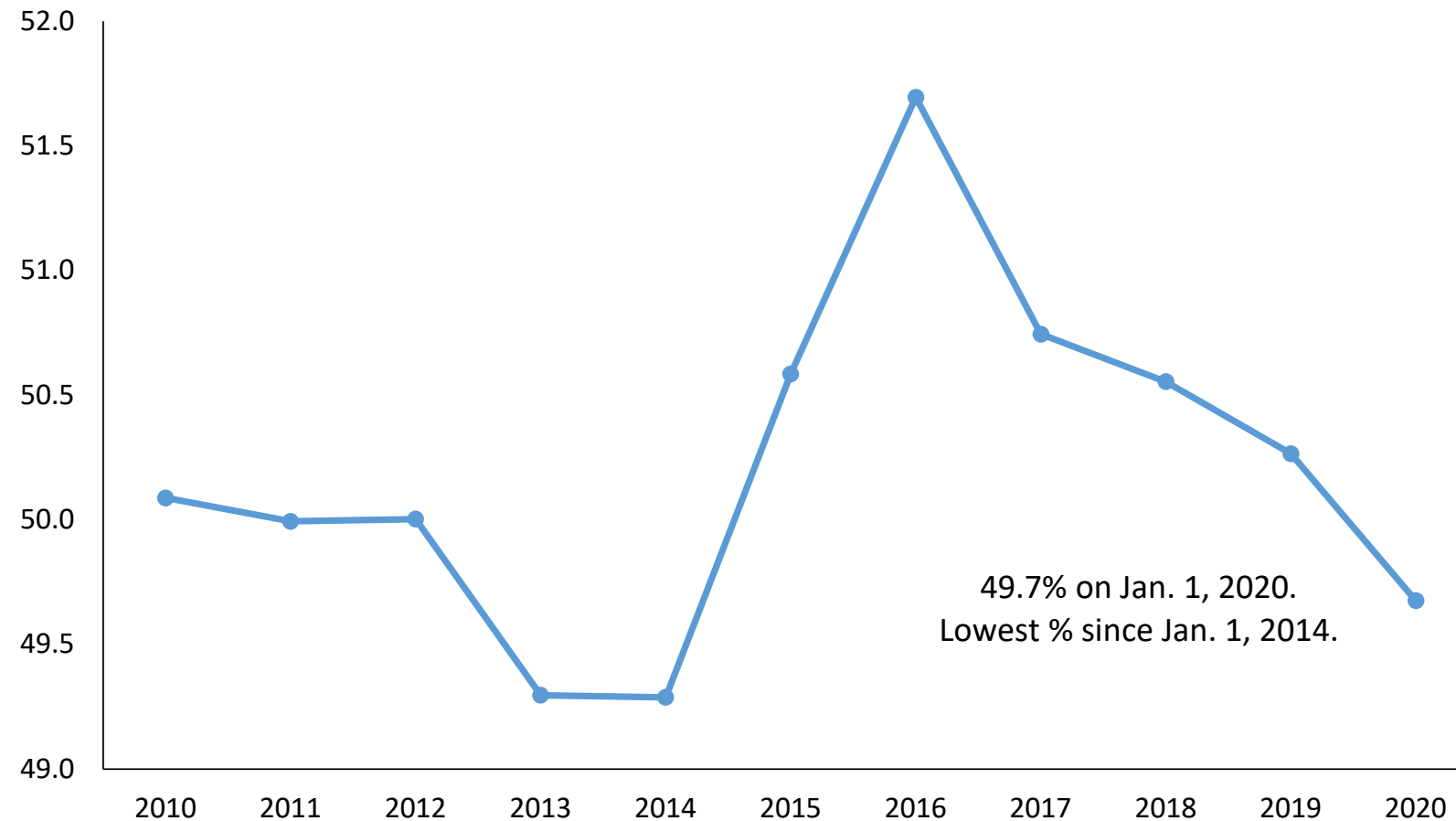
¹ Adjusted to 38-percent moisture.

Source: USDA, Agricultural Marketing Service, *National Dairy Products Sales Report*.



