

2019 Michigan Milk Market Situation and Outlook

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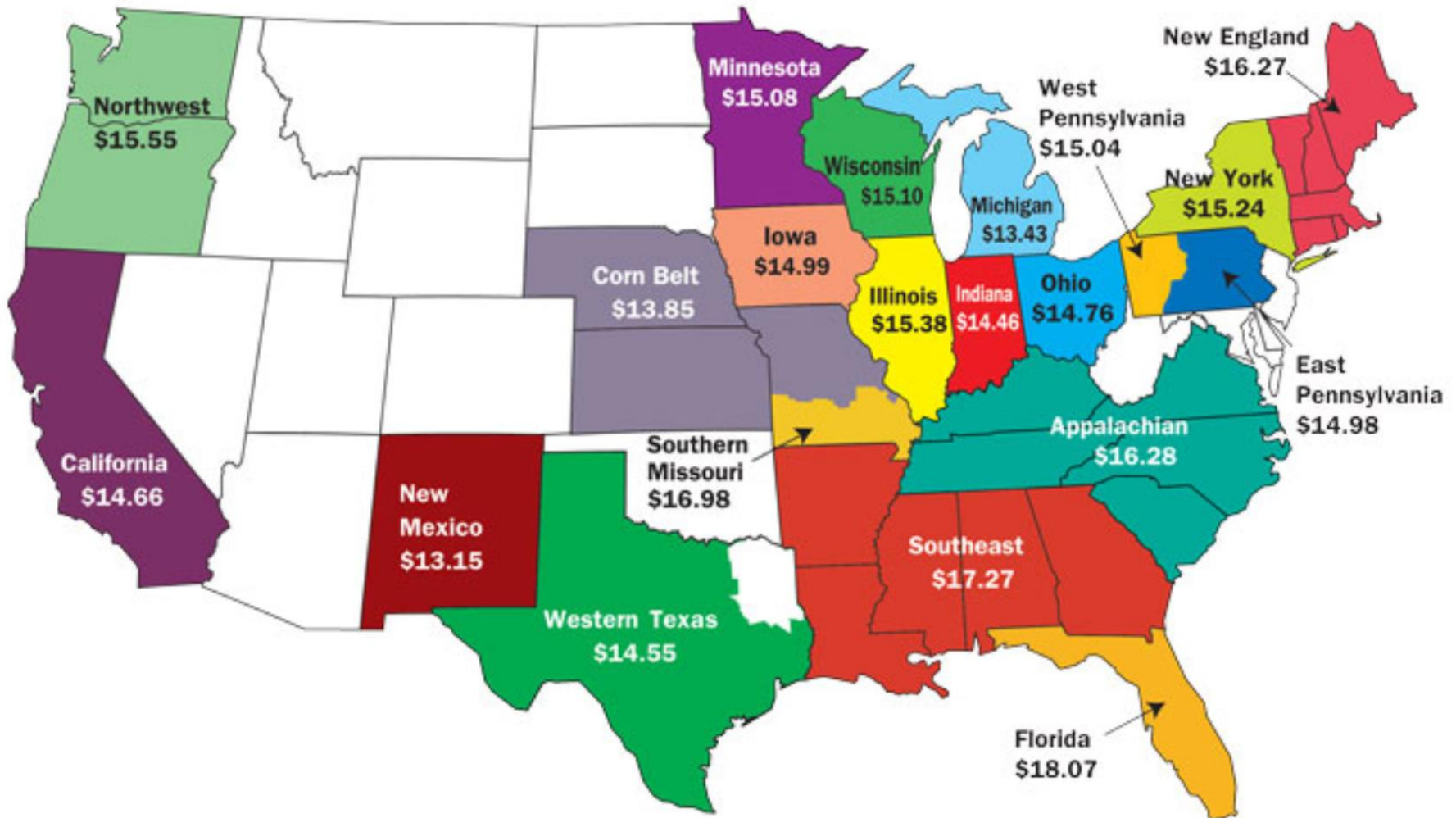
October 11, 2018

Michigan Farm Milk Financial Situation

- 2018 is fourth consecutive year of low milk US farm milk prices
- Michigan farm milk prices lowest in US because of production/processing balance

July 2018 Mailbox Milk Price

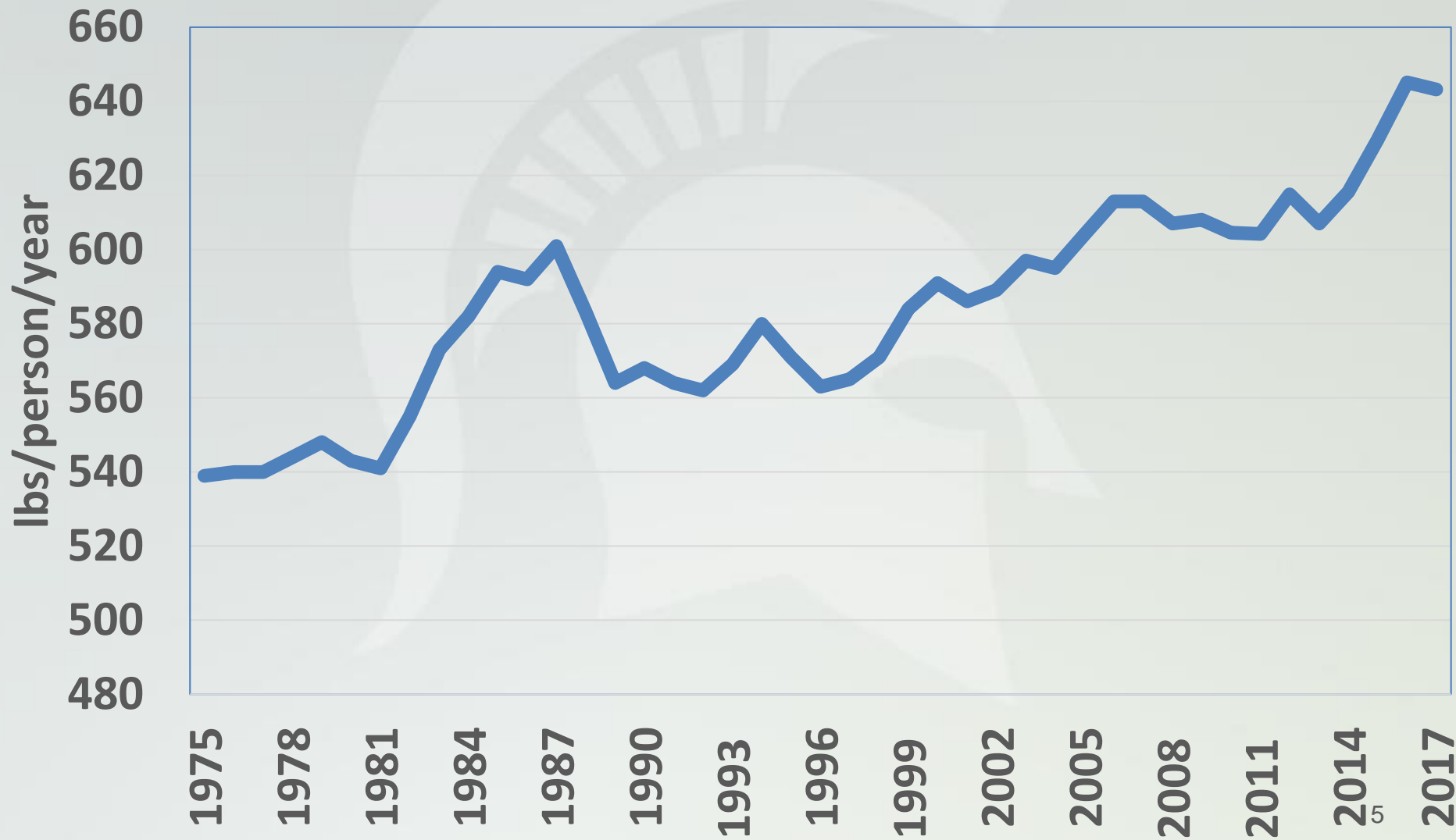
Source: Hoard's Dairyman



Michigan Dairy Farm Profitability

Year		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Milk Price	\$/cwt	13.44	20.21	19.41	13.31	16.88	20.65	18.67	20.63	24.28	17.06	15.07	17.14
ROE	%	5.4	13.3	7.5	-1.6	7.7	13.7	11.2	9.2	12.5	2.2	-1.4	0.7
ROA	%	5.5	11.3	7.0	-0.4	7.0	11.2	9.3	6.6	15.0	2.6	-0.1	1.5
OPM	%	19.4	33.1	23.1	1.8	23.9	33.5	30.3	26.2	31.2	10.4	-0.2	5.9
ATO	%	28.2	34.1	30.5	22.5	29.2	33.3	30.7	29.7	33.1	25.2	26.0	27.0

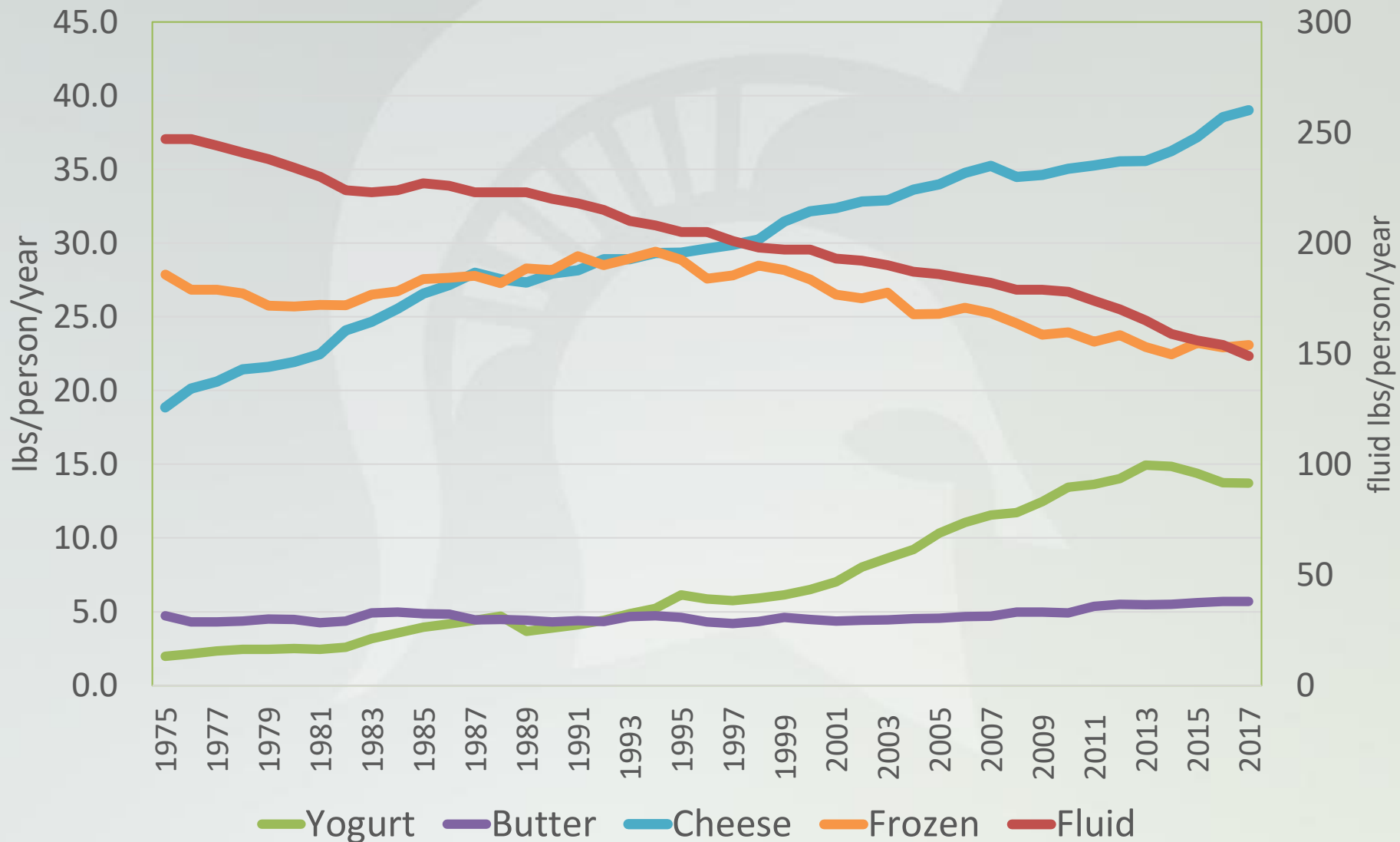
Total per capita consumption milk equivalent: milkfat basis



US Milk Component Prices

- Global milkfat consumption strong and supplies relatively tight
- US butterfat prices are driven by domestic issue
- Global milk protein supplies long
- US skim milk prices driven by world markets

Per capita consumption dairy products



Farm Milk Price is Composed of:

