

When Someone Claims to Know Where Commodity Prices are Really Heading... Grab Your Wallet and Run!

CALIFORNIA ALFALFA & FORAGE SYMPOSIUM

November 30, 2016

Reno, Nevada

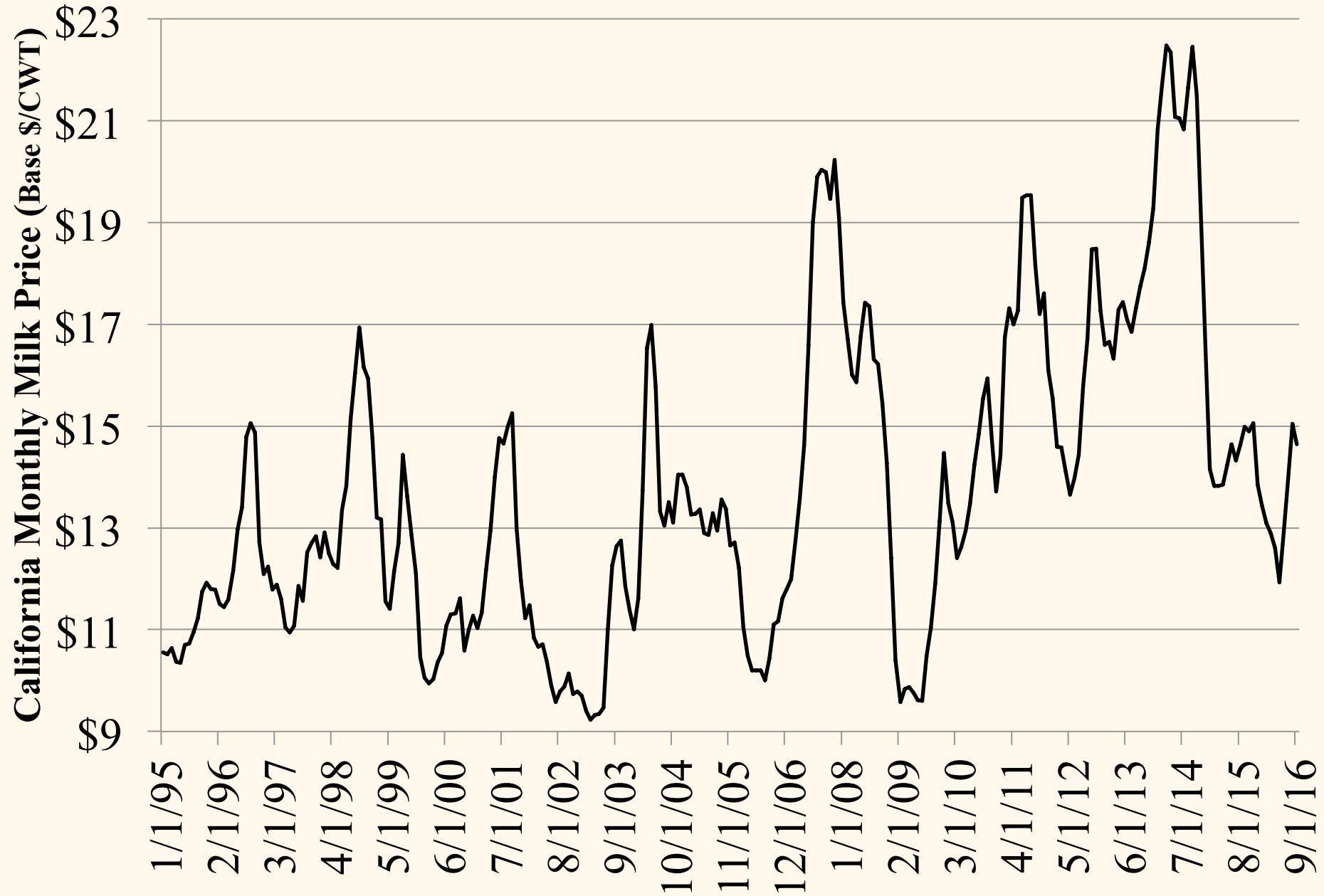
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Main Points

- 1. Agricultural Prices and Market Conditions are very hard to forecast**
 - 2. Prices are variable for many commodities and milk is one good example**
 - 3. There are lots of drivers and too many factors interacting to influence directions and timing of milk price movements**
 - 4. And, milk prices and cow numbers (here and in Asia) drive hay markets in the West**
 - 5. USDA has several efforts to project prices (They are required by Congress to attempt such productions**
 - 6. Both long term and annual projections go astray. The typical forecast is reasonably that the future will be a lot like the recent past. That is ok but misses all the turning points that matter.**
 - 7. Futures markets are not much better.**
 - 8. My point is not to criticize but to emphasize...**
- Don't bet the ranch on economist forecasts.**