Ratio of milk replacement heifers to milk cows as of January 1 each year

Percent

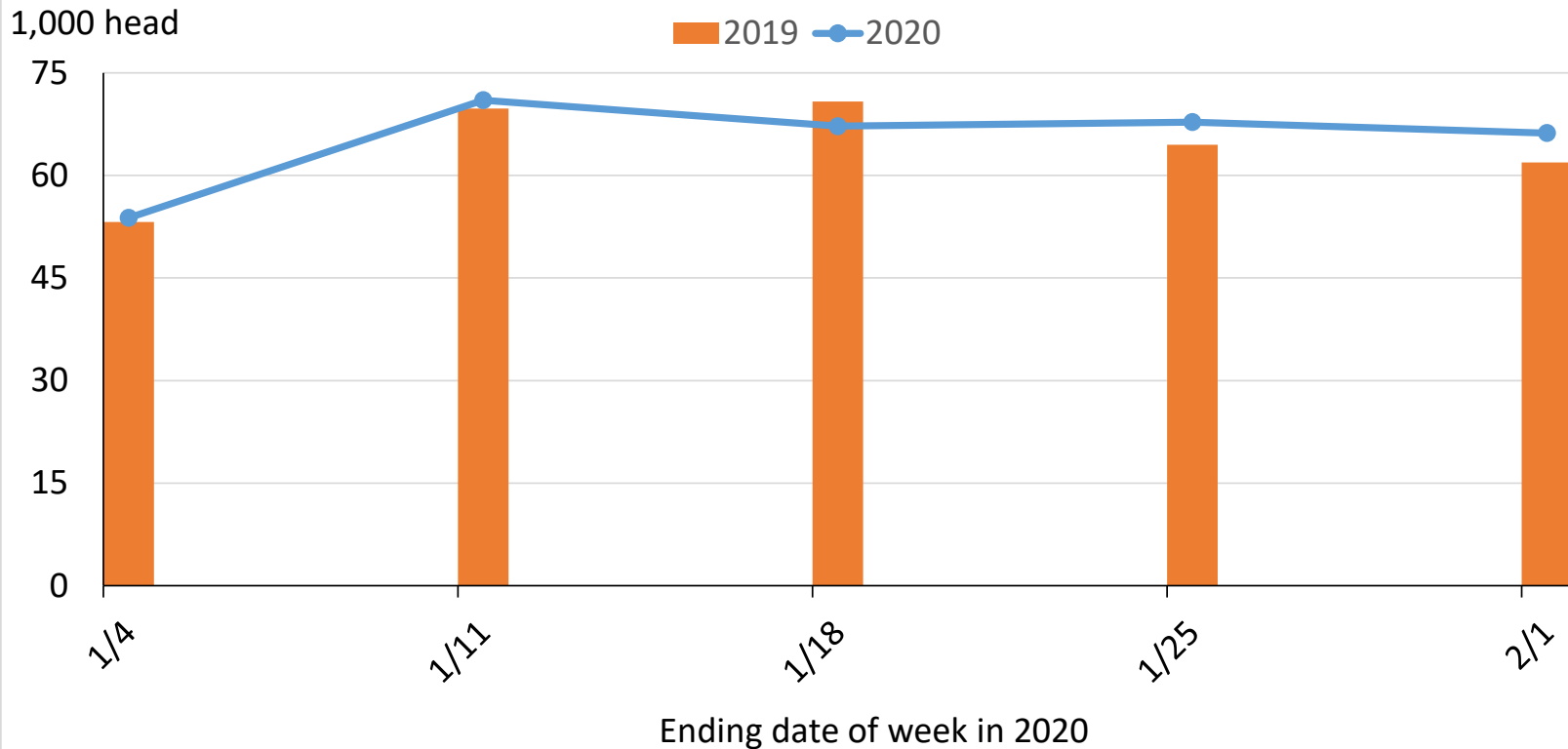


Sources: USDA, National Agricultural Statistics Service, and USDA, Economic Research Service calculations.



Weekly federally-inspected dairy cow slaughter

Total federally-inspected dairy cow slaughter in the 5 weeks of 2020 was 1.8% above the total for the first 5 weeks of 2019.



Sources: USDA, Agricultural Marketing Service.



Recent trade policy developments

- U.S.-Japan Trade Agreement, effective January 1, 2020.
 - Similar to Comprehensive and Progressive Agreement for Trans-Pacific Partnership (TPP) and the EU-Japan Economic Partnership Agreement.
 - Tariff reductions for most dairy products phased in over several years.
- Phase One trade deal with China
 - Deals with mostly nontariff issues.
 - Includes provisions to increase imports of agricultural products, but no specific allocation for dairy.
- February 14, 2020: China's reduced tariffs by 2.5 percentage points on some U.S. dairy products. (Note: Tariffs on these products were 38 to 50 percent.)
- U.S.-Mexico-Canada Agreement (USMCA) signed by President Trump on January 29.
 - Phased-in access of dairy product trade between the U.S. and Canada.
 - Changes to Canada's classified pricing system for ingredient milk class.
 - Not figured into USDA forecasts: Canada has not yet ratified the agreement.