1. Federal Milk Marketing Order prices

- Minimum prices
- Pooling/uniform price

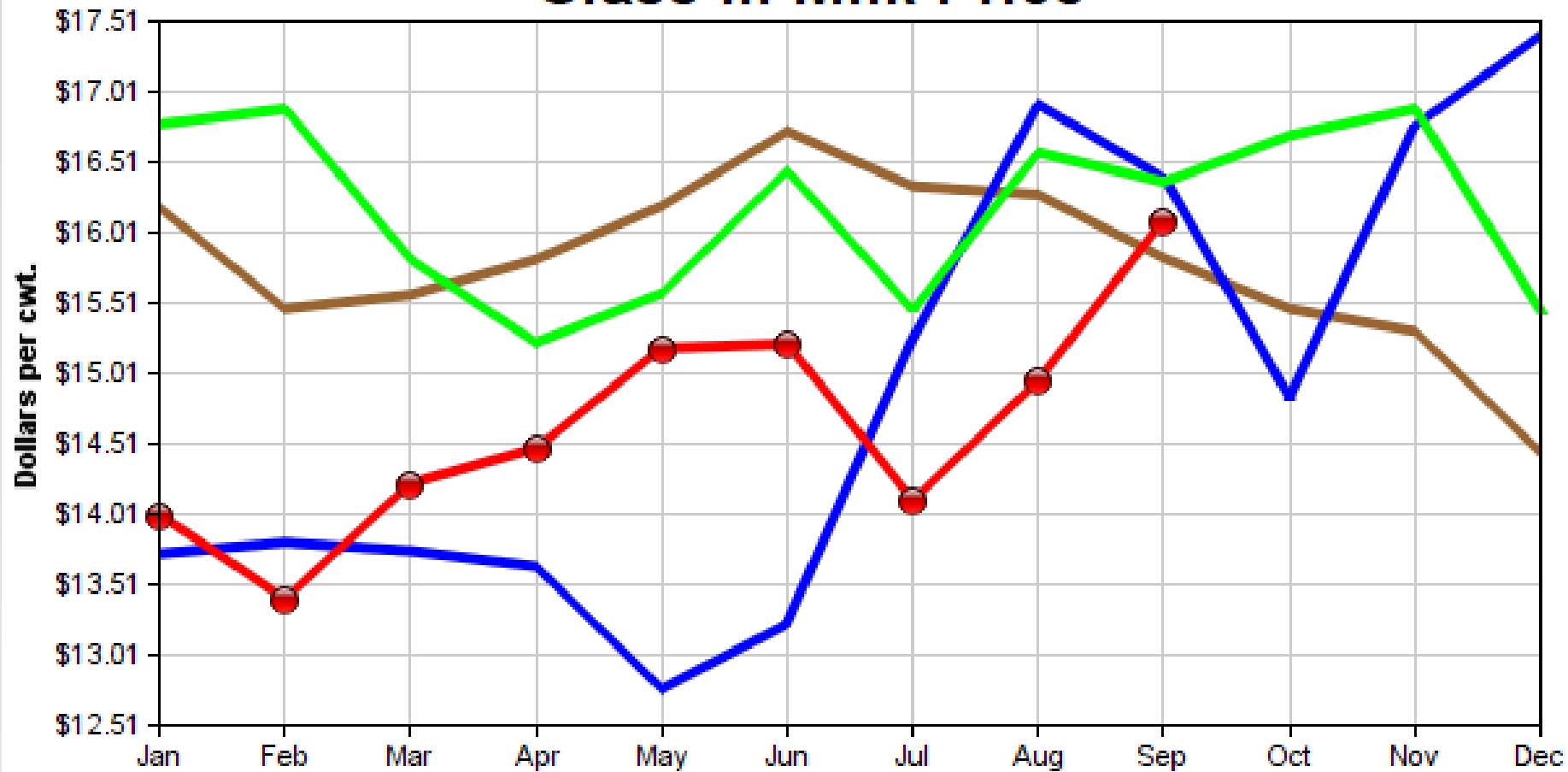
2. State & Regional Market Aspects

- Cooperative and State/Region Issues
 - Balancing
 - Premiums

3. Farm Specifics

- Components
- Quality
- Hauling

Class III Milk Price



— 2015

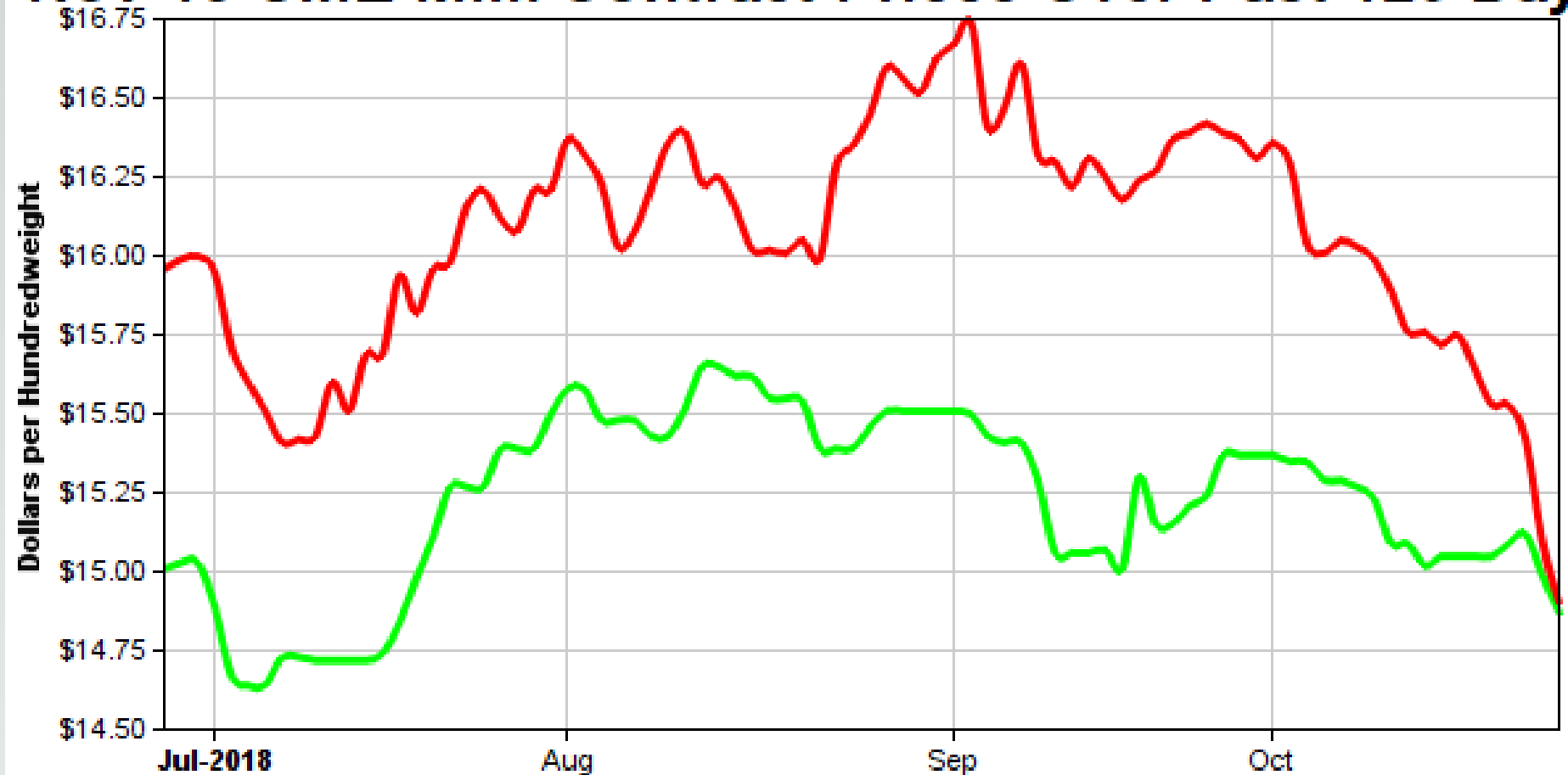
— 2016

— 2017

● 2018

Updated 10/3/18

Nov-18 CME Milk Contract Prices Over Past 120 Days

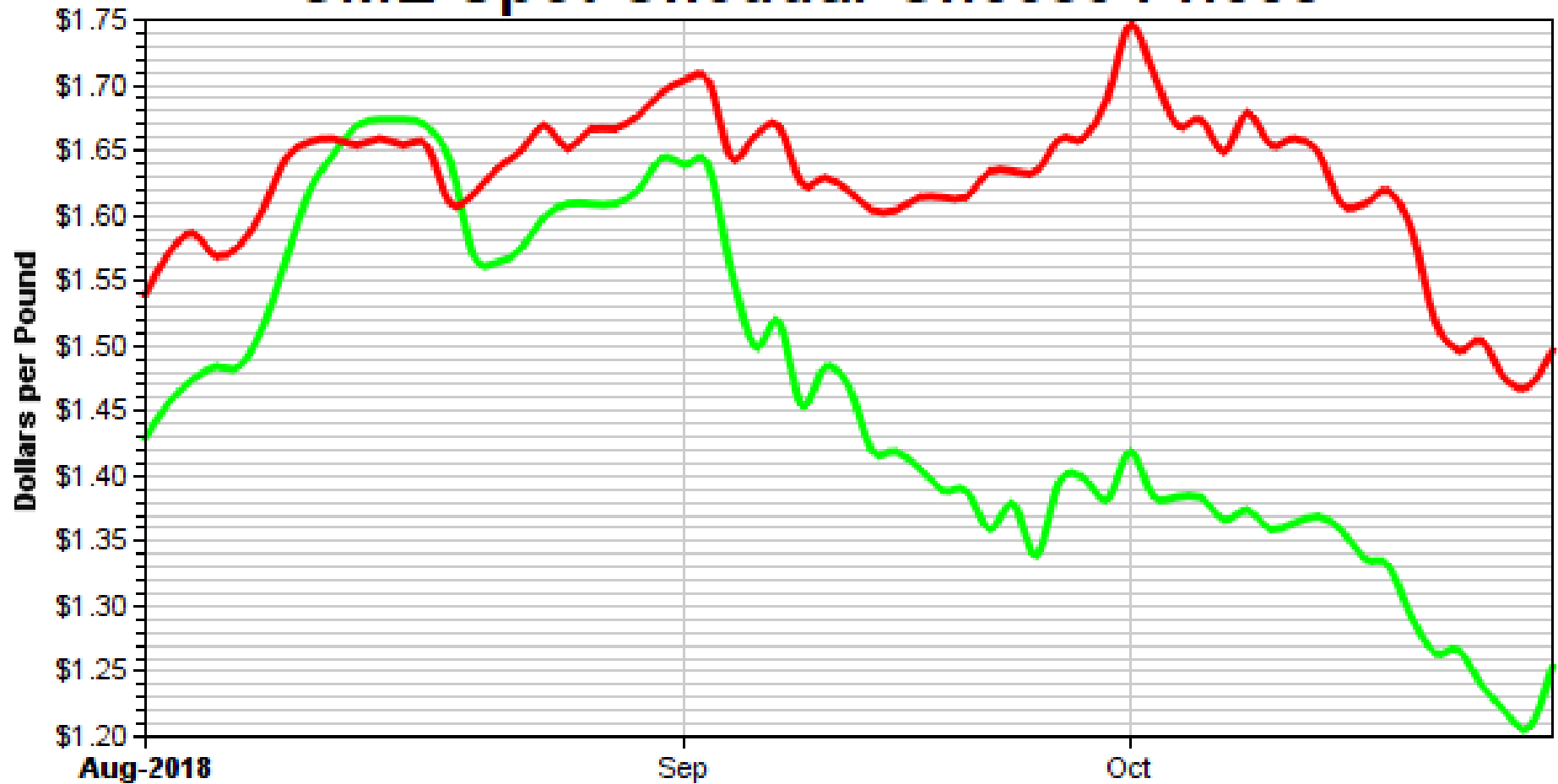


■ Class III Futures

■ Class IV Futures

Updated 10/24/18

CME Spot Cheddar Cheese Prices