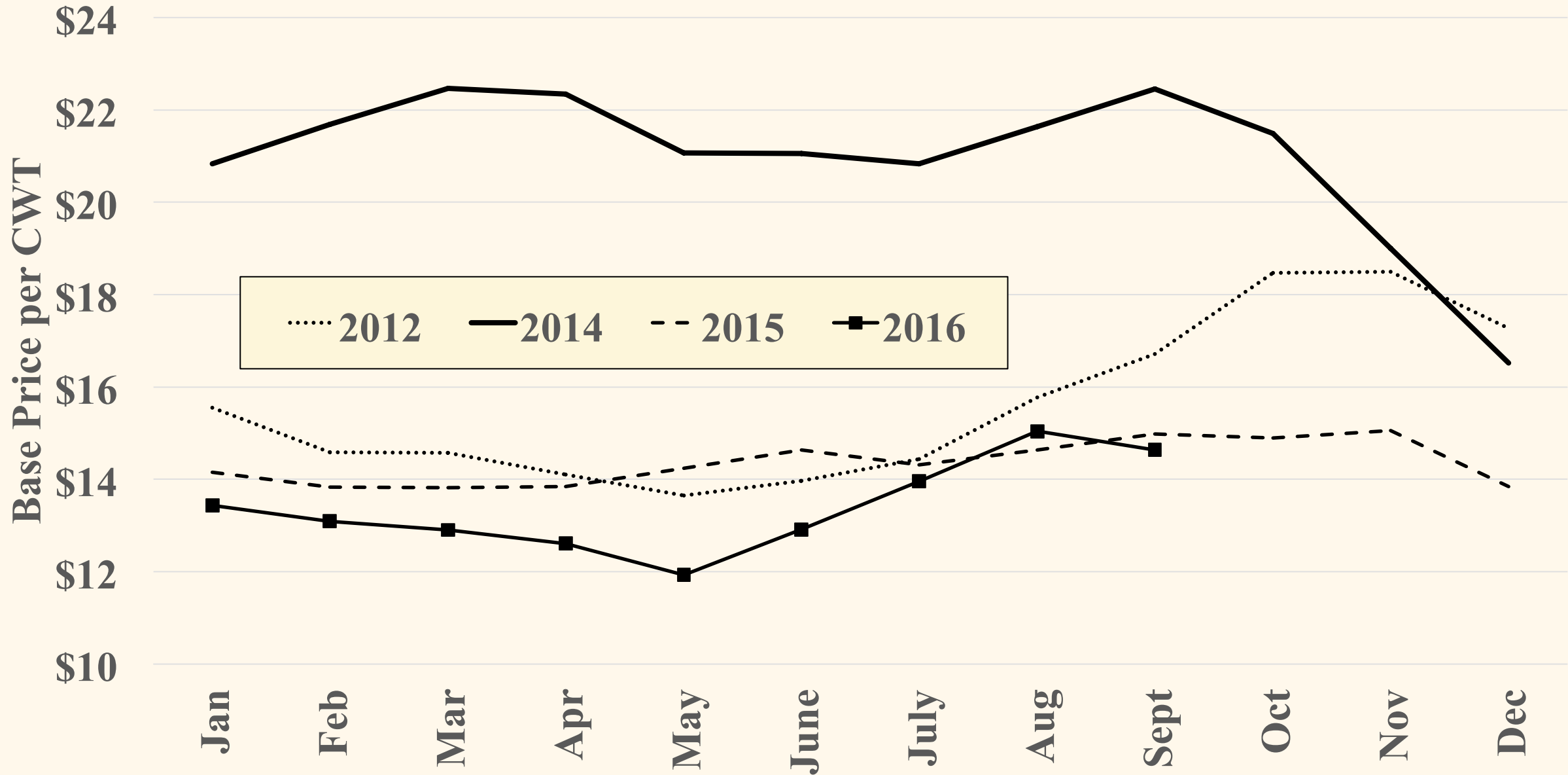
California Monthly Milk Price, Nov 1995 to Sept 2016



