

U.S. Dairy Sector at Crossroads

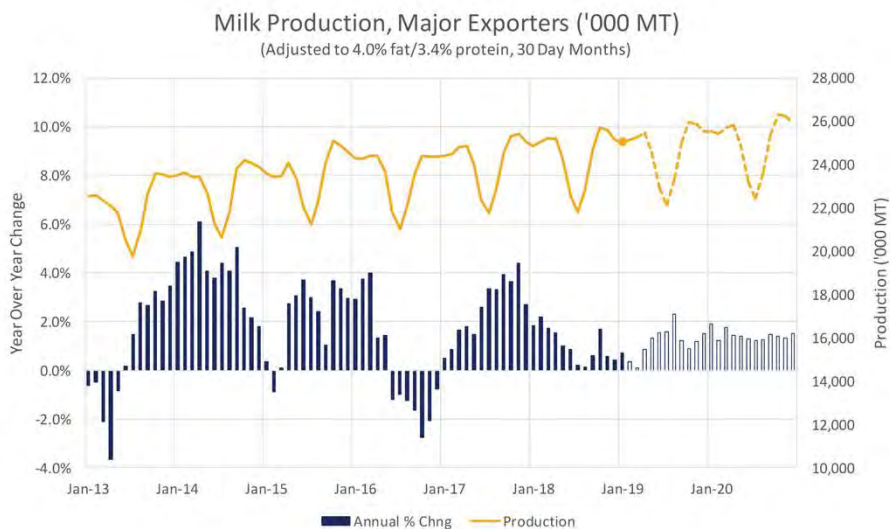
2019 Midsouth Ruminant Nutrition Conference

Grapevine, TX
 August 7, 2019
 Dr. Marin Bozic

UNIVERSITY OF MINNESOTA
 Driven to DiscoverSM

World Milk Production Growth is Slowing Down

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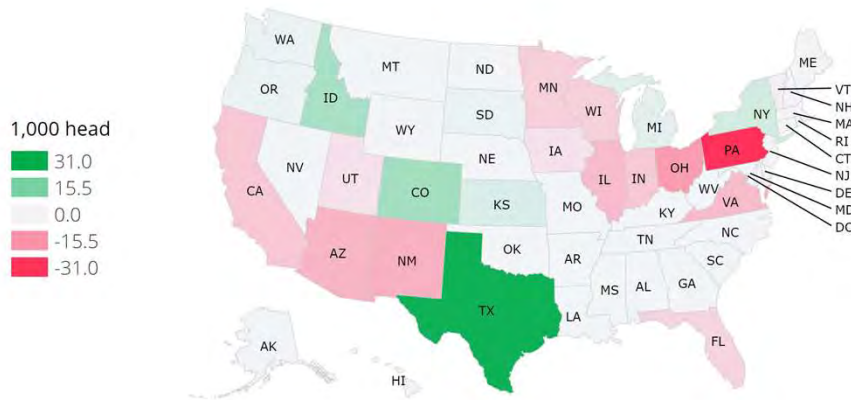


Source: INTLFC Stone, Reproduced with permission from Nate Donnay

U.S. Dairy Herd: Year-on-Year Declines Almost in All States

3

Milk Cows - United States
U.S. States Map



New Zealand Realizes It's an Island

4

New Zealand Milk Production - New Zealand
Simple Line Chart



When Production Slows, Prices Accelerate...