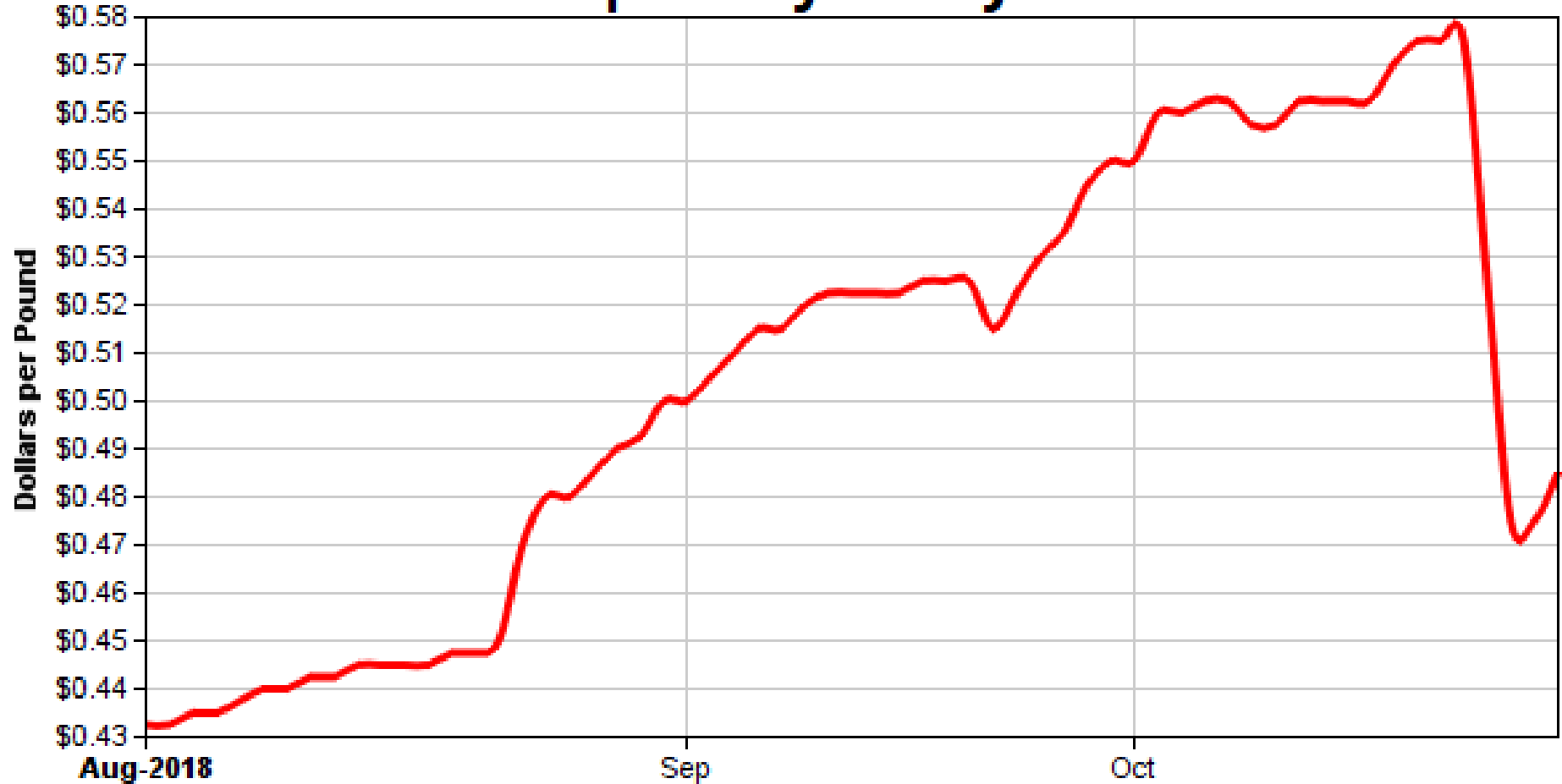


■ 40 lb Blocks

■ 500 lb Barrels

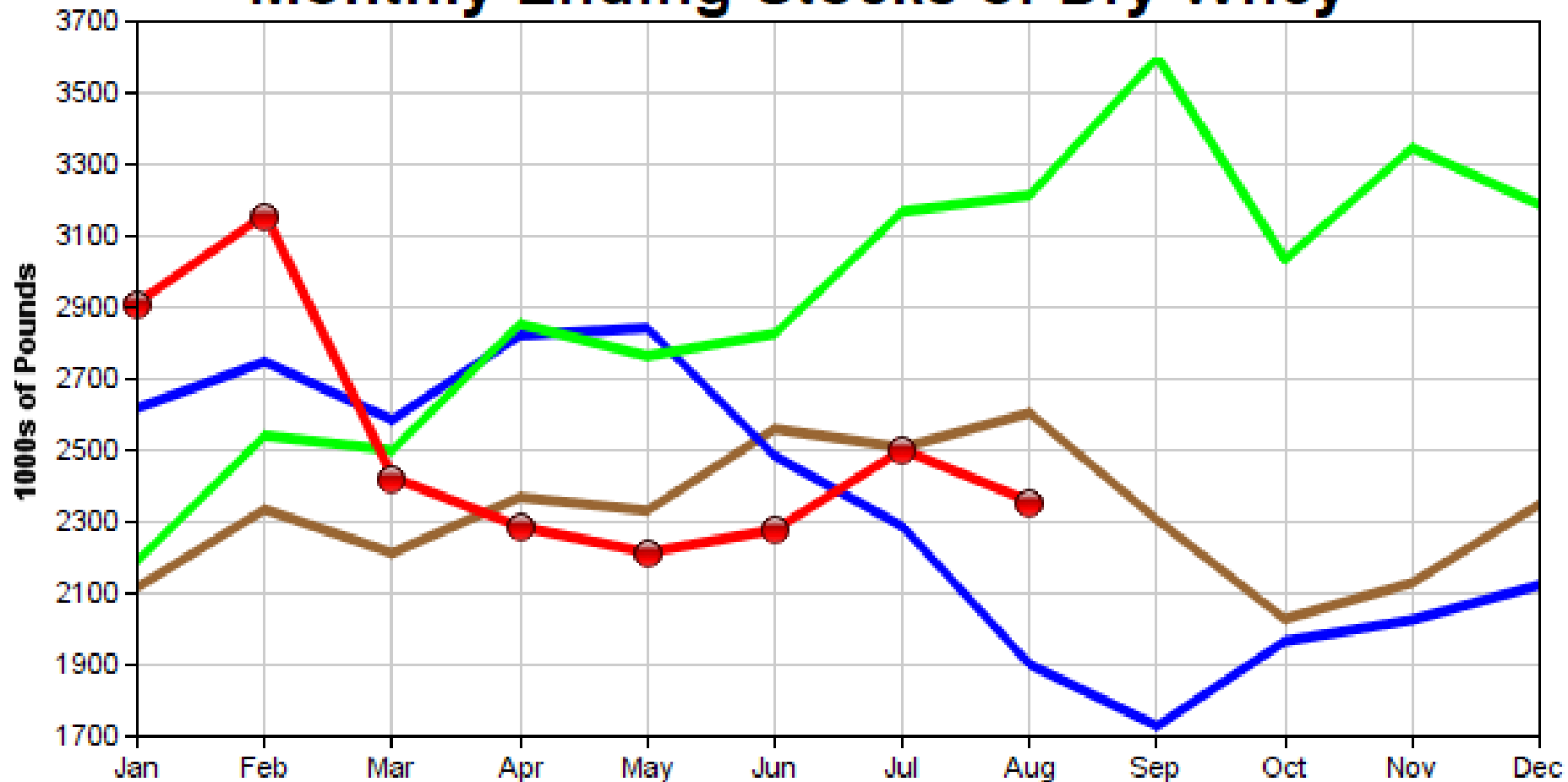
Updated 10/25/18

CME Spot Dry Whey Prices



Updated 10/25/18

Monthly Ending Stocks of Dry Whey



2015

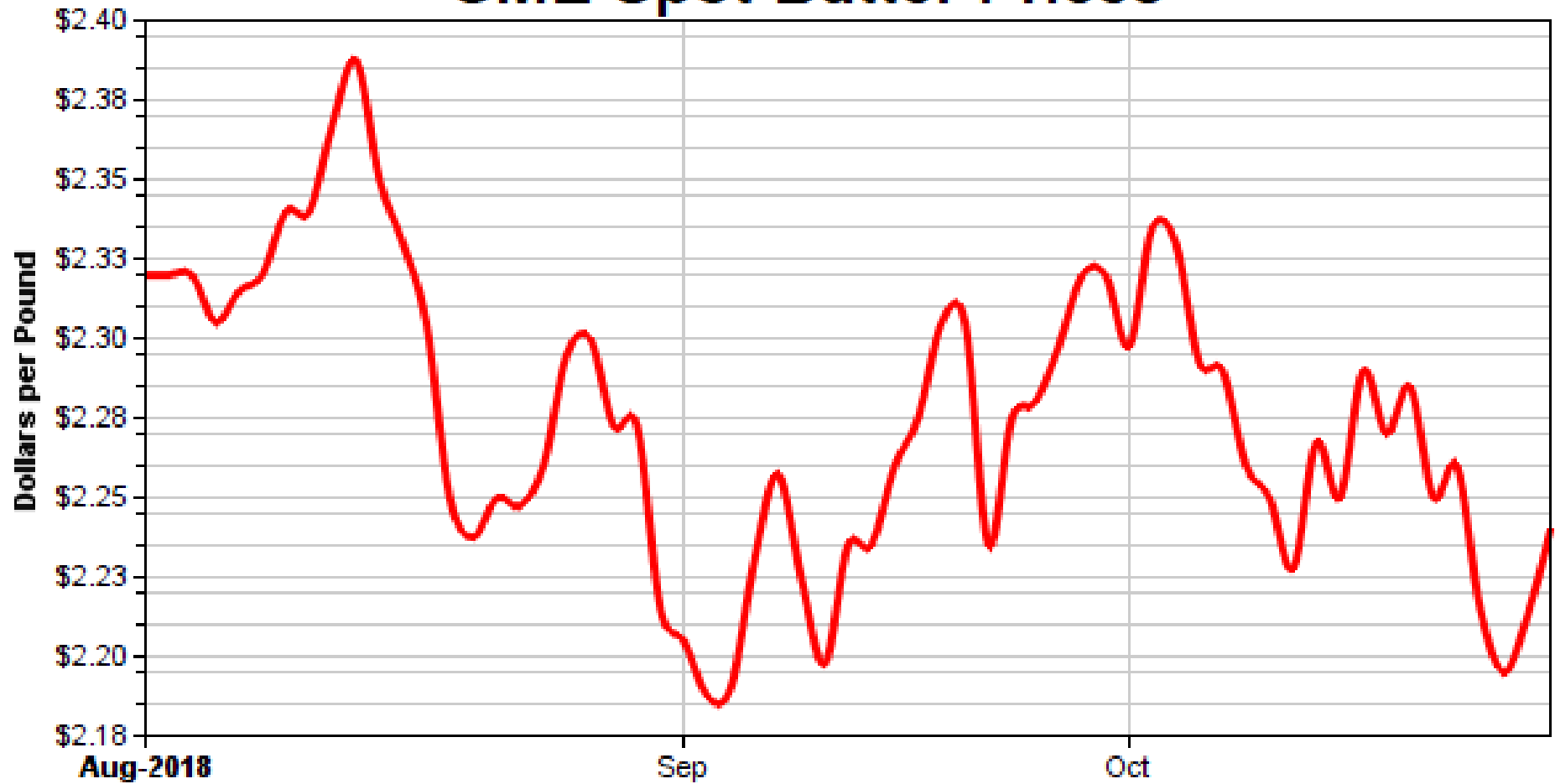
2016

2017

2018

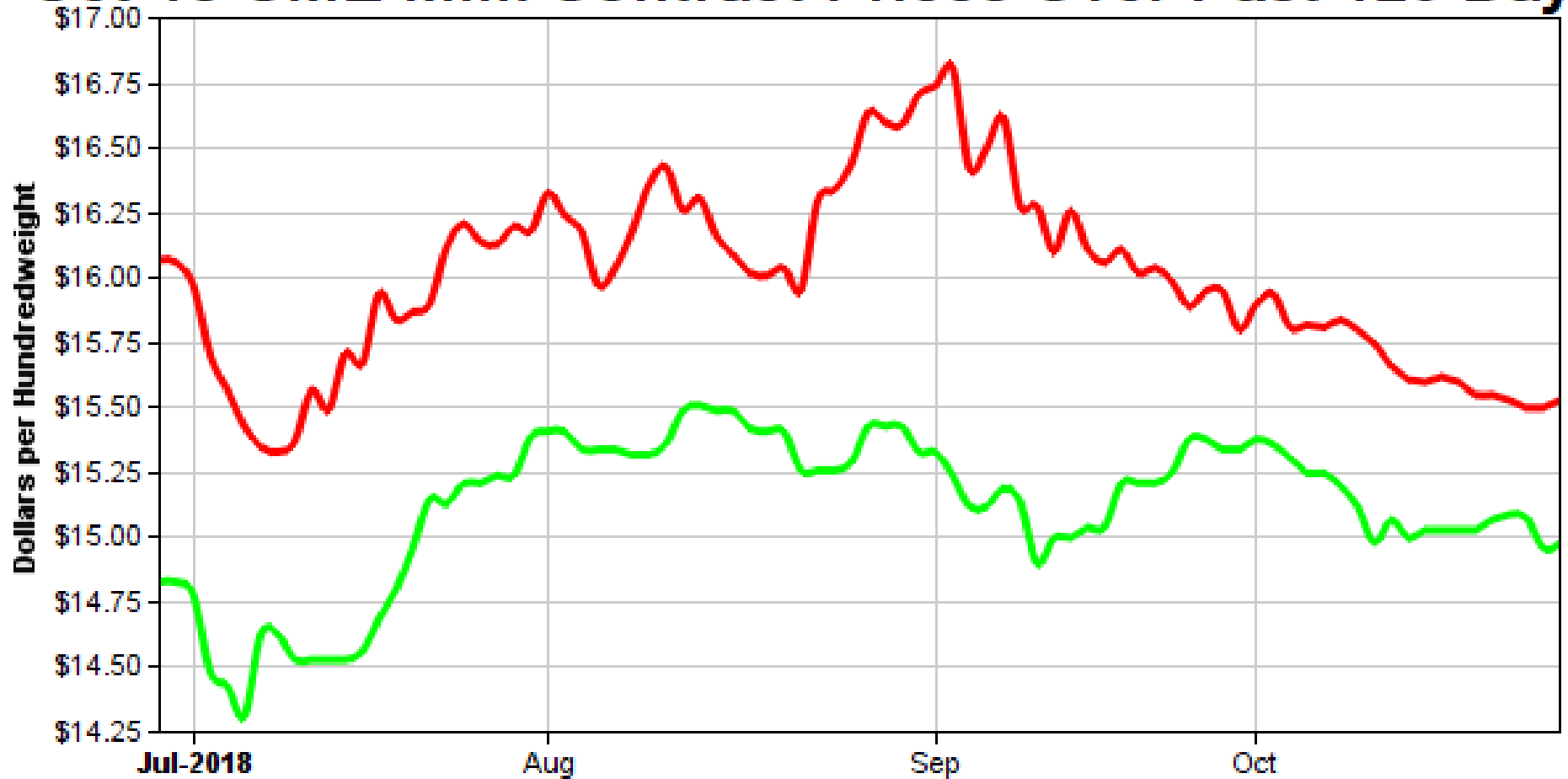
Updated 10/4/18

CME Spot Butter Prices



Updated 10/25/18

Oct-18 CME Milk Contract Prices Over Past 120 Days

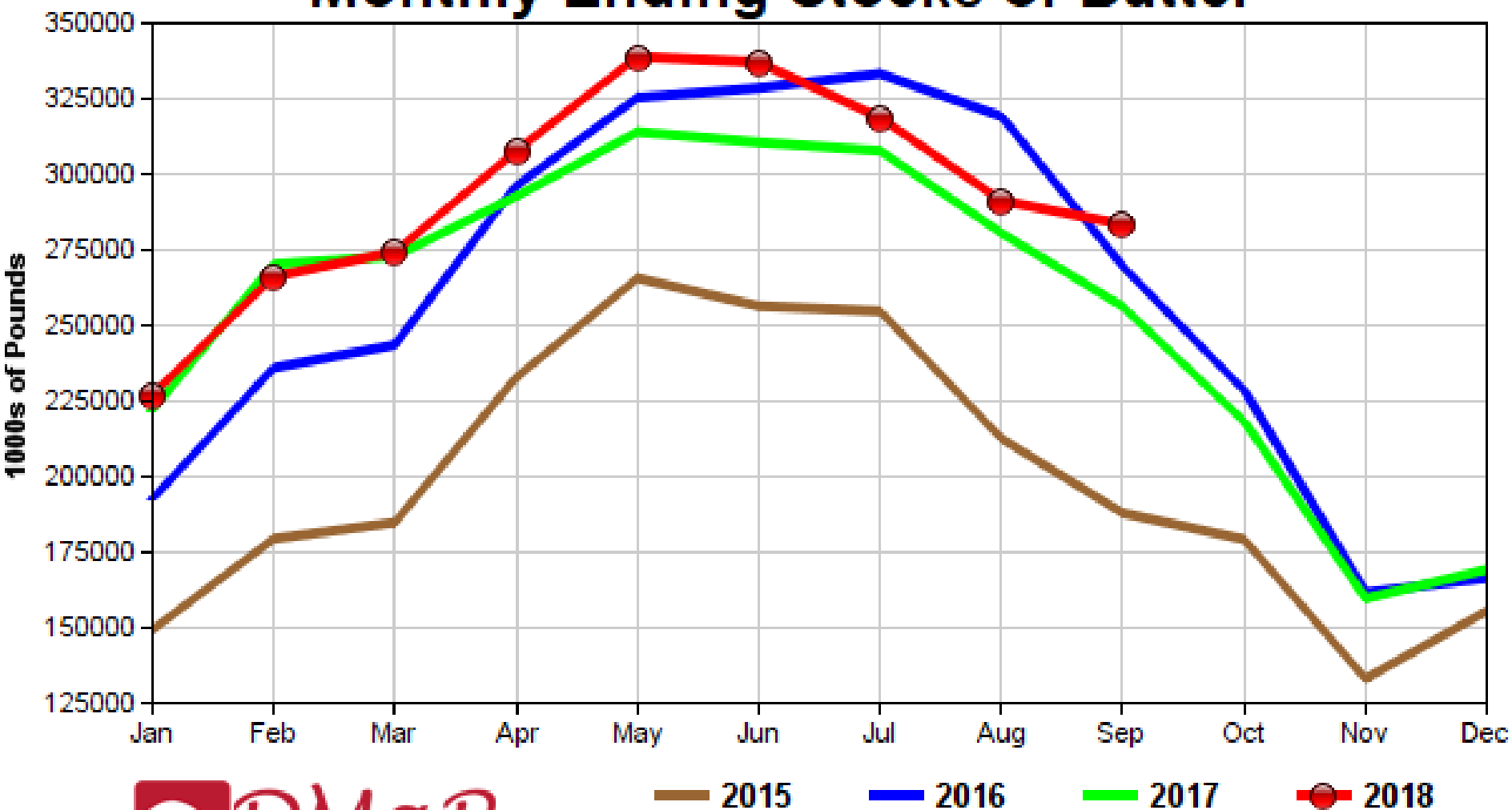


■ Class III Futures

■ Class IV Futures

Updated 10/25/18

Monthly Ending Stocks of Butter



— 2015