Annual and within year volatility is extreme

If things are too good to be true, they probably are not

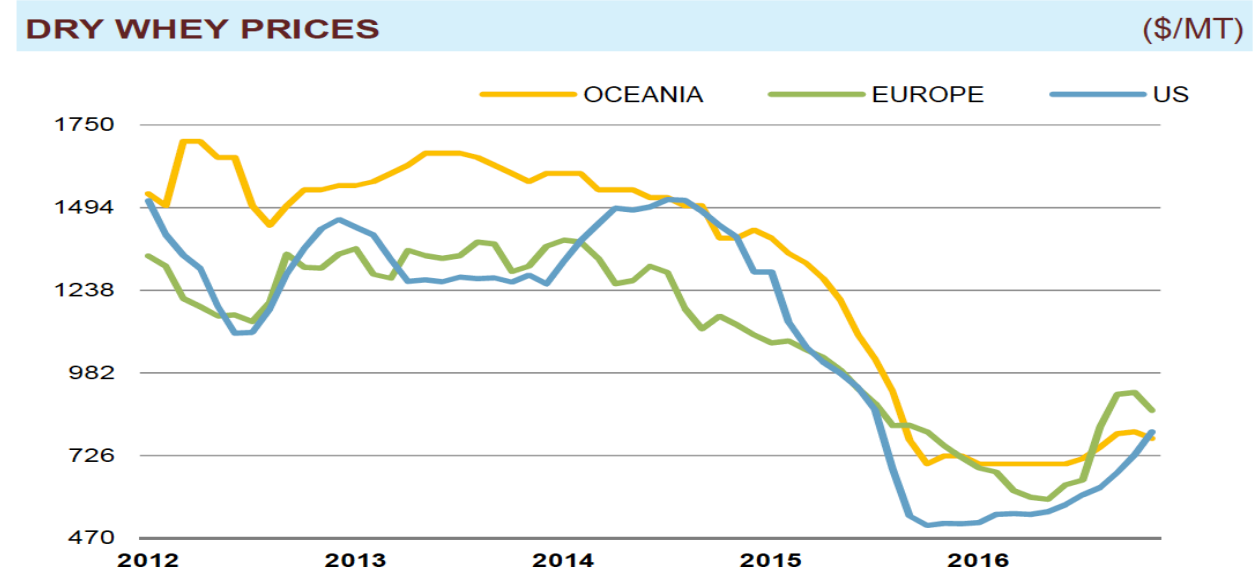
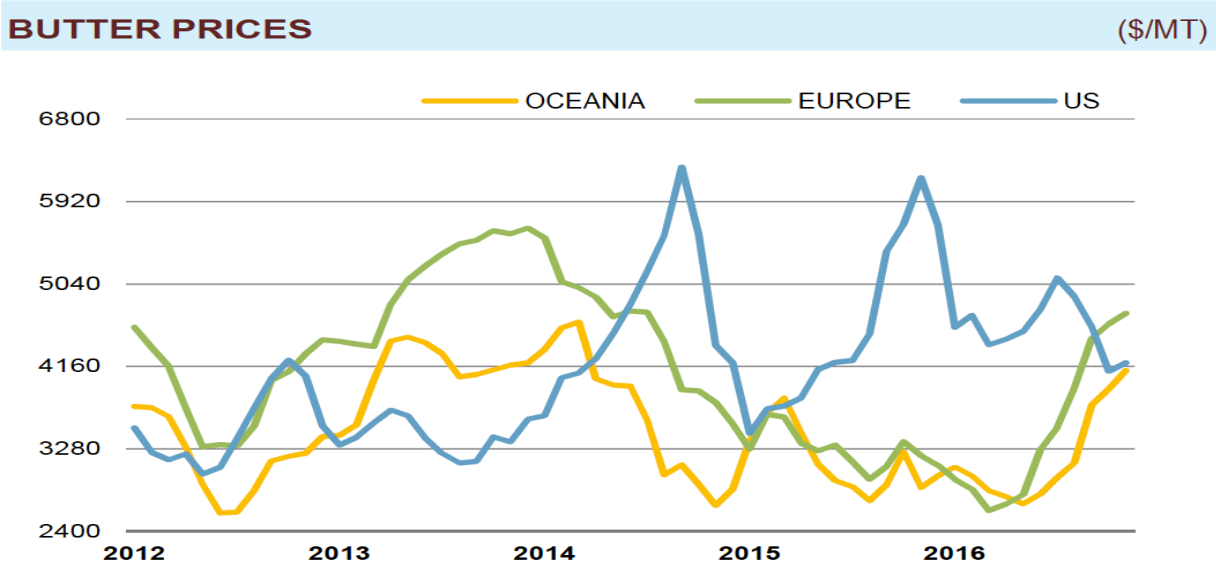
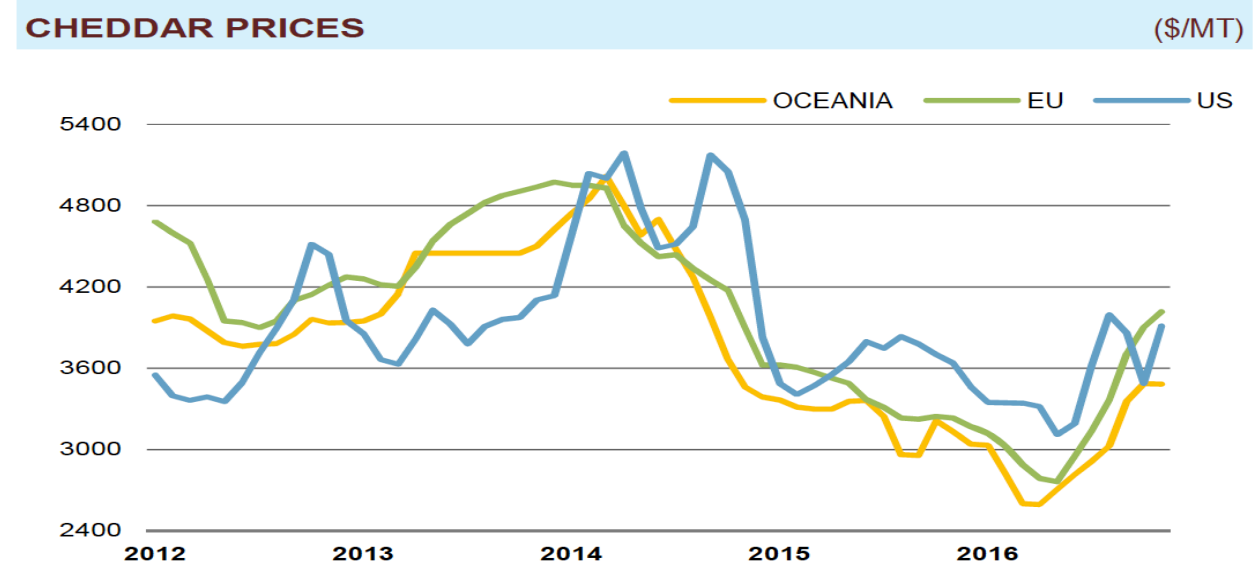
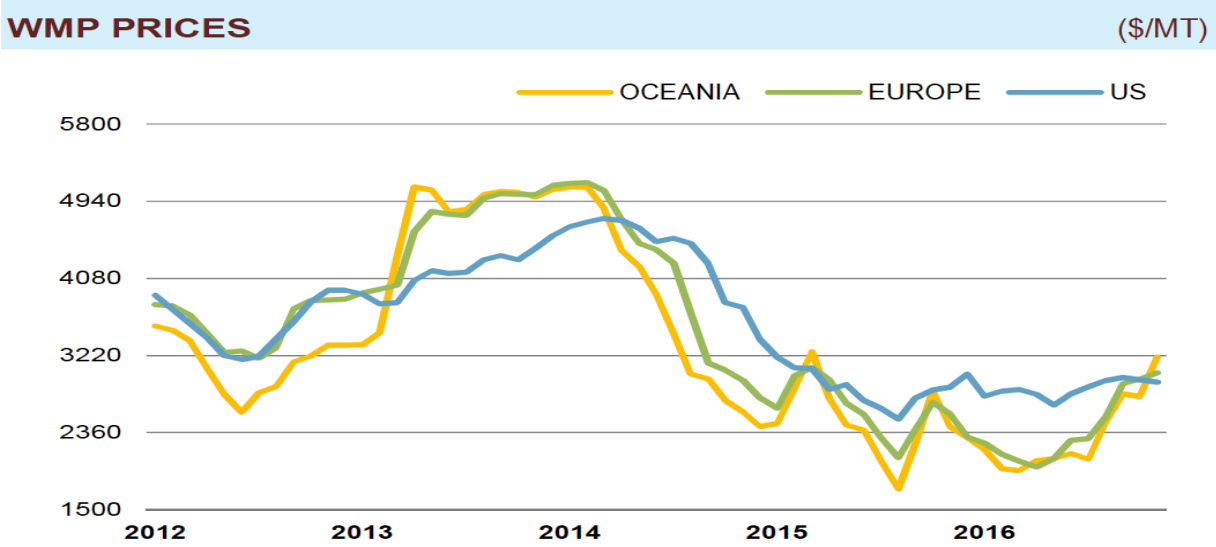
California Monthly Milk Price per Hundredweight for 2012, 2014, 2015 and 2016 through September