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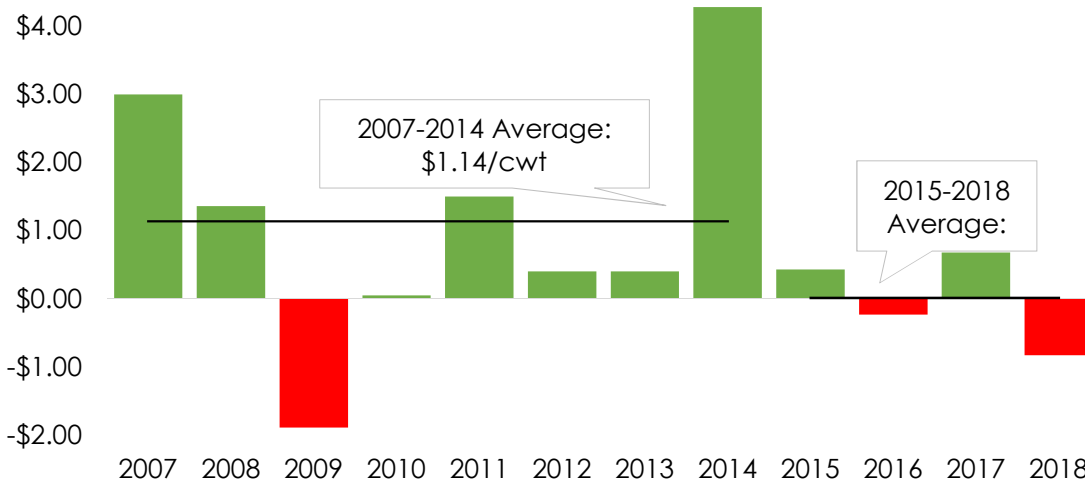
Dec-19 CME Milk Contract Prices Over Past 120 Days



Slowing domestic and global milk production has lifted U.S. dairy prices. Forecasted prices are \$1.00-\$1.50/cwt higher than in 2018. But factors inflicting pain over 2015-2018 will remain, and need to be analyzed in detail...

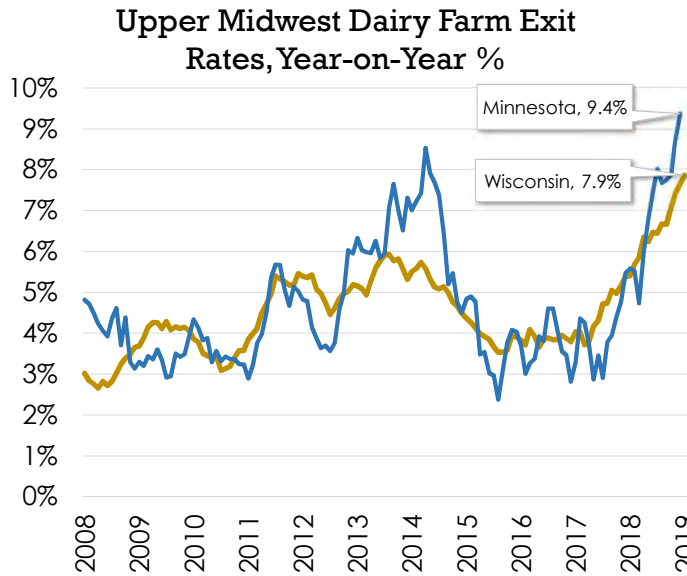
Minnesota Dairy Farm – Net Return over Labor and Management

6



Source: CFFM FINBIN

2018 – the year that broke the dam



Best advice to U.S. dairy farmers? 'Sell out as fast as you can'

Small-dairy farmers are getting squeezed out by corporate agriculture. "That is not what America is about," a struggling farmer said.

The Washington Post

Outlook + Perspective

Dairy farming is dying. After 40 years, I'm done.

JANUARY 7, 2019

Wisconsin Loses Another 53 Dairy Farms in December

NEWS | BY: JIM DICKRELL

As dairy crisis crushes farmers, Wisconsin's rural identity in jeopardy

Rick Barrett, Milwaukee Journal Sentinel | Published 10:28 a.m. CT Jan 11, 2019 | Updated 10:53 p.m. CT Jan 11, 2019