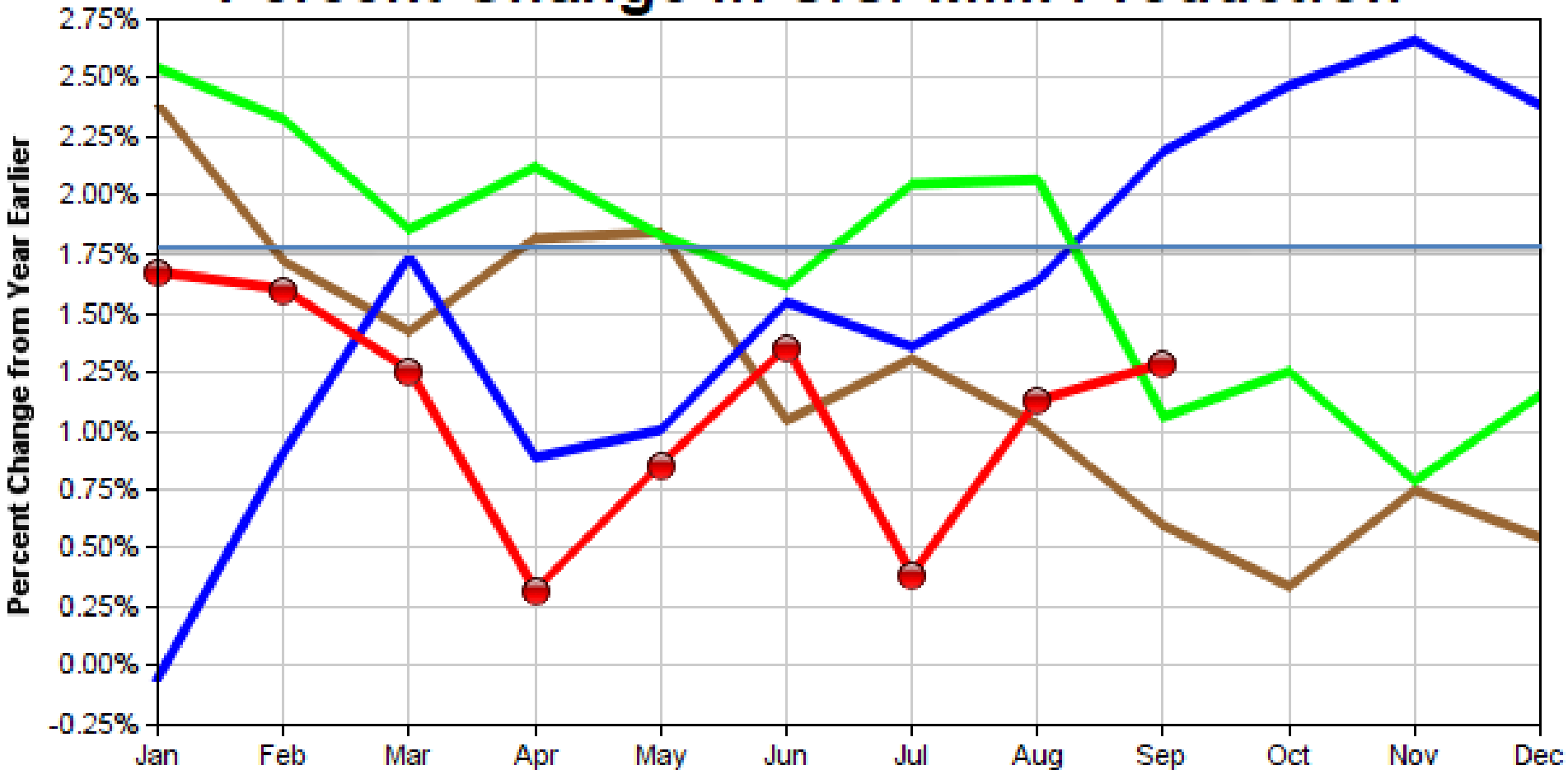
— 2016

— 2017

—● 2018

Updated 10/22/18

Percent Change in U.S. Milk Production



2015

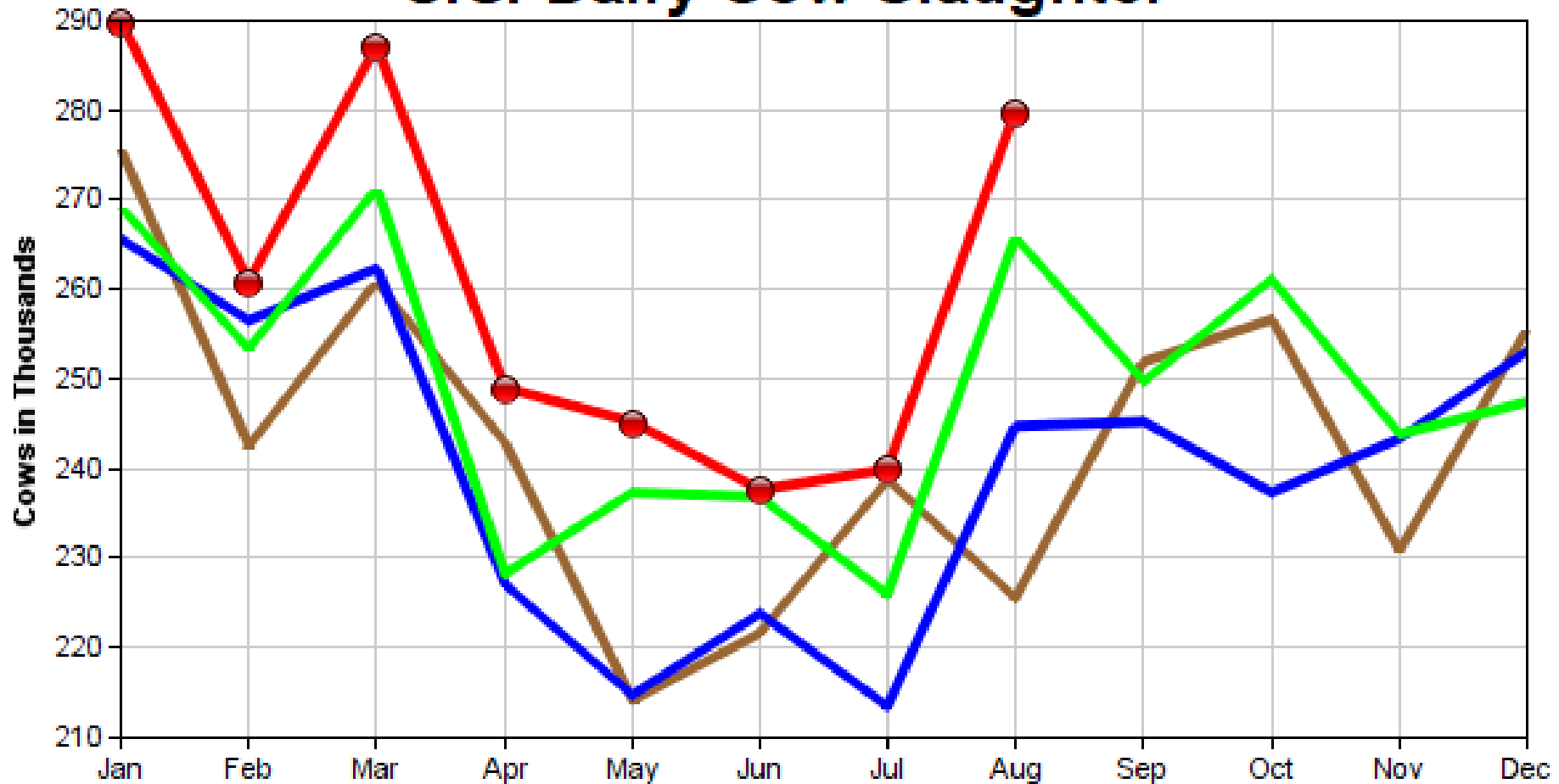
2016

2017

2018

Updated 10/19/18

U.S. Dairy Cow Slaughter



— 2015

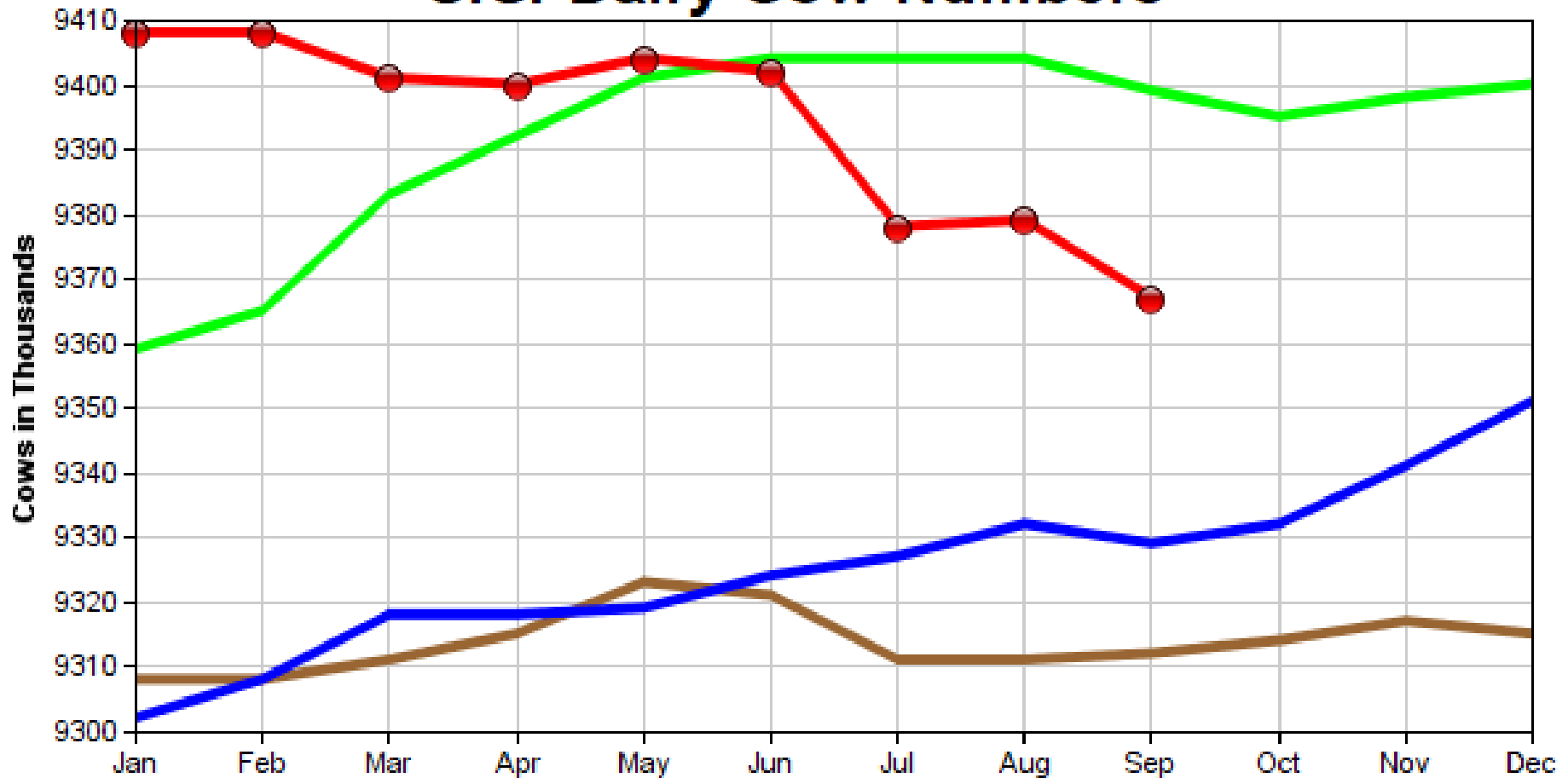
— 2016

— 2017

● 2018

Updated 9/20/18

U.S. Dairy Cow Numbers



— 2015

— 2016

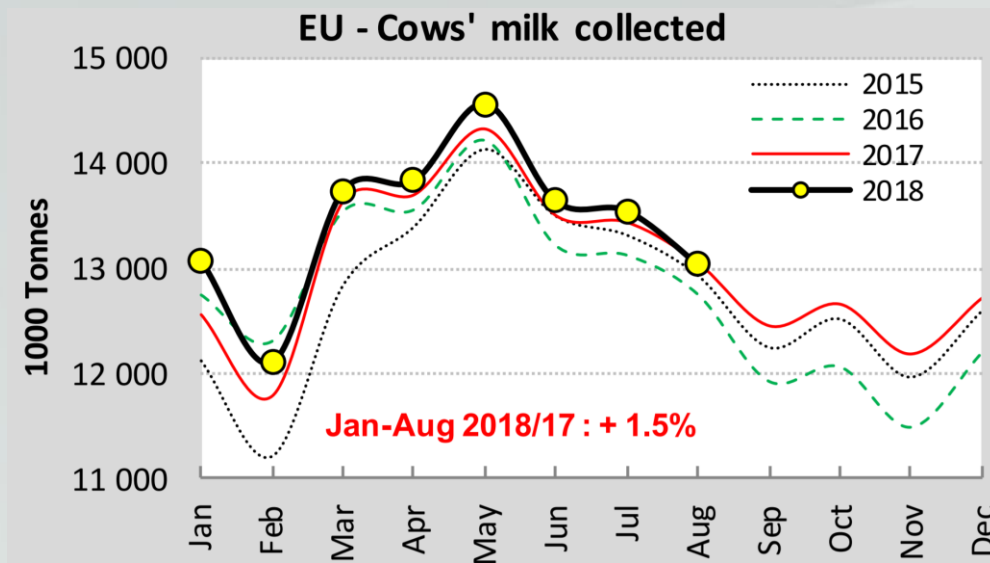
— 2017

● 2018

Updated 10/19/18

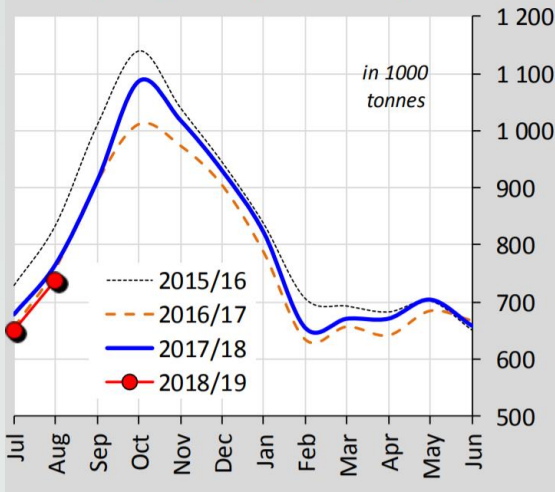
2018 Milk Production first 8 months:

- US +1.1%**
- EU +1.5%**
- NZ +5.5**
- AU -3.9**