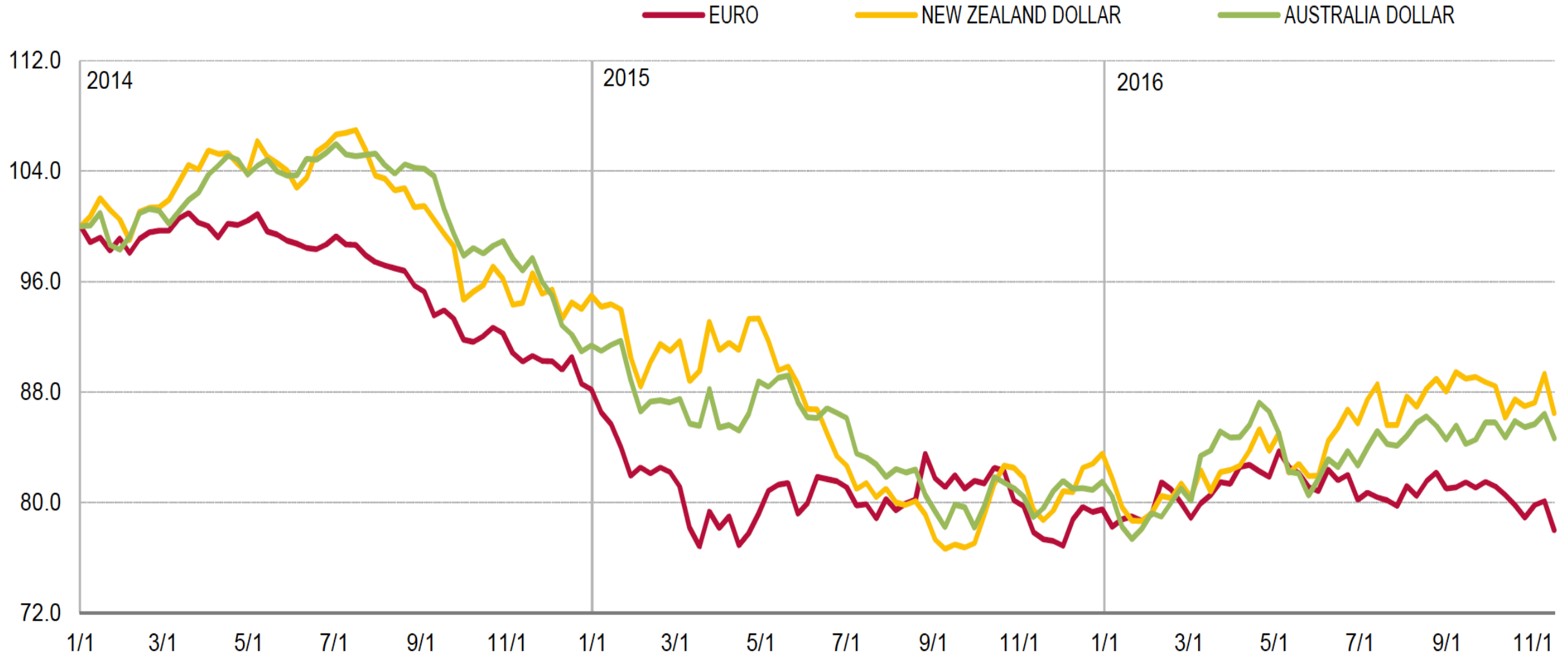
Prices are volatile with substantial random element

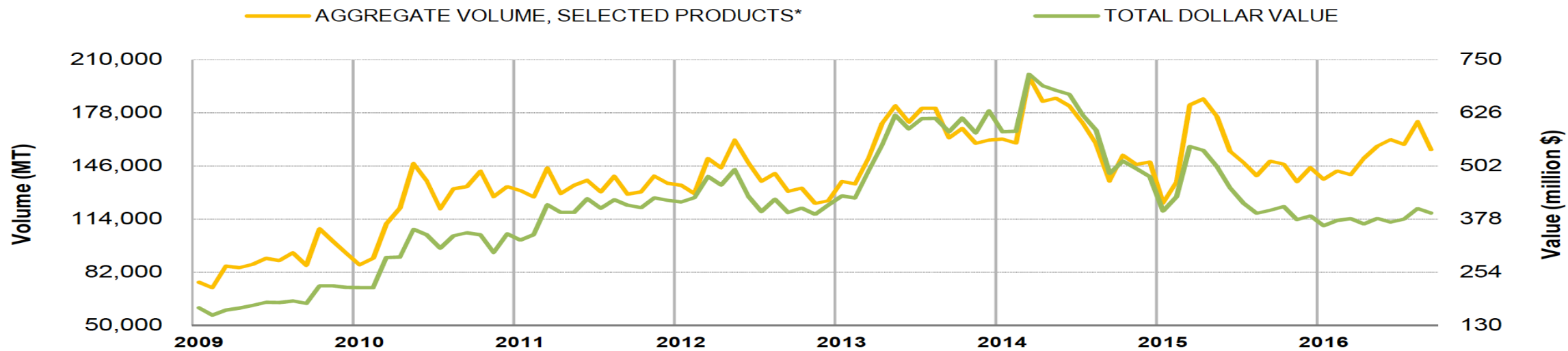
- 1. On the supply side weather affects everything in agriculture for both crops and livestock**
- 2. The demand side is also weather driven, but often weather elsewhere— weather in Brazil affects demand for U.S. crops**
- 3. Weather and pasture conditions in New Zealand affects dairy production there and therefore global dairy price and the demand for California milk and, of course, hay**
- 4. Currency exchange rates seem to move almost as randomly as the weather**
- 5. And, prices move based not just on what happens but on what people expect to happen.**
- 6. Political outcomes matter too for lots policy reasons, but also for market expectations.**

Bottom line, there are many reasons that projecting or forecasting market conditions and prices is hard.