3,837 Views | Mar 16, 2016, 12:22pm

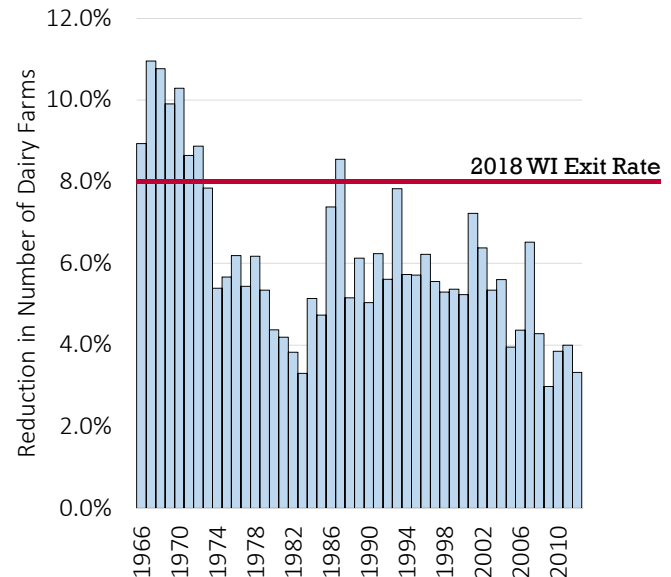
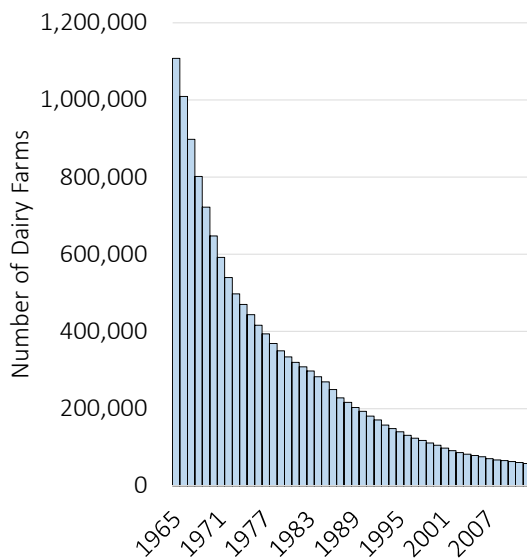
Suicidal Dairy Farmers Should Consider Marijuana Industry



Mike Adams Contributor

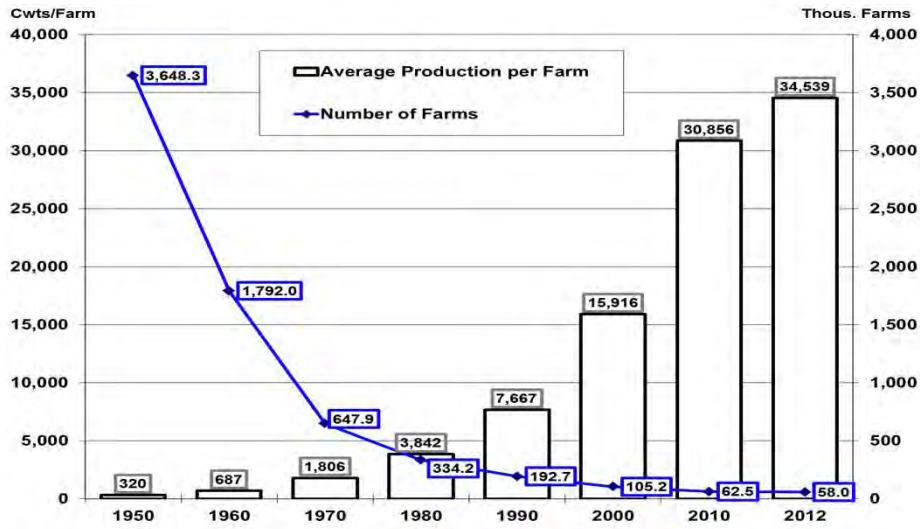
I cover various facets of the cannabis culture.

Consolidation pace over time



The number of dairy farms drops 40-50% every decade, while average farm size about doubles