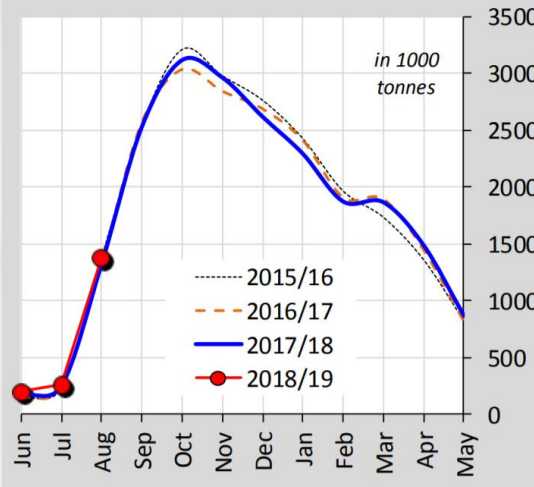
Australian milk production

Jul-Aug 2018/19 compared to 2017/18 : - 3.9%



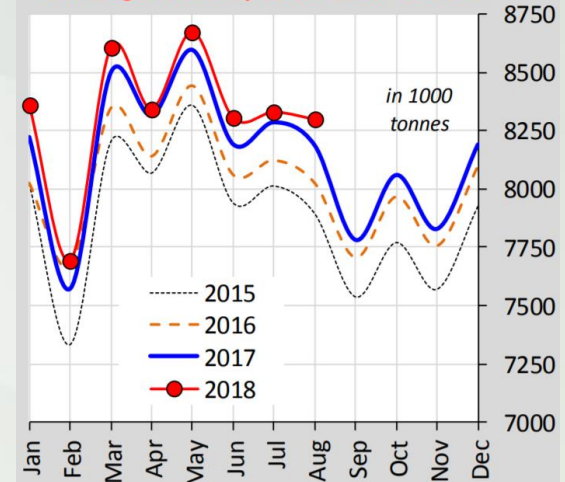
NZ milk production

Jun-Aug 2018/19 compared to 2017/18 : + 5.5%



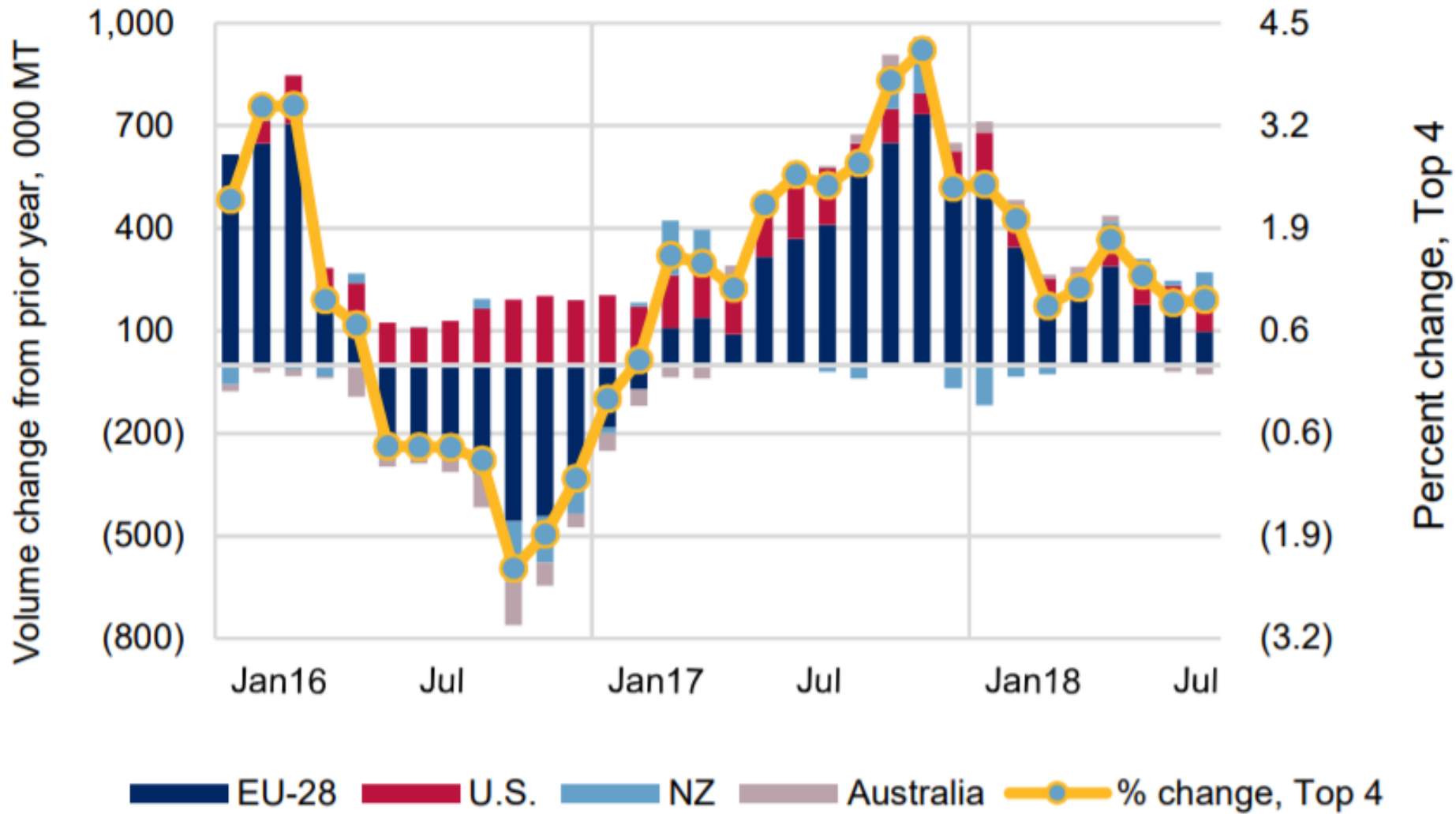
U.S. milk production

Jan-Aug 2018 compared to 2017 : + 1.1%



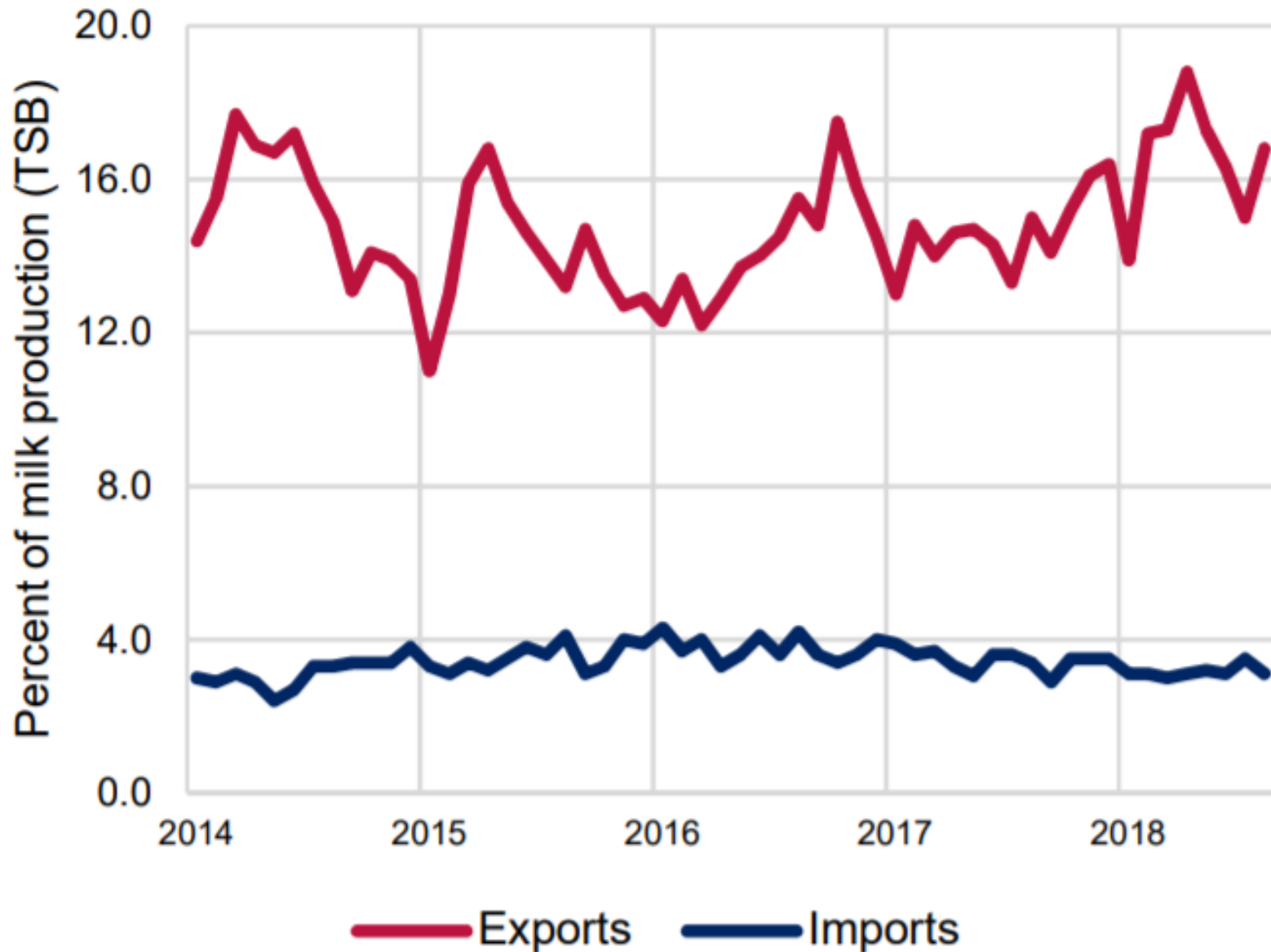
In Australia and parts of EU drought resulted in forage shortages

Milk Production Change from Prior Year, Top 4 Global Suppliers



Feb. 16 adjusted for leap day. Latest month may include USDEC estimate.