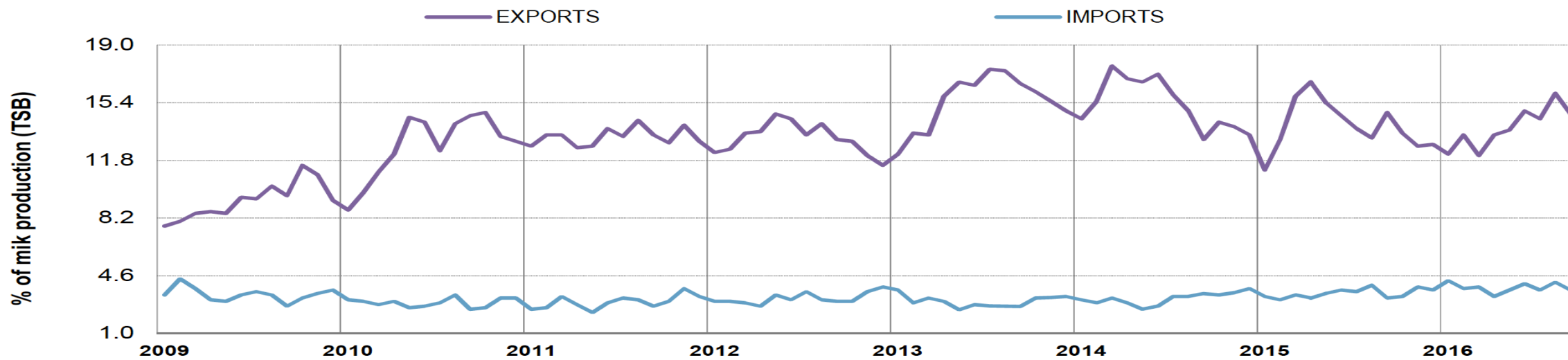
Source: US Dairy Export Council, Global Dairy Market Outlook, November 2016



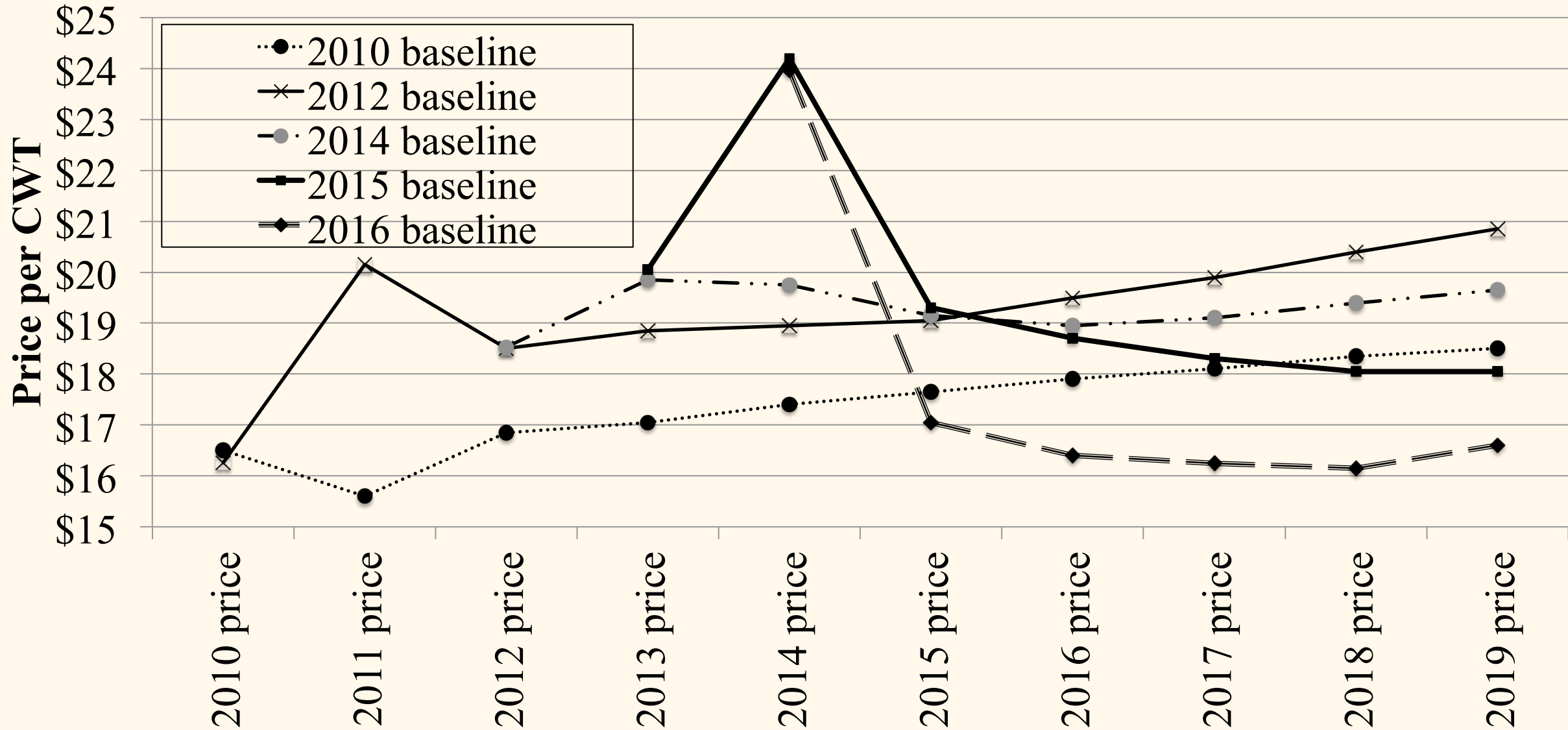


* Volume includes SMP, WMP, food preps, MPC, whey, cheese, butterfat, lactose

U.S. EXPORTS AND IMPORTS AS A PERCENT OF MILK PRODUCTION



USDA Long-Term Agricultural Projections of U.S. All Milk Price by Year, 2010-2016