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Forecasts for 2020



Inventory falling slightly in the first quarter of 2020, expansion in the second quarter, flat the last two quarters:

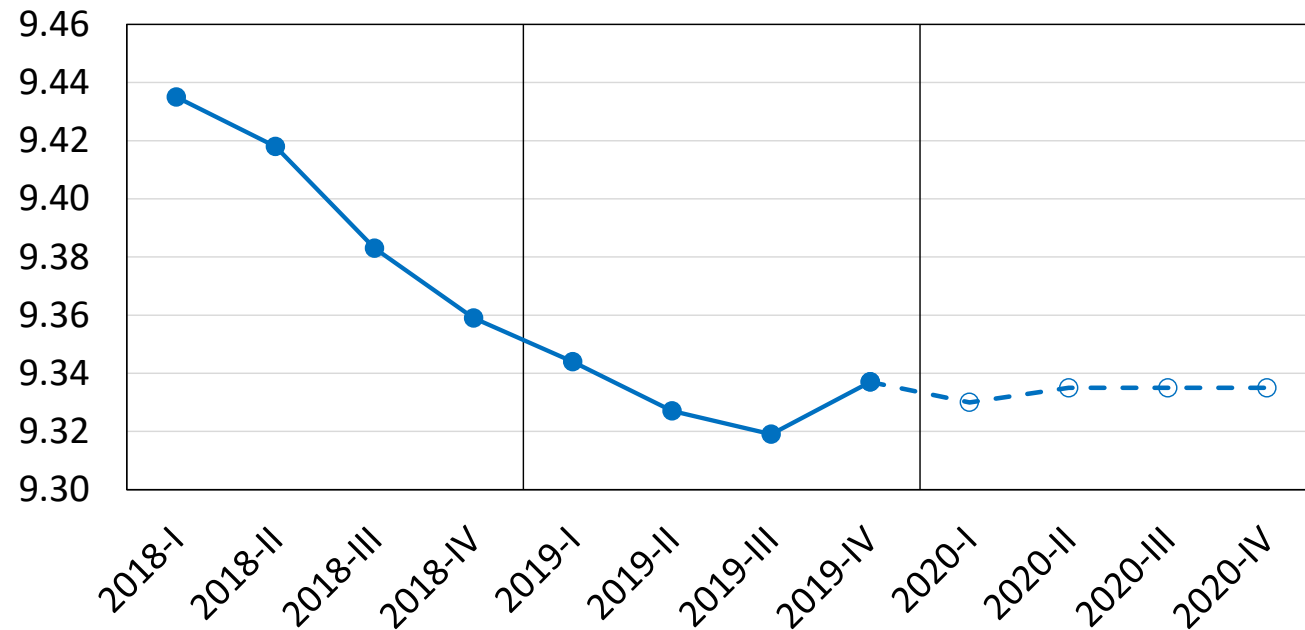
- Rising milk-feed ratio signals expansion.

However:

- High slaughter rates continue.
- Low inventory of milk replacement heifers on January 1.

Milk cows (million head)

	<u>2018</u>	<u>2019</u>	<u>2020</u>
Milk cows	9.399	9.332	9.335
% chg. prev. yr.	-0.08%	-0.71%	+0.02%



Sources: U.S. Dept. of Agriculture: National Agricultural Statistics Service, World Agricultural Outlook Board, Economic Research Service.

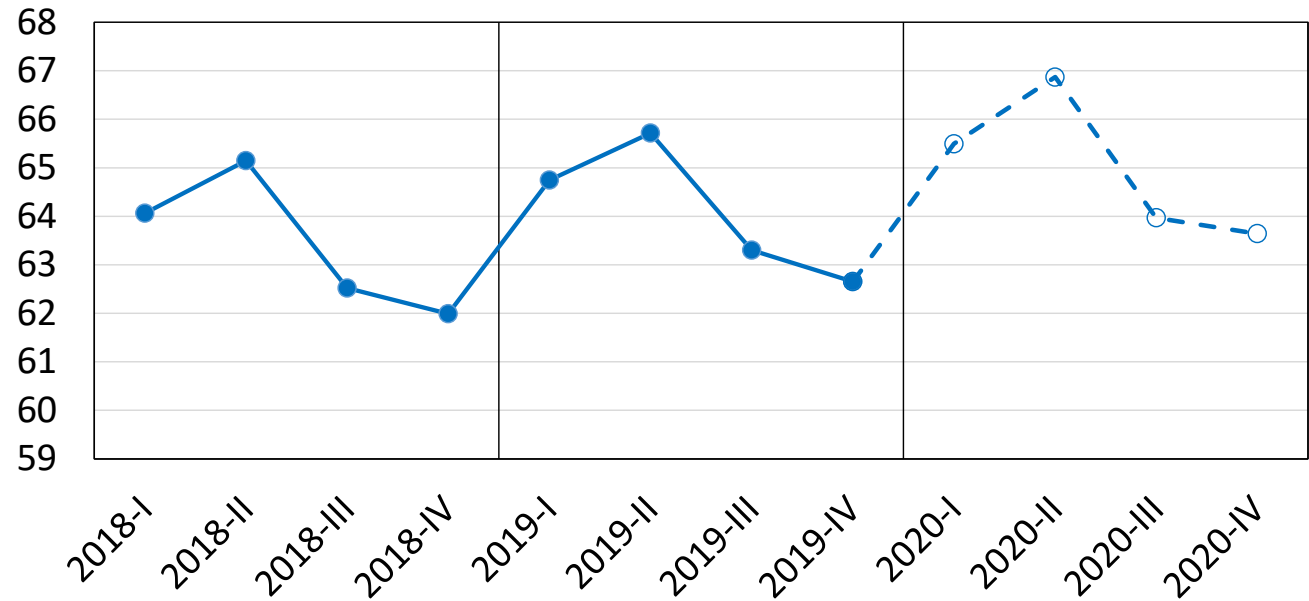


Relatively strong growth of yields in 2020:

- Compared to 2019, higher milk prices relative to feed costs promote higher yields.
- With high slaughter rates, lower performing cows culled.
- We assume normal weather.