9

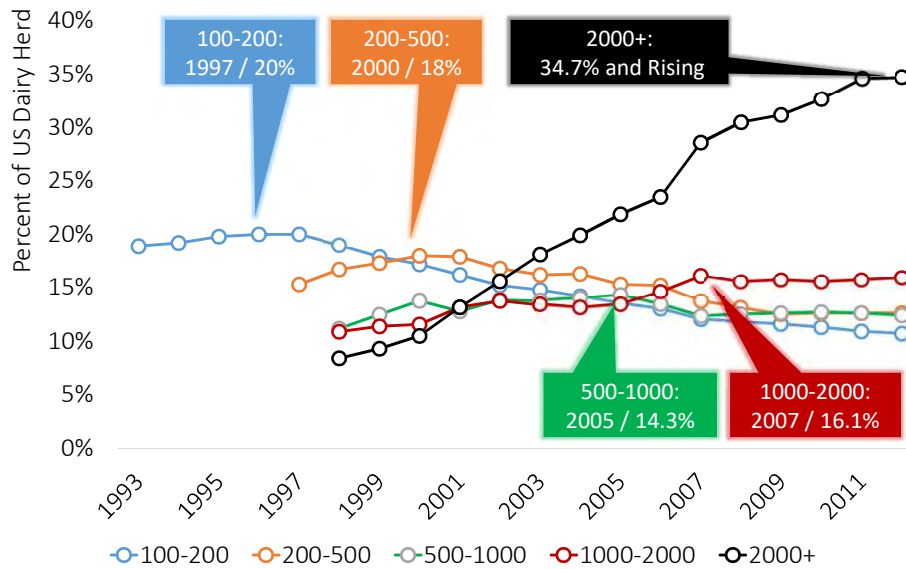


Source: Dr. Bob Yonkers, IDFA based on USDA, NASS

Changes in size and management/financing model

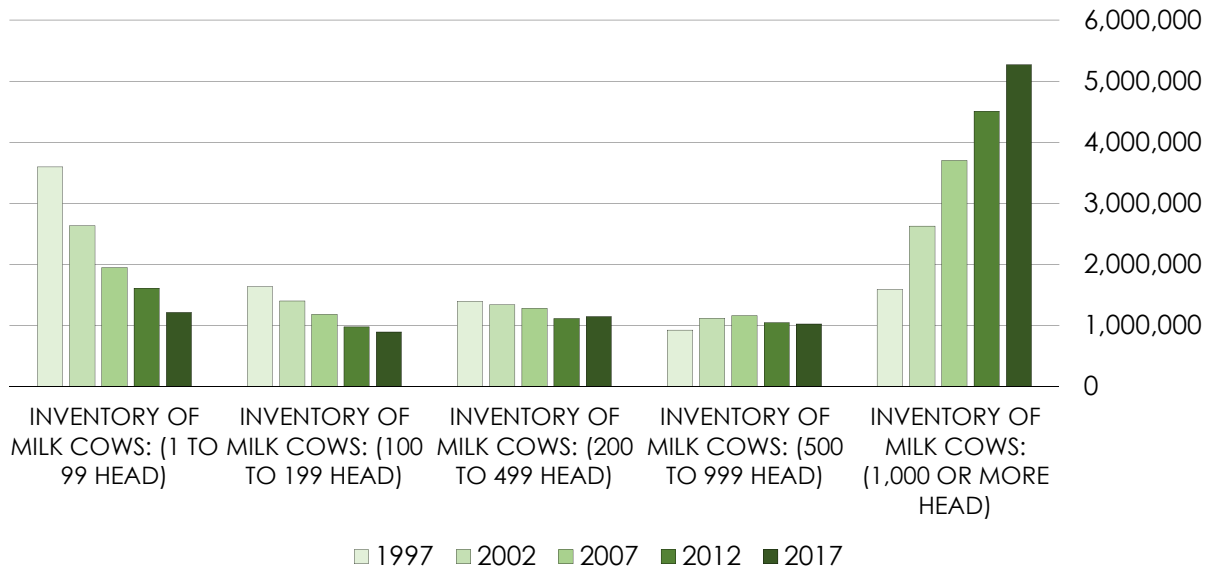
10

- 1) "large farms" → multi-site dairy agribusinesses
- 2) "family ownership" → non-family partnerships
- 3) external equity financing → no longer relying solely on retained earnings for expansions
- 4) No longer constrained to one milkshed → necessary to escape local processing capacity constraints
- 5) Larger % of milk by dairies that are not 'last-generation' dairies → exists are increasingly involuntary