USDA finds long term projections of milk price is very hard

**USDA does not attempt long term forecasts for hay, but
does project the major grains**

U.S. Milk Supply and Use: The November WASDE Report

Commodity	Actual 2014	Actual 2015	Projected for Annual 2016	Projected for Annual 2017
Milk	<i>Billion Pounds</i>			
Production	206.1	208.6	212.5	217
Fat Basis Supply				
Marketings	205.1	207.7	211.5	216
Imports	4.3	5.7	7.2	7.1
Fat Basis Use				
Commercial Exports	12.4	8.8	8.7	8.9
Domestic Commercial Use	196.9	202.5	209.9	214.7
Skim-solid Basis Supply				
Marketings	205.1	207.7	211.5	216
Imports	5.6	6	6.6	6.4
Skim-solid Basis Use				
Commercial Exports	39	37.3	38.4	39.7
Domestic Commercial Use	170.3	175.5	180	182.9

Source: USDA World Agricultural Supply and Demand Estimates, November 2016

U.S. Dairy Prices and Projections from November WASDE

Commodity	Actual 2014	Actual 2015	Projected for Annual 2016	Projected for Annual 2017
Product Prices				
	<i>Dollars per Pound</i>			
Cheese	2.155	1.645	1.59-1.60	1.61-1.70
Butter	2.136	2.067	2.035-2.065	1.81-1.93
Nonfat Dry Milk	1.768	0.902	0.82-0.84	0.93-1.00
Dry Whey	0.654	0.380	0.28-0.29	0.36-0.39
Milk Prices				
	<i>Dollars per Hundredweight</i>			
Class III (for cheese)	22.34	15.80	14.70-14.80	15.30-16.20
Class IV (for butter/powder)	22.09	14.35	13.55-13.75	13.50-14.50
All Milk	23.97	17.12	16.00-16.10	16.30-17.20

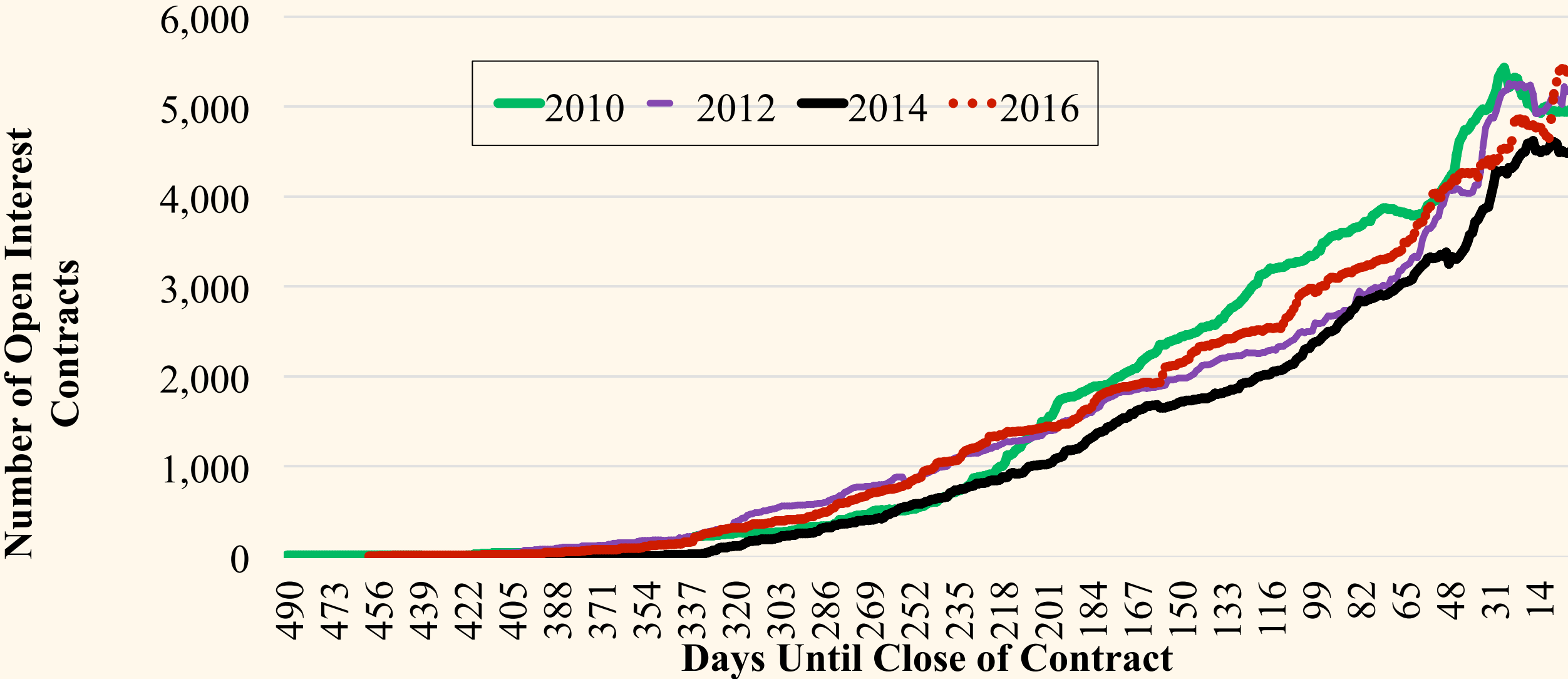
U.S. Dairy Prices Projections and Actuals for 2014 and 2015