U.S. Exports and Imports as % of Milk Production



Milk Market Coordination

- The process by which supply and demand – production and sales – find a balance
- Difficult for milk because it is perishable, bulky, and must be sold daily
- Price plays a key role but other factors are important including physical impediments to delivery, natural variations in production and use, and business relationships

Milk Market Coordination Challenges

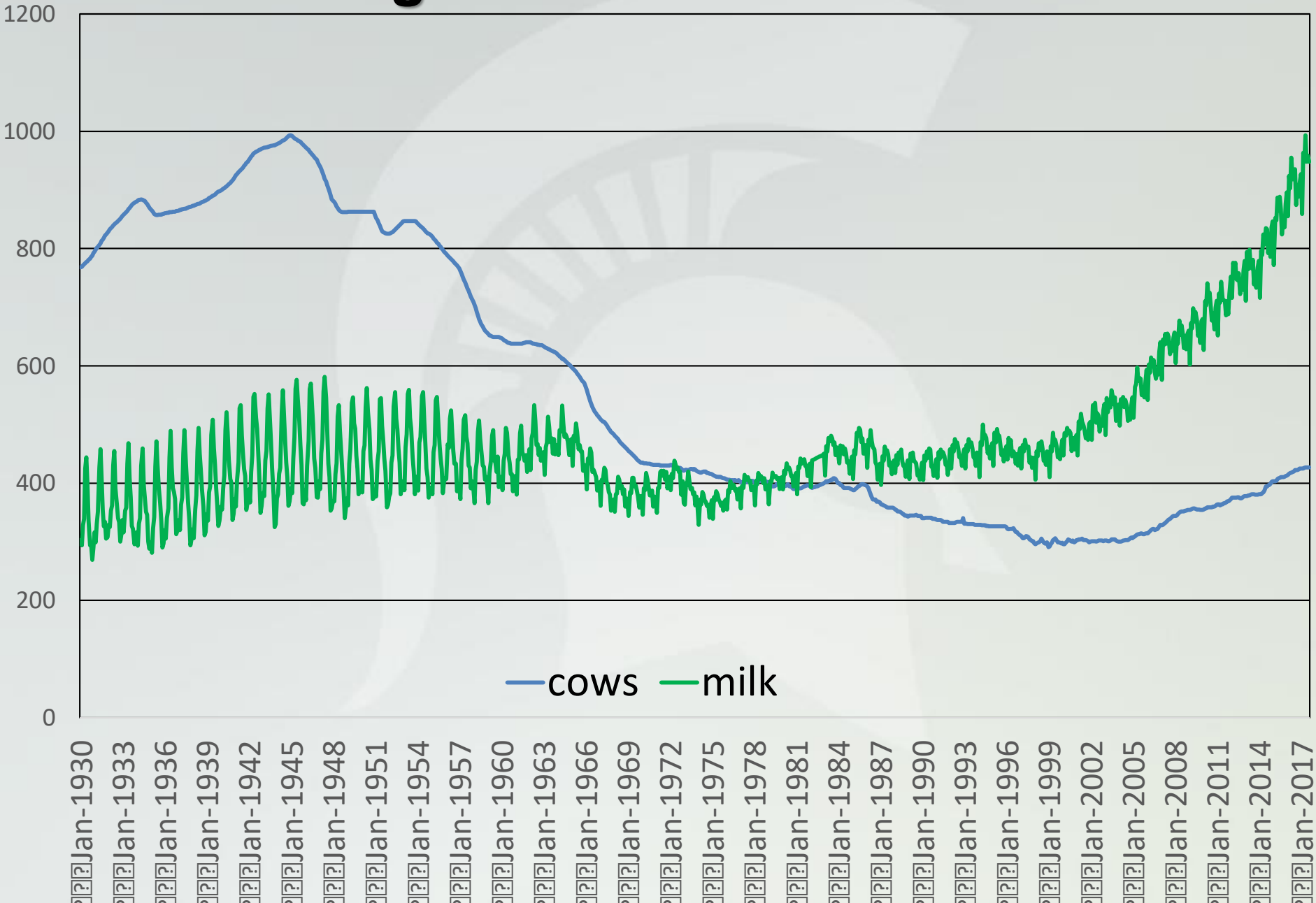
- **Seasonal Balancing**
 - Managing counter-seasonal milk production and demand
- **Daily Balancing**
 - Managing demand and supply shocks day-to-day
- **Cyclical Balancing**
 - Coordinating over long-run cycles

Long-run Cyclical Balancing

- Growth in Michigan in past two decades reverses long-term declines
- Corresponds to growth in export markets
- Requires major investments in plants that can be commercially viable to supply world markets

Thousand cows
 Million lbs

Michigan Milk Cows and Production



Excess Milk Production

- When milk supply is long or does not make it to a plant there are two possibilities:
 - Distressed milk sales: sold at a deep discount
 - Dumped milk

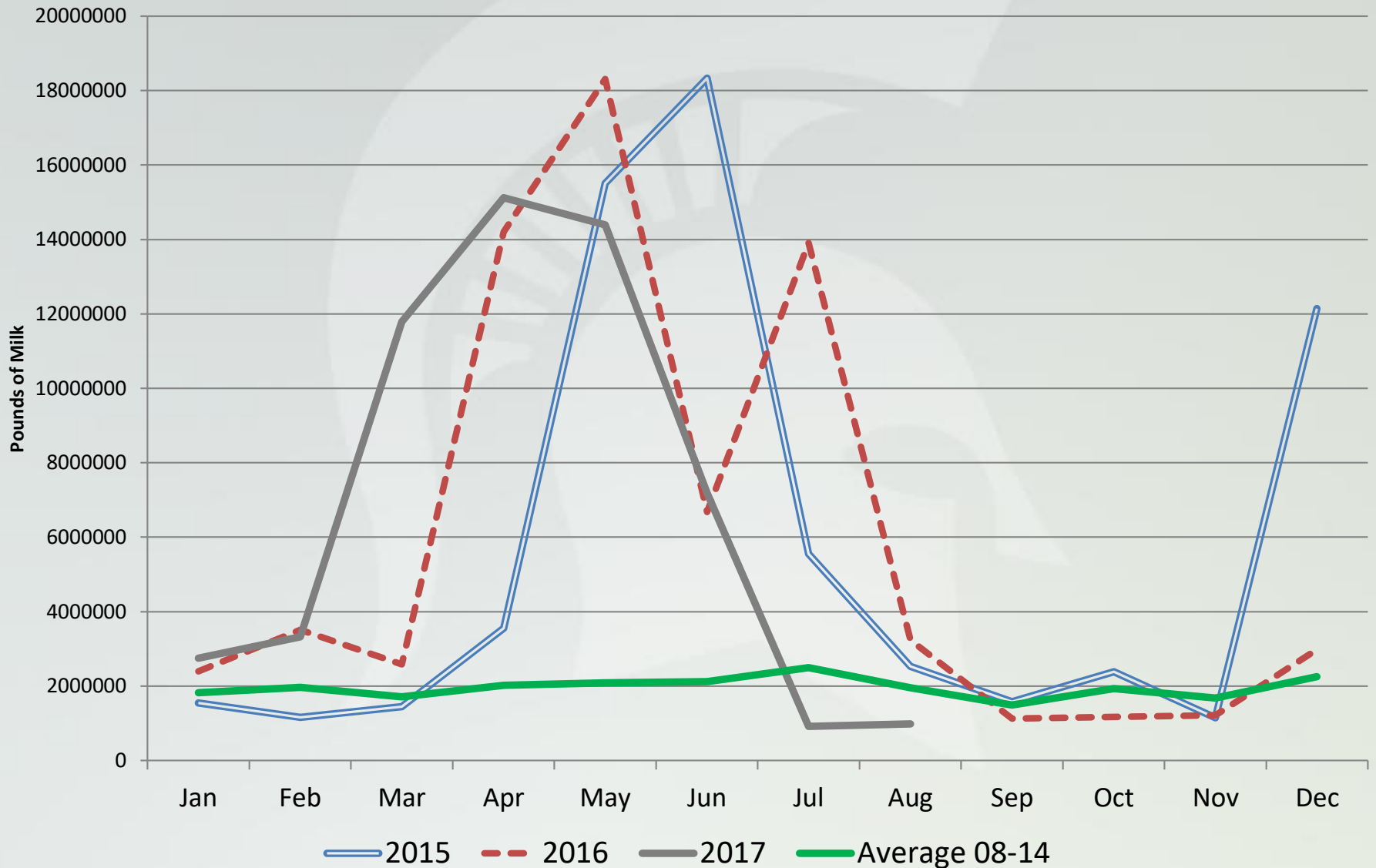
Distressed Milk Sales

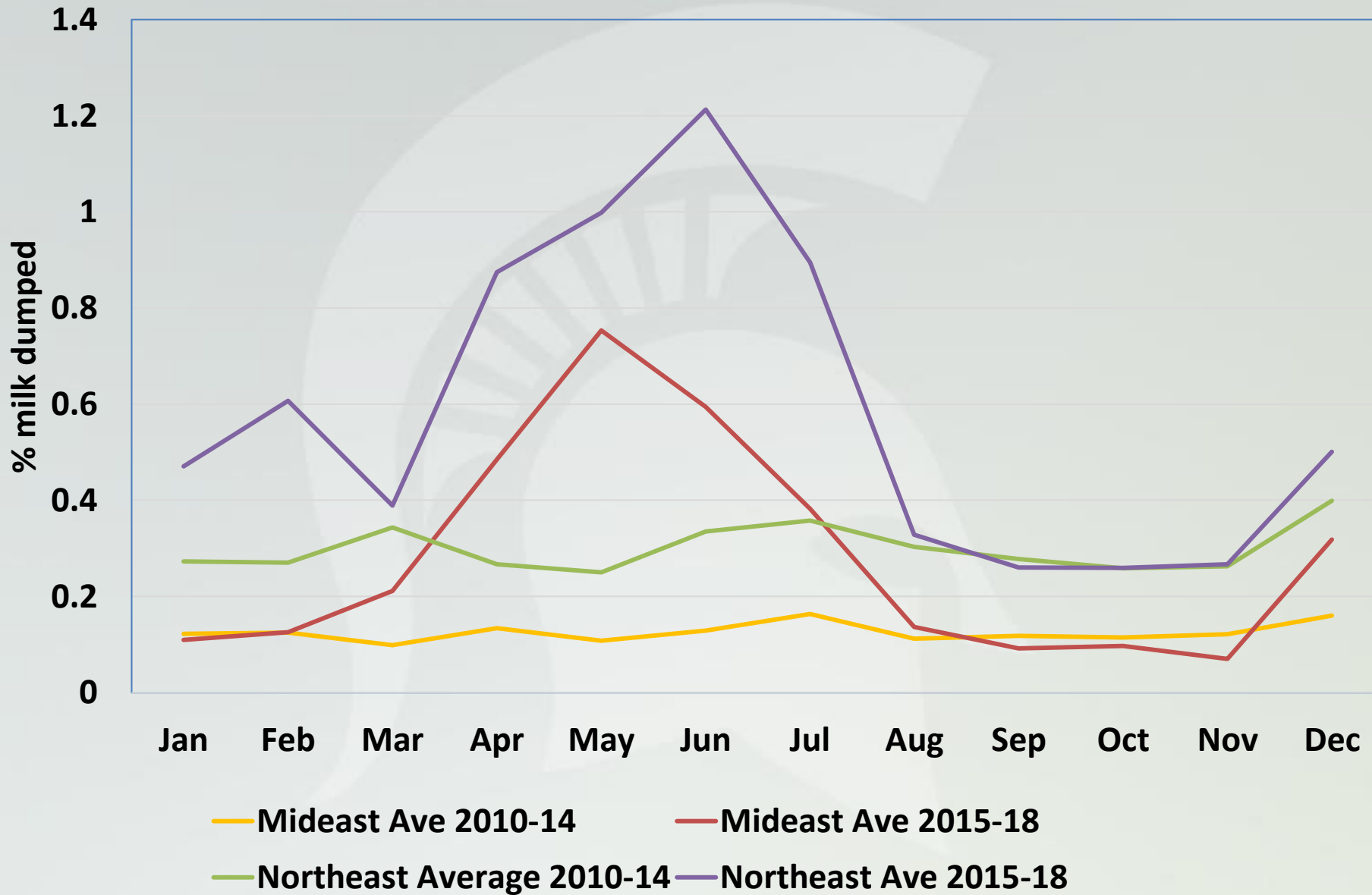
- Sometimes a portion of milk is sold at a deep discount or to an alternative customer
- These transactions are almost always initiated by a supplying cooperative.
- Discounts tend to be 30-70% of Class III or IV price

Dumped Milk

- 0.2 to 0.4% of milk produced does not make it to the plant or is rejected because it is contaminated or spoiled.
 - Plant issues (breakdowns, maintenance) can result in spoiled and dumped milk
- 0 to 2% of milk is sometimes dumped for lack of a market.
 - May not leave the farm.

Milk Dumped Mideast Order (pounds)