Daily milk per cow (pounds)

	<u>2018</u>	<u>2019</u>	<u>2020</u>
Daily milk per cow	63.4	64.1	65.0
% chg. prev. yr.	+1.0%	+1.1%	+1.4%



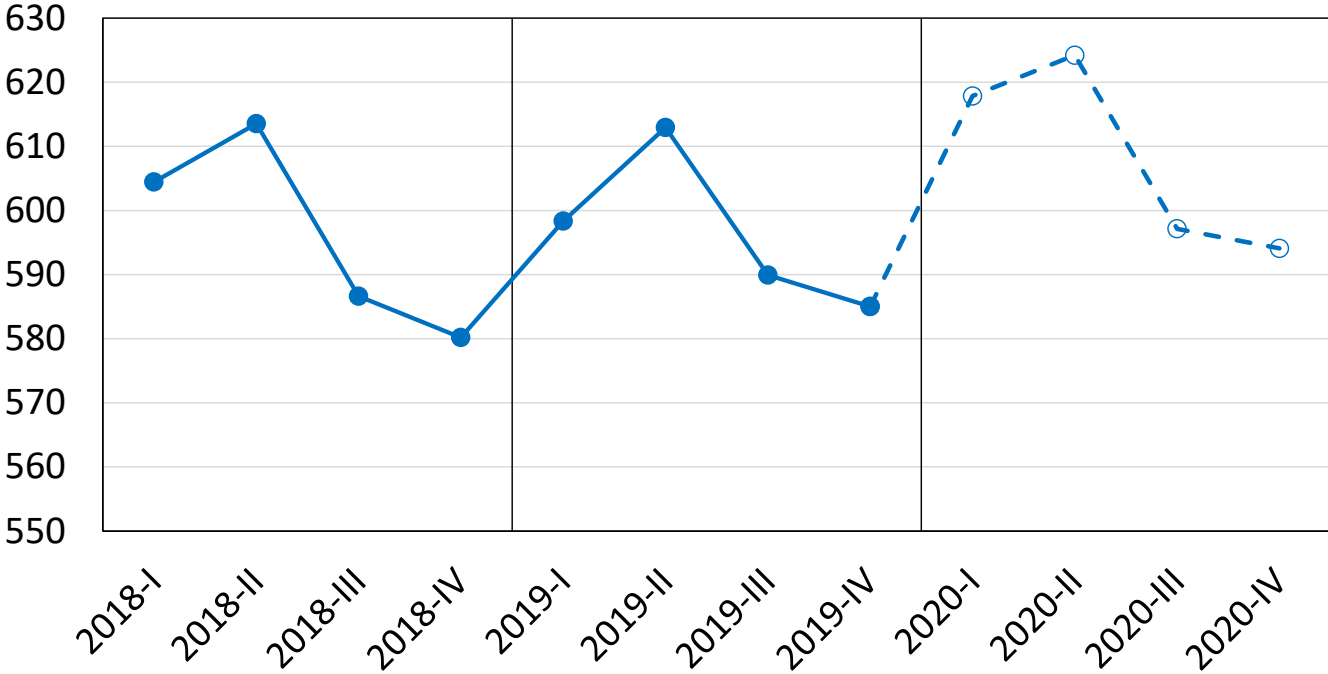
Sources: U.S. Dept. of Agriculture: National Agricultural Statistics Service, World Agricultural Outlook Board, Economic Research Service.



Daily milk production (million pounds)

	<u>2018</u>	<u>2019</u>	<u>2020</u>
Daily milk prod.	596.1	598.1	606.6
% chg. prev. yr.	+1.0%	+0.3%	+1.4%

- Higher milk production growth in 2020 than 2019.
- 1.4 percent growth for 2020 is same as the annual compound average growth rate for the last 10 years.



Sources: U.S. Dept. of Agriculture: National Agricultural Statistics Service, World Agricultural Outlook Board, Economic Research Service.