Commodity	May 2013 Projection of 2014	Actual 2014	May 2014 Projection of 2015	Actual 2015
Product Prices	<i>Dollars per Pound</i>			
Cheese	1.675-1.775	2.155	1.670-1.770	1.645
Butter	1.485-1.615	2.136	1.615-1.745	2.067
Nonfat Dry Milk	1.585-1.655	1.768	1.605-1.675	0.902
Dry Whey	0.565-0.595	0.654	0.550-0.580	0.380
Milk Prices	<i>Dollars per Cwt</i>			
Class III (for cheese)	17.00-18.00	22.34	16.90-17.90	15.80
Class IV (butter powder)	17.80-18.90	22.09	18.55-19.65	14.35
All Milk	18.85-19.85	23.97	19.70-20.70	17.12

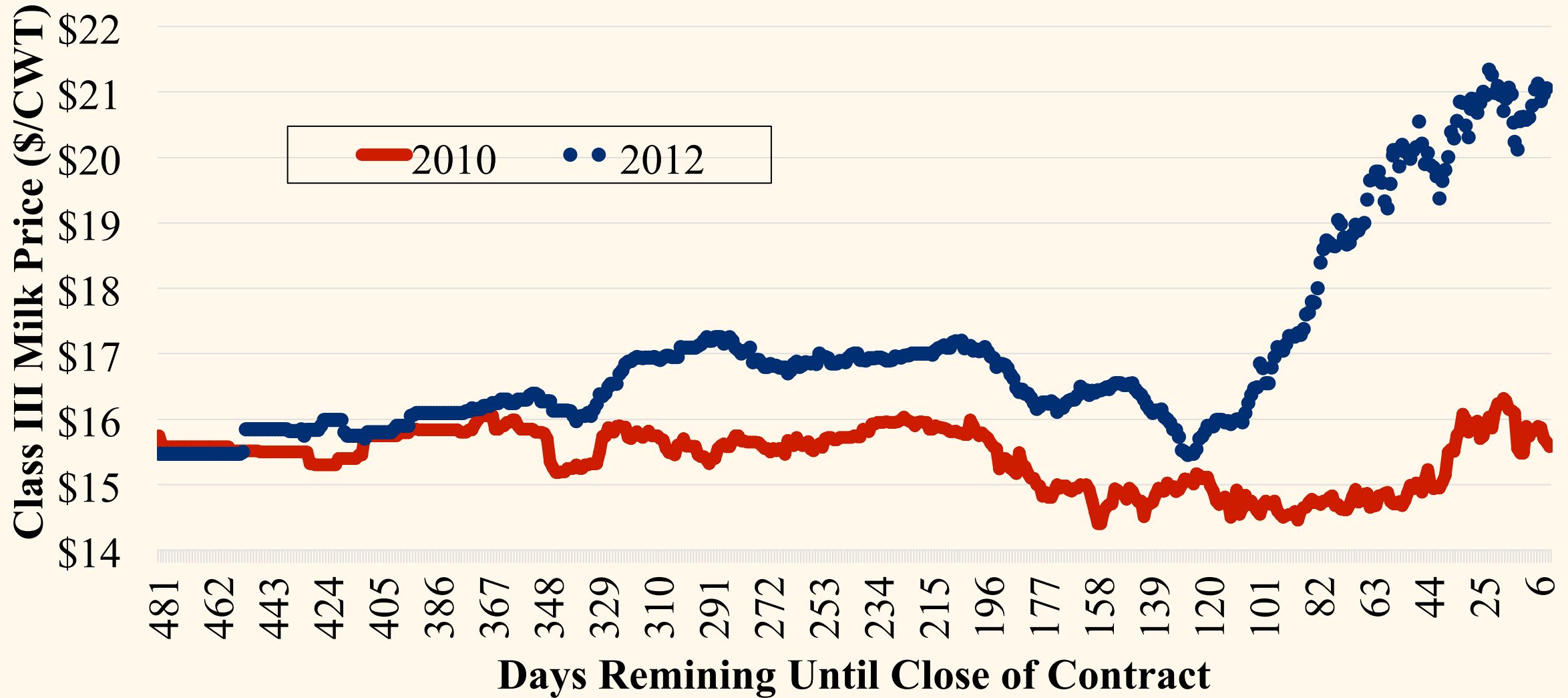
USDA finds that short term annual projection of milk prices are difficult

USDA does not attempt annual forecasts for hay, but does project the major grains

Open Interest on Futures Contracts for November 1 Delivery of Class III Milk, 2010, 2012, 2014 and 2016