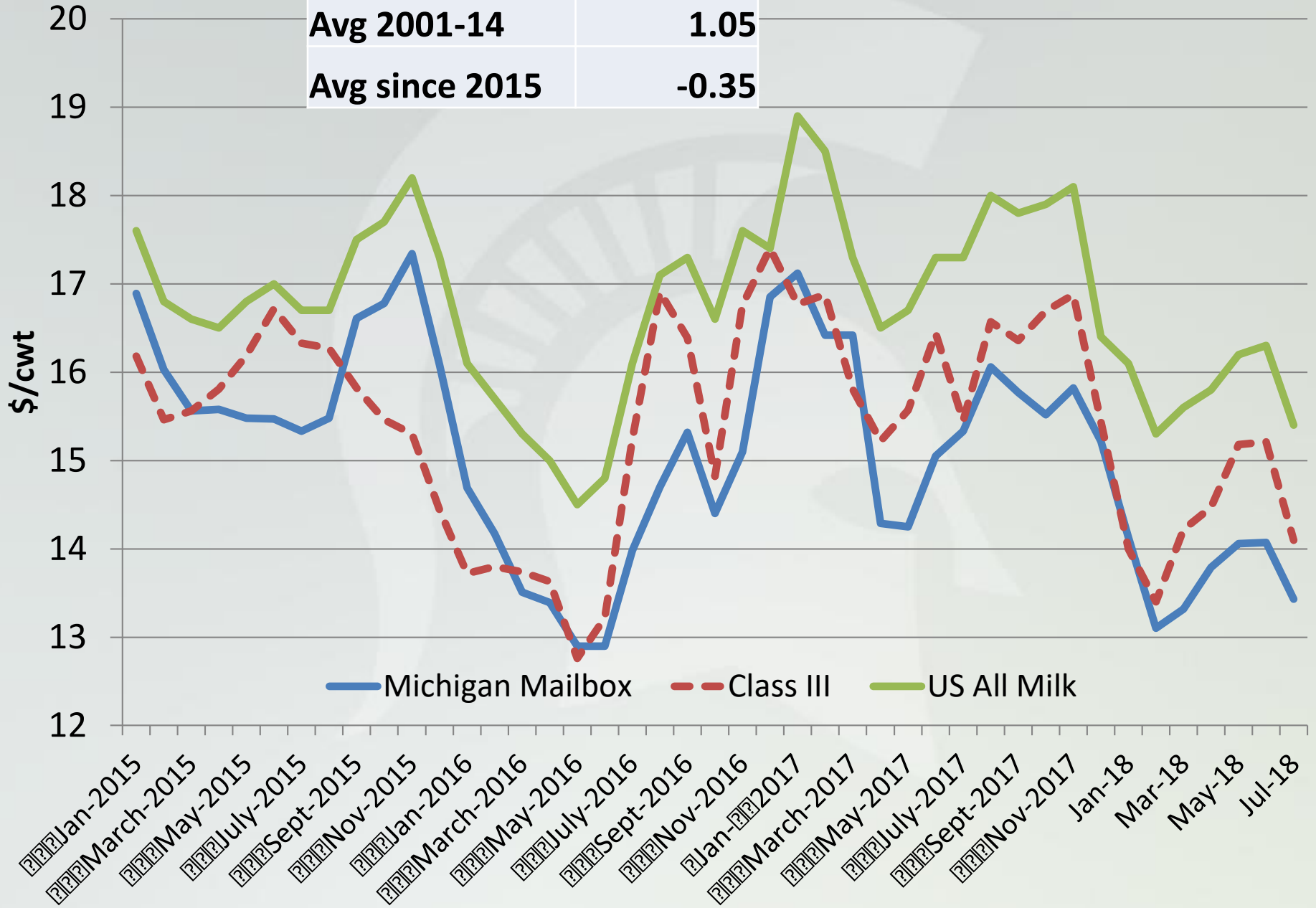
MI Mailbox - Class III

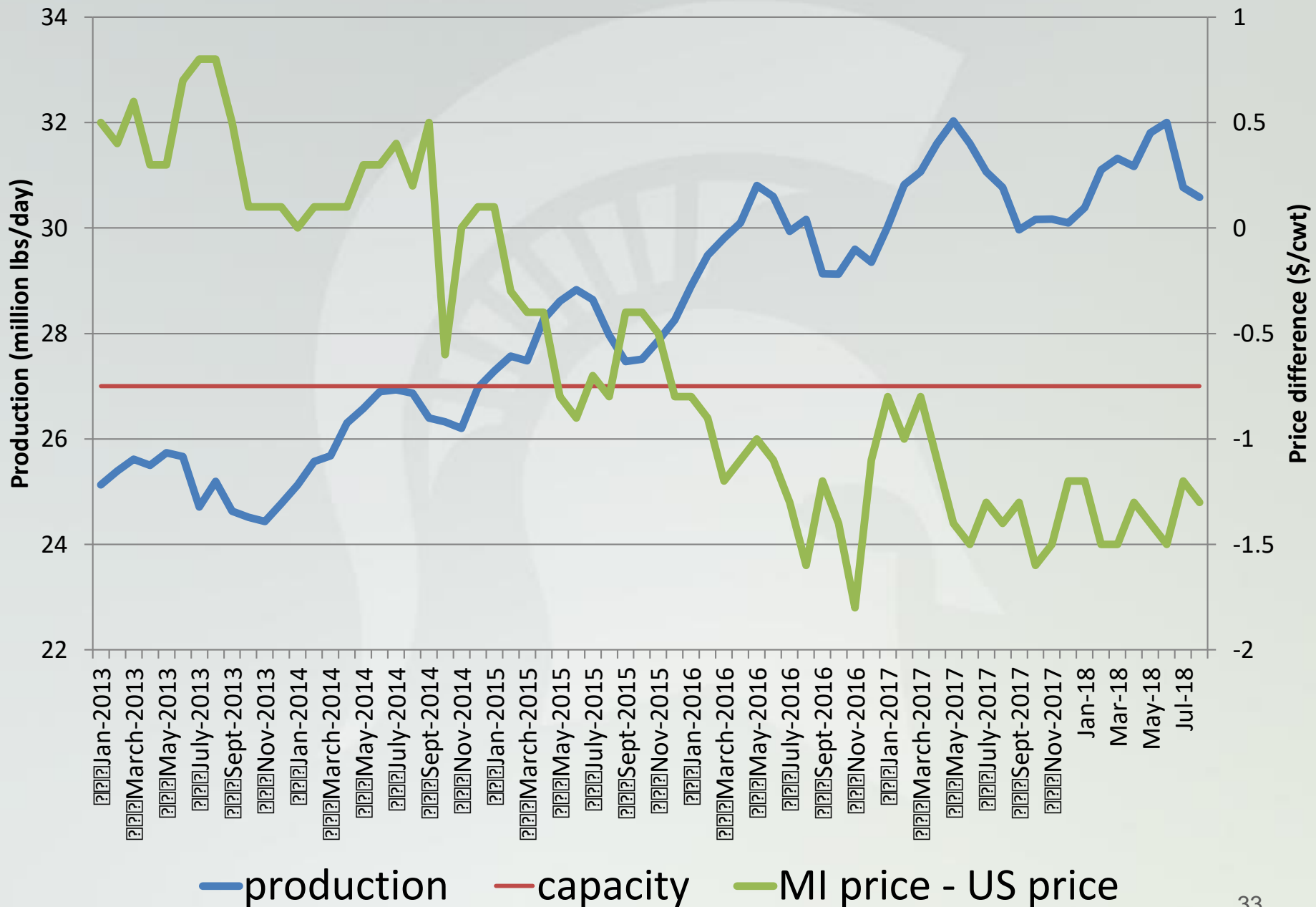
Avg 2001-14

1.05

Avg since 2015

-0.35





Dairy Policy Issues

- NAFTA 2.0
- California Milk Marketing Order
- Farm Bill
- Risk management programs

Dairy and NAFTA 2.0:

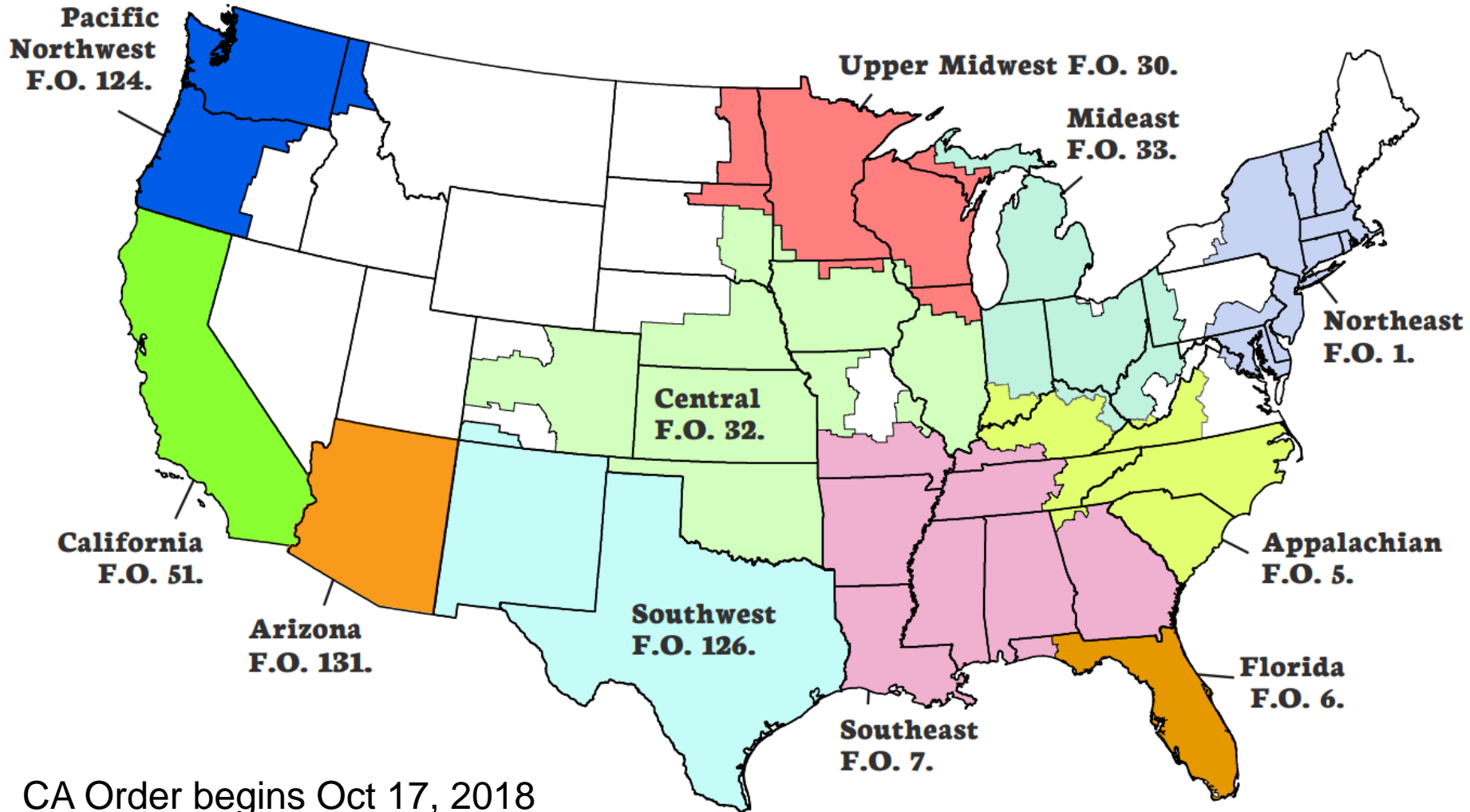
1. Eliminate Canada Class 7

- Before Class 7 system, US had milk protein price advantage
- Under Class 7, Canadians had price advantage and used it to displace US sales and begin exports to third countries (at below US prices).
- Under NAFTA 2.0 cost will be similar, competitive advantage will derive from transportation and lower processing costs
- Canada agrees to cap their exports of various powders

NAFTA 2.0: Increased access to Canadian Market

- Canada agrees to a higher “market access” for US products.
- Once market access amounts are reached, tariffs are incurred as happens now.
- Quantities will increase annually in accord with market growth, for a period of time.
- This will phase in during 2019
- There is no automatic sunset provision.

11 Federal Milk Marketing Order Areas



CA Order begins Oct 17, 2018

2018 (2019?) Farm Bill

- MPP-Dairy from 2014: government program that allows protection of “all milk” price less feed cost using US averages at fixed premiums
 - Paid an average of \$0.62/cwt on first 5 million lbs in 2018
- New version increases margin to \$9 for a low premium
 - \$0.17/cwt premium

Margin Protection Program 2018

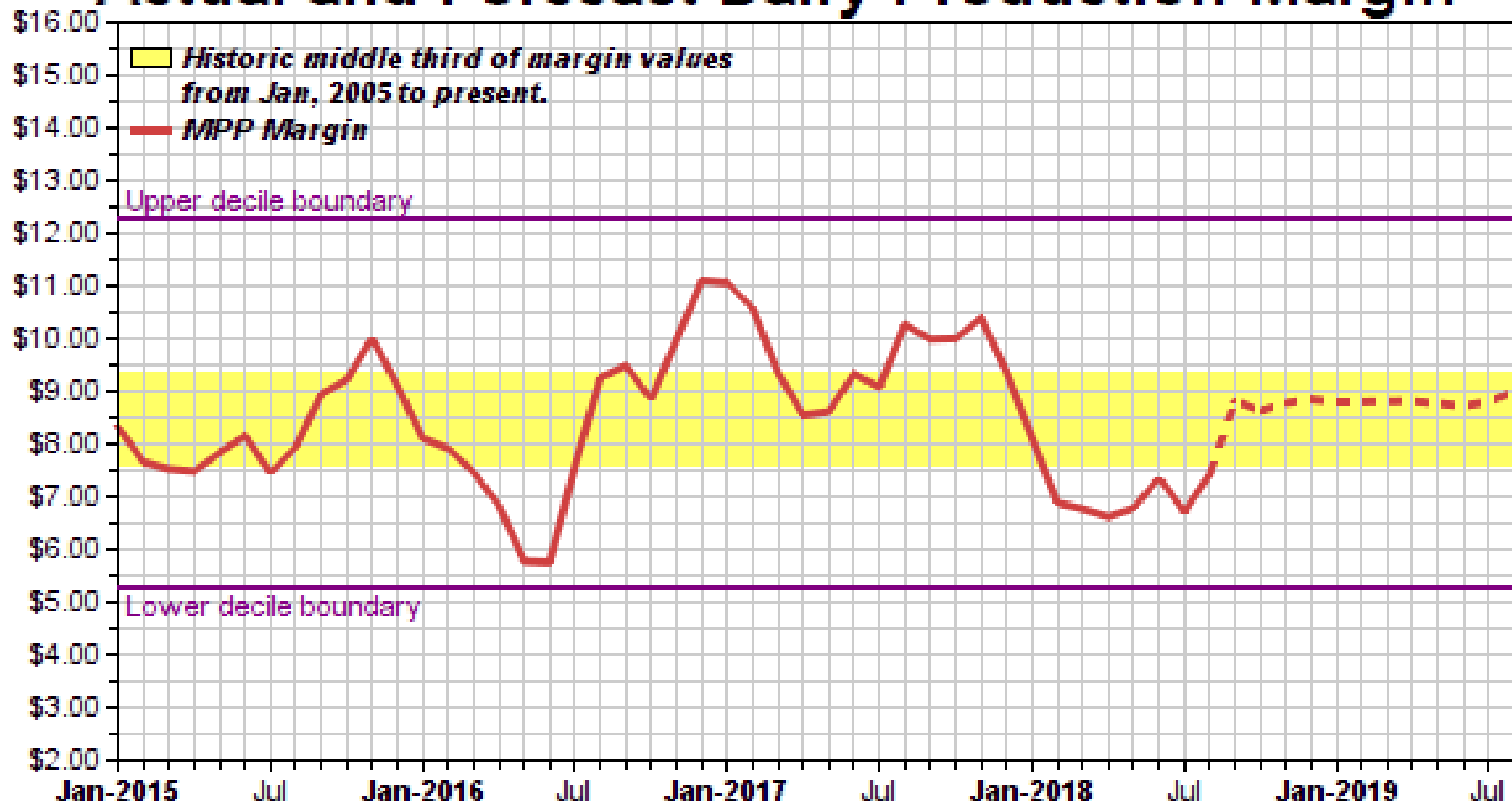
	All Milk	Feed Cost	Margin \$/cwt	Payment @\$8	Net Payment
January	16.10	7.99	8.11	0	-0.142
February	15.30	8.42	6.88	1.12	0.978
March	15.60	8.83	6.77	1.23	1.088
April	15.80	9.18	6.62	1.38	1.238
May	16.20	9.42	6.78	1.22	1.078
June	16.30	8.94	7.36	0.64	0.498
July	15.40	8.68	6.72	1.28	1.138
August	15.90	8.47	7.43	0.57	0.428
September	16.83	8.34	8.49	0	-0.142
October	17.31	8.35	8.96	0	-0.142
November	17.49	8.35	9.14	0	-0.142
December	17.64	8.41	9.23	0	-0.142
Average	16.32	8.62	7.71	0.62	0.478