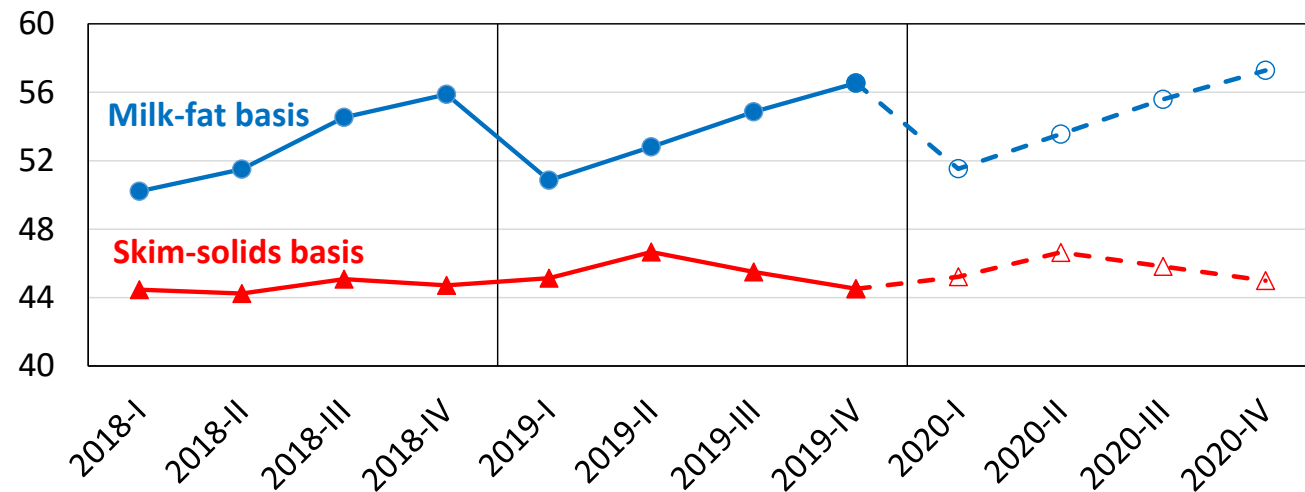


Domestic use continues to grow in 2020:

- Continued economic growth supports demand.
- Growth rate not as high in 2020.
 - Quantity demanded to be affected by higher prices for some dairy products.
 - Deceleration from relatively large growth rate in 2019 on skim- solids basis.

Domestic commercial use (billion pounds)

	<u>2018</u>	<u>2019</u>	<u>2020</u>
Milk-fat basis	212.1	215.1	217.9
chg. from prev. yr.	+1.5	+3.0	+2.8
Skim-solids basis	178.5	181.8	182.7
chg. from prev. yr.	+1.0	+3.3	+0.9



Sources: U.S. Dept. of Agriculture: National Agricultural Statistics Service, Foreign Agricultural Service, World Agricultural Outlook Board, Economic Research Service calculations; U.S. Dept. of Commerce, Bureau of the Census.

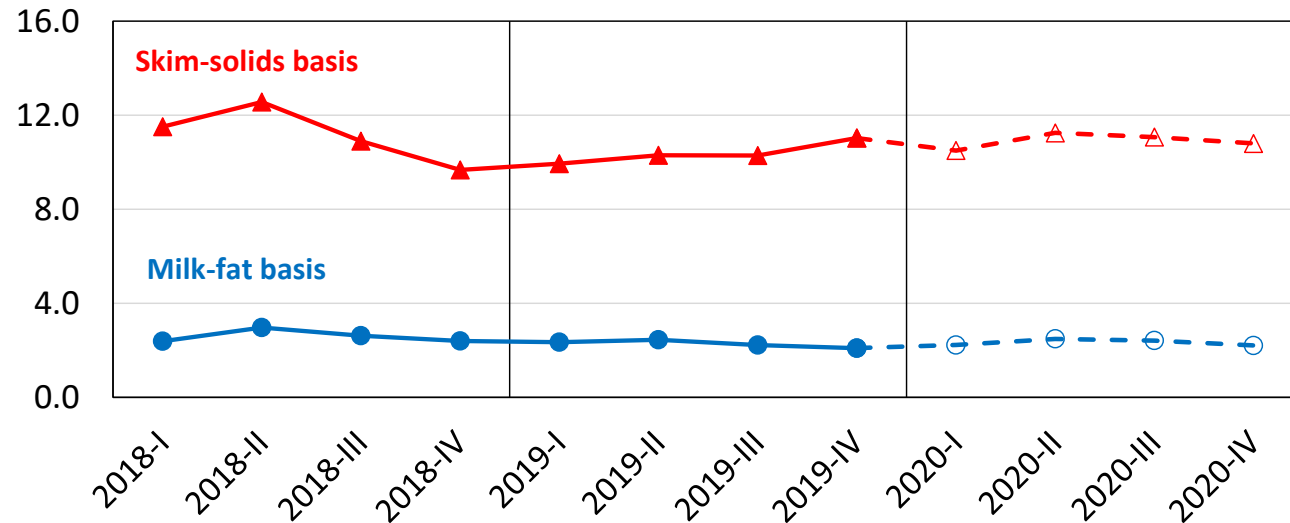


Exports up in 2020 from 2019:

- Currently, U.S. prices competitive with international export prices.
- Strong NDM/SMP exports of recent months are expected to continue.
- No tariffs on U.S. cheese to Mexico.
- Tariffs from China in 2018 and 2019 assumed to continue, but U.S. exporters are finding alternative markets.
- Exports of whey permeate to China may increase.