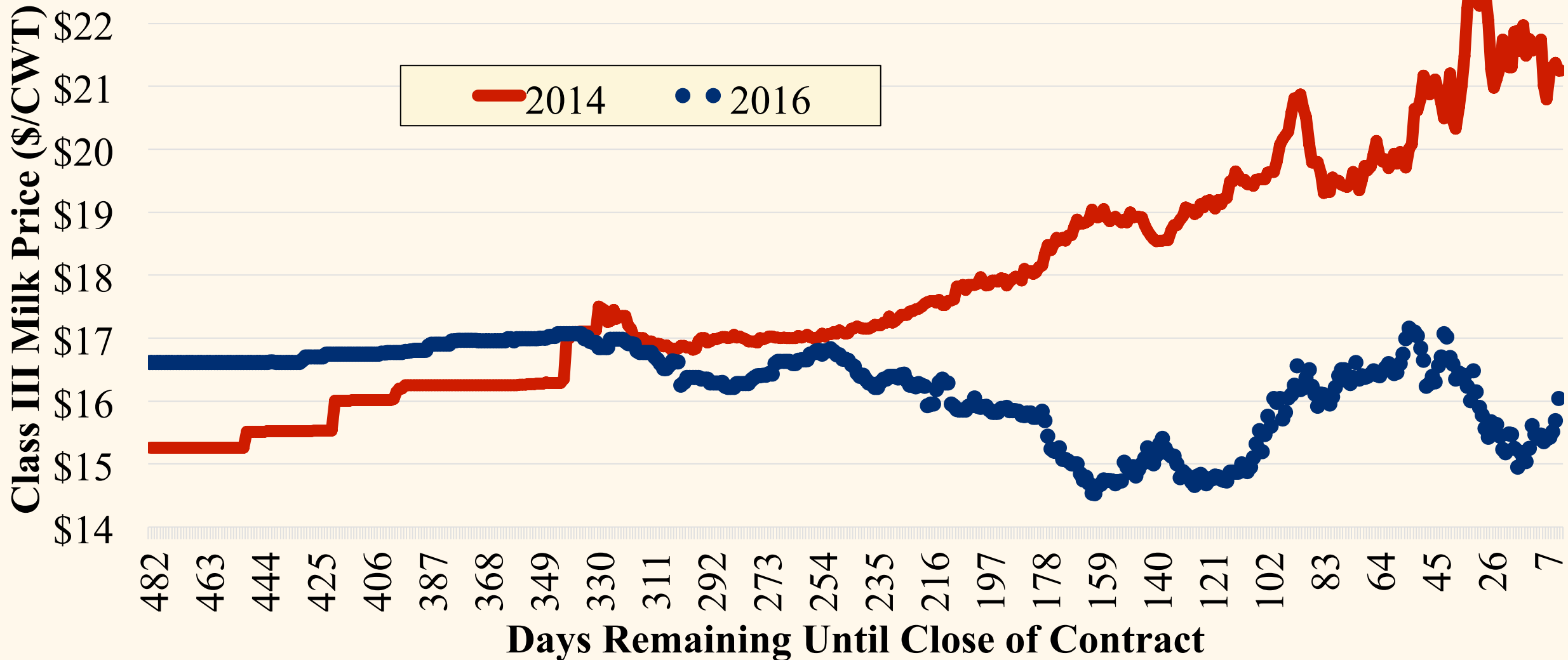


Class III Milk Futures Price for Contracts Delivered on November 1, 2010 and November 1, 2012



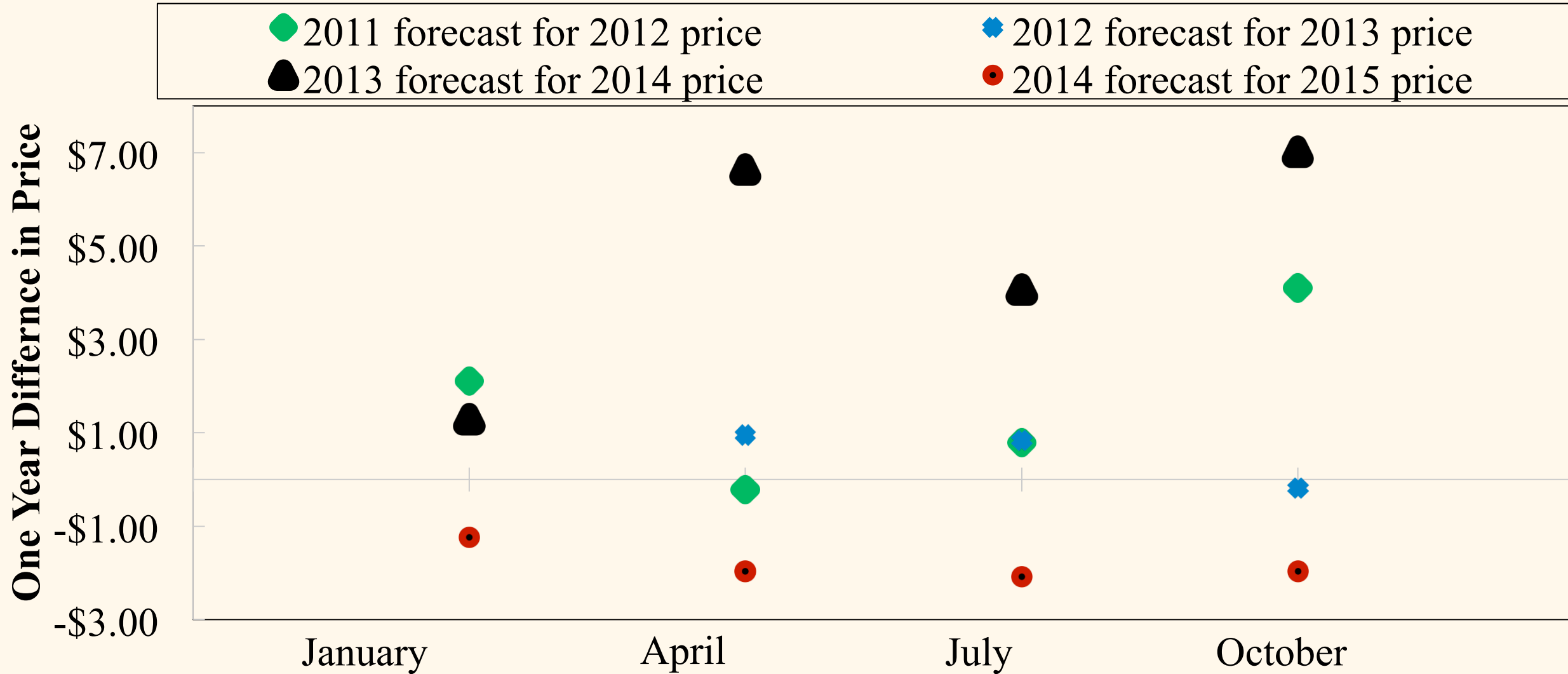
Source: Provided by University of Wisconsin Dairy Marketing and Risk Management Program

Class III Milk Futures Price for Contracts Delivered on November 1, 2014 and November 1, 2016



Source: University of Wisconsin Dairy Marketing and Risk Management Program

Difference Between Future Price (one year ahead) for Delivery Month and Actual Price for Class III Milk



**Price volatility in milk is just a fact of life and the business
and there is not a way to see the future**

Futures markets too do not tell us much about future milk prices

And traders are smart people with real money on at risk

Futures markets generally are unbiased incorporate information effectively

**The milk market is thinly traded and is not much help for relevant risk of a
year or more**

**Of course there is no market for hay, but grain markets are more heavily
traded for one-year out contracts.**

**Bottom line: When someone claims to know where commodity prices are
really heading... grab your wallet and run in the other direction!**