For 5 million lbs in Tier 1, 2018

Payment	Gross Monthly	Net Monthly
	\$	\$
	0.00	-591.67
	4,666.67	4,075.00
	5,125.00	4,533.33
	5,750.00	5,158.33
	5,083.33	4,491.67
	2,666.67	2,075.00
	5,333.33	4,741.67
	2,375.00	1,783.33
	0.00	-591.67
	0.00	-591.67
	0.00	-591.67
	0.00	-591.67
Average	2,583.33	1,991.67
Total	31,000.00	23,900.00

**Note: \$8/cwt coverage
Premium =\$0.142/cwt**

Actual and Forecast Dairy Production Margin



Updated 10/22/18

2019 Farm Bill Dairy Subtitle: MPP Replacement Policy Details

- Extend program through 2023
- Maintain existing production history calculation (highest of 2011, 2012, or 2013)
- Eliminate minimum 25% production history coverage requirement
- Add covered margin levels of \$8.50 and \$9.00.cwt

2019 Farm Bill Dairy Title

	Senate	House
MPP Name	Dairy Risk Management Program	Dairy Risk Coverage Program
Coverage decision timing	Allows annual decisions	One decision for entire 5 years
Premiums	Increase premiums on lower coverage and Tier II; Discounts premiums for small (<2 mil lbs) and medium herds (2-10 mil lbs)	Lowers premiums for Tier I and increases for Tier II
Feed cost formula	Status quo	Increases feed cost
LGM participation	Not allowed	Allowed

Dairy Farm Risk Management Programs and Policies

- LGM-Dairy: insurance program that that protects class III milk price less feed costs using futures and options prices
- Dairy Revenue Protection (Dairy RP): new program on sale October 9. Covers the difference between final revenue guarantee and actual milk revenue a quarter of the year.
 - Basket of milk price put options with payment adjusted by yield and protection factors

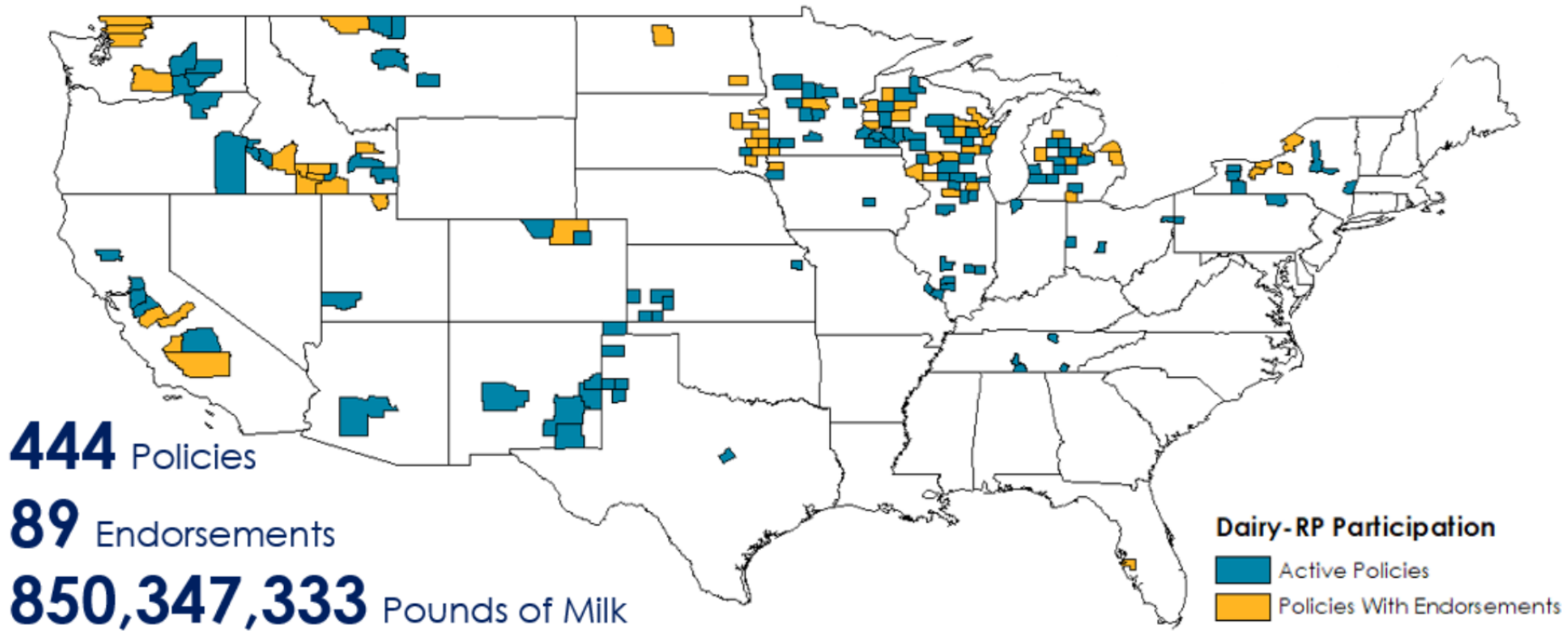
How is milk priced? Expected Prices – E.g. Class III Milk, Q4 2019⁴⁵



Milk and Dairy Product Futures (CIII, CIV, Butter, Cheese, Dry

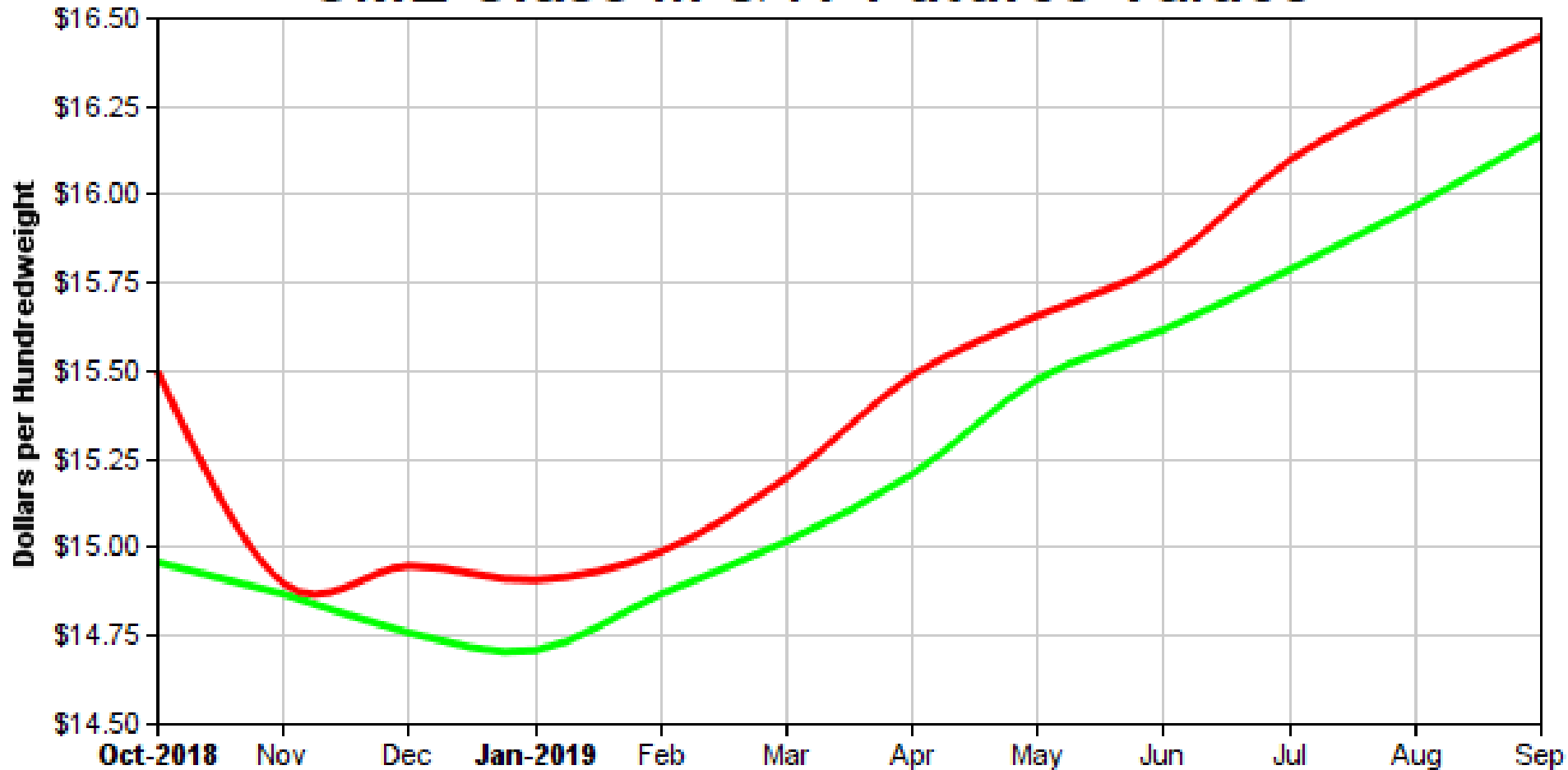


Dairy Revenue Protection Sales As of Oct. 22, 2018



Source: Marin Bozic, University of Minnesota

CME Class III & IV Futures Values

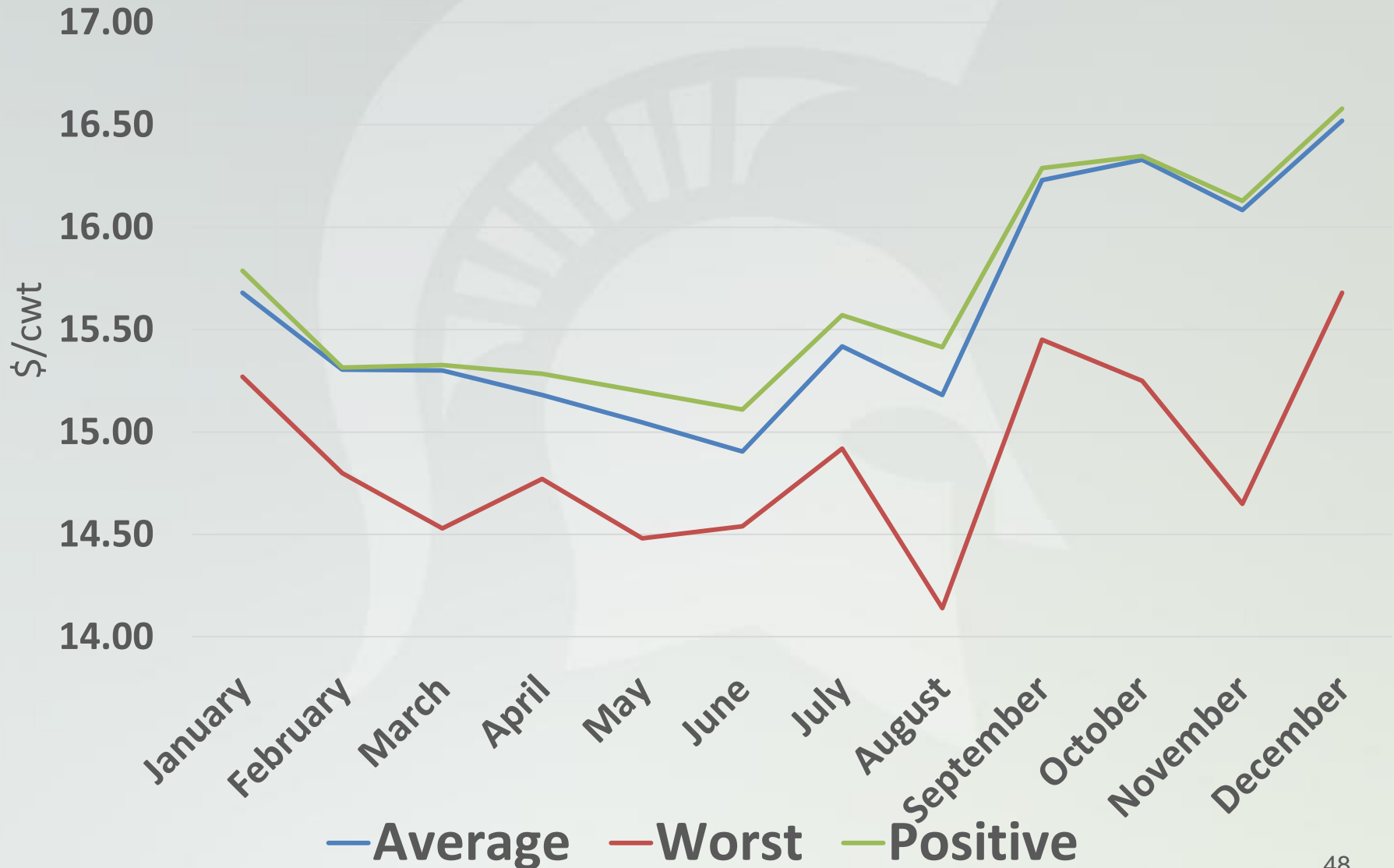


■ Class III Futures

■ Class IV Futures

Updated 10/24/18

2019 Michigan Mailbox



2019 Milk Price Forecast

Price	CME Futures	USDA
Class III	\$15.95	\$15.30-16.20
Class IV	\$15.60	\$14.35-15.35
US All Milk		\$16.85-17.75
Michigan mailbox	\$15.35-15.85	

Conclusions

- Tighter world supplies leave US milk markets one supply shock from higher prices
- More of the same in 2019 for processing and Michigan basis issues
- 2019 Farm Bill may provide significant payments