Commercial exports (billion pounds)

	<u>2018</u>	<u>2019</u>	<u>2020</u>
Milk-fat basis	10.4	9.1	9.4
chg. from prev. yr.	+1.1	-1.3	+0.3
Skim-solids basis	44.7	41.6	43.6
chg. from prev. yr.	+3.9	-3.1	+2.1



Sources: U.S. Dept. of Agriculture: Foreign Agricultural Statistics Service, World Agricultural Outlook Board, Economic Research Service; U.S. Dept. of Commerce, Bureau of the Census.

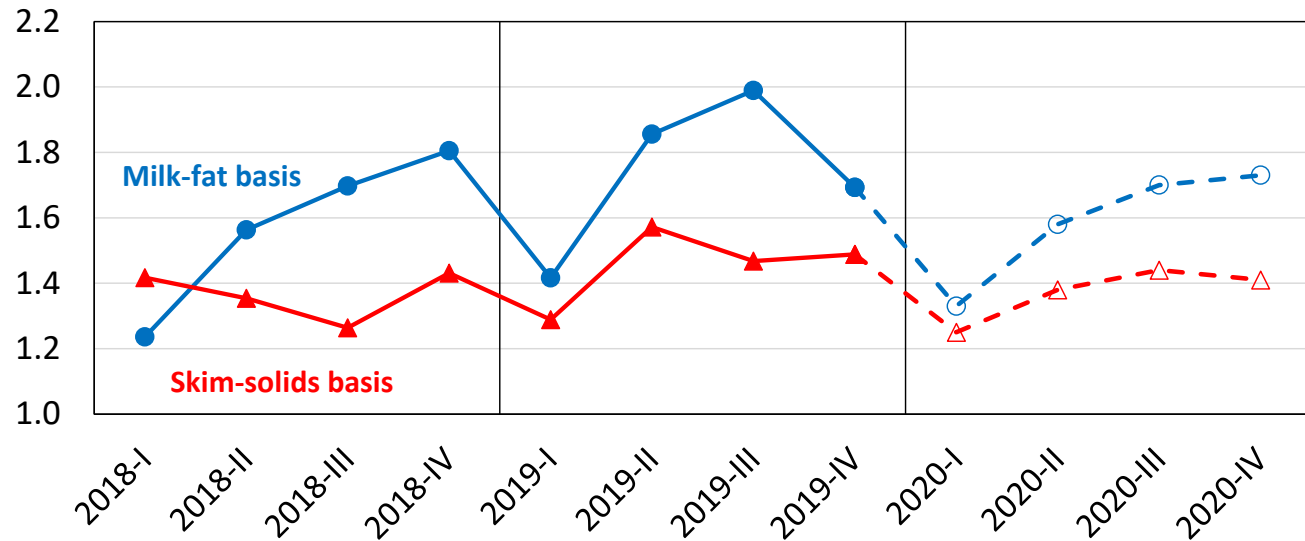


Imports down in 2020:

- Additional 25-percent tariffs on many dairy products imported from the EU are assumed to continue.
- Currently, U.S. domestic prices are competitive with most international export prices.

Imports (billion pounds)

	<u>2018</u>	<u>2019</u>	<u>2020</u>
Milk-fat basis	6.3	7.0	6.3
chg. from prev. yr.	+0.3	+0.7	-0.6
Skim-solids basis	5.5	5.8	5.5
chg. from prev. yr.	-0.6	+0.4	-0.3



Sources: U.S. Dept. of Agriculture: Foreign Agricultural Statistics Service, World Agricultural Outlook Board, Economic Research Service; U.S. Dept. of Commerce, Bureau of the Census.

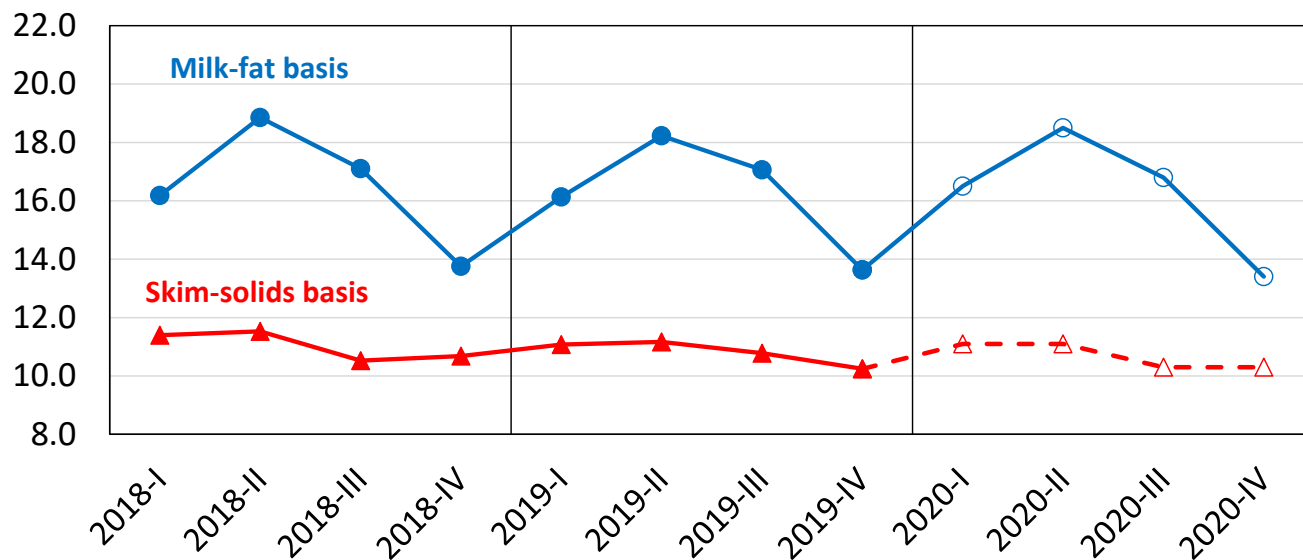


Ending stocks for 2020 compared to 2019:

- **Down on a milk-fat basis: Growth in domestic use plus exports more than offsets growth in total supply.**
- **Up on a skim-solids basis: Relatively slow growth in domestic use plus growth in exports is not as great as the increase in total supply.**

Ending stocks (billion pounds)

	<u>2018</u>	<u>2019</u>	<u>2020</u>
Milk-fat basis	13.8	13.6	13.4
chg. from prev. yr.	+0.4	-0.1	-0.2
Skim solids basis	10.7	10.2	10.3
chg. from prev. yr.	-1.1	-0.4	+0.1



Sources: U.S. Dept. of Agriculture: National Agricultural Statistics Service, World Agricultural Outlook Board, Economic Research Service.



Dairy product prices in 2020 compared to 2019:

Butter price down:

- Price decline in recent months.
- More milk fat as NDM&SMP production goes up with higher NDM price.

Cheese price up:

- Lower beginning stocks.
- Growth of domestic and export demand.
- No tariffs from Mexico.
- However, price decline since fourth quarter 2019.

NDM price up:

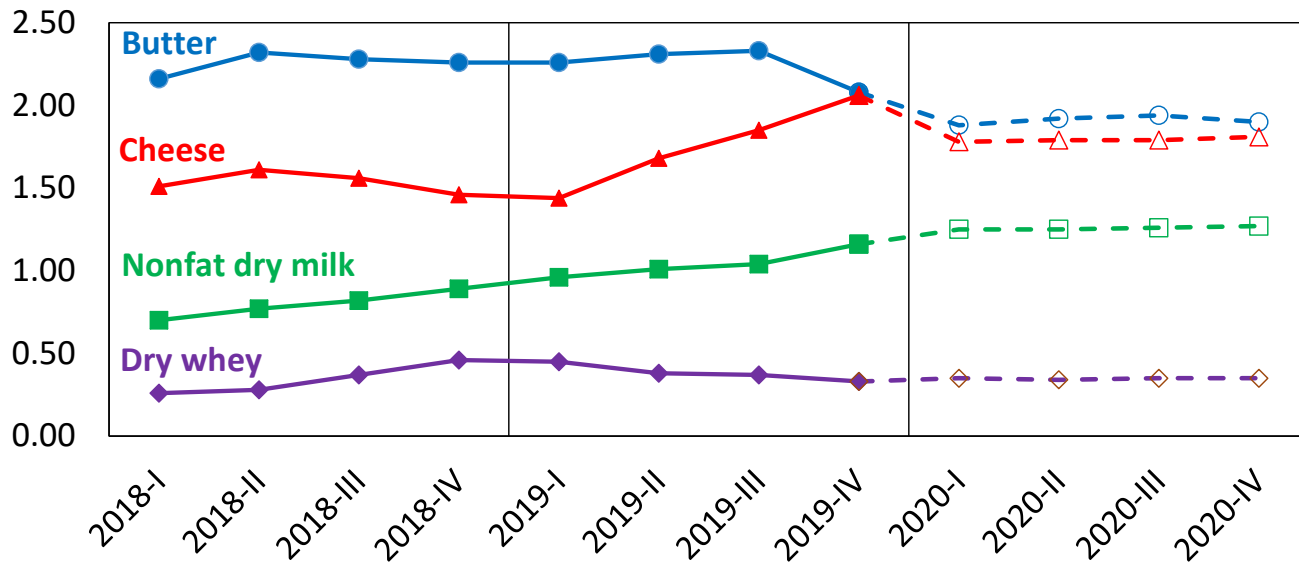
- Relatively strong exports.
- U.S. domestic price competitive with international export prices.

Dry whey price down:

- Weak exports expected as tariffs from China (added in 2018 and 2019) assumed to continue.
- China hog inventory down due to ASF.

Dairy product prices (dollars per pound)

	<u>2018</u>	<u>2019</u>	<u>2020</u>
Butter	2.257	2.243	1.910
Cheese	1.538	1.759	1.790
Nonfat dry milk	0.795	1.042	1.255
Dry whey	0.342	0.380	0.345



Sources: USDA, Agricultural Marketing Service; USDA, World Agricultural Outlook Board; USDA, Economic Research Service calculations.



Milk prices in 2020 compared to 2019:

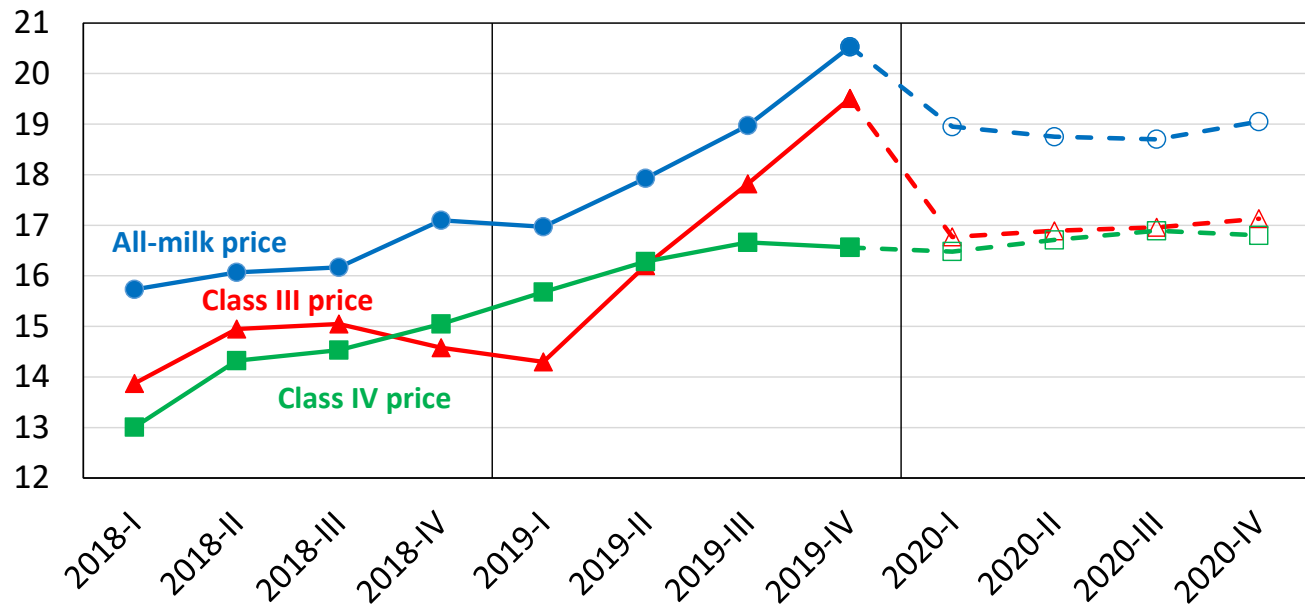
Class III price about the same as higher cheese price is offset by lower dry whey price.

Class IV price higher as higher NDM price more than offsets lower butter price.

All milk price higher due to higher Class IV price and higher component values (milk fat, protein, and other solids).

Milk prices (dollars per hundredweight (cwt))

	<u>2018</u>	<u>2019</u>	<u>2020</u>
Class III	14.61	16.96	16.95
Class IV	14.23	16.30	16.70
All milk	16.27	18.60	18.85



Sources: U.S. Dept. of Agriculture: Agricultural Marketing Service, National Agricultural Statistics Service, World Agricultural Outlook Board, Economic Research Service.



Forecast in a Nutshell and Factors on the Horizon

Forecast in a nutshell:

- 2020 milk prices should be higher than 2019 due to:
 - Slow growth in milk production.
 - Continued growth in domestic consumption.
 - Relatively low beginning stocks.
 - Lower imports due to U.S. tariffs added on dairy product imports from the EU.
 - Stronger expected exports.
- However, milk prices are not expected to be very much higher:
 - Cheese and butter prices have declined since Q4 2019.
 - Exports continue to be constrained by China's tariffs.
 - China's hog inventories down due to ASF: Exports of whey products expected to continue being affected.

Factors on the horizon:

- Coronavirus: At this time, impacts are uncertain.
- Trade negotiations with China.
- Ratification, implementation, and timing of USMCA.





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Thank you.