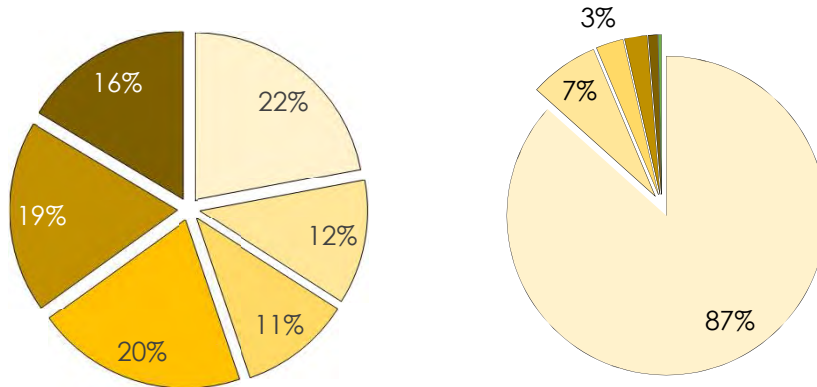
U.S. Dairy Herd by Size of Operation

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U.S. Dairy Herd by Size of Operation (2017)

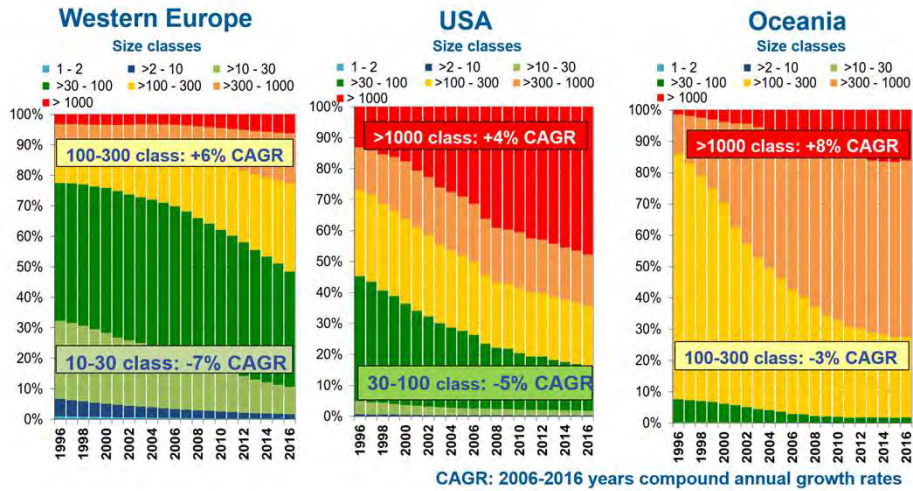
12



	< 200 HEAD	200 TO 499 HEAD	500 TO 999 HEAD	1,000 TO 2,499 HEAD	2,500 TO 4,999 HEAD	5,000 OR MORE HEAD
OPERATIONS	47,305	3,830	1,511	1,239	525	189
COWS	2,102,707	1,144,357	1,023,374	1,938,306	1,767,468	1,563,419

Dairy Herd Composition in 2016

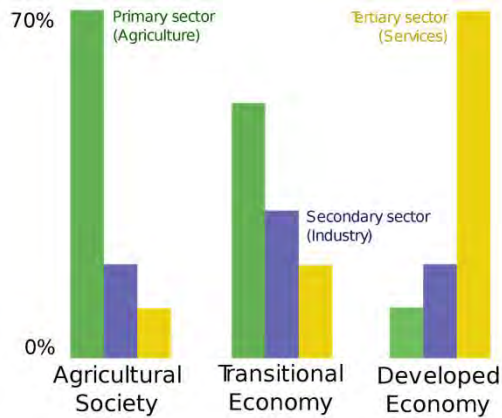
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Source: IFCN

Agricultural 'consolidation' is as old as the civilization itself

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Agricultural surplus meant there was enough food around to feed soldiers, priests, artisans, government...
 So why are we lamenting consolidation?

Dairy farm consolidation in United States under different exit rate scenarios

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Year	3%	7%	10%	15%
2018	37,468	37,468	37,468	37,468
2019	36,344	34,845	33,721	31,848
2020	35,254	32,406	30,349	27,071
2021	34,196	30,138	27,314	23,010
2022	33,170	28,028	24,583	19,559
2023	32,175	26,066	22,124	16,625
2024	31,210	24,241	19,912	14,131
2025	30,274	22,545	17,921	12,011
2026	29,365	20,966	16,129	10,210
2027	28,484	19,499	14,516	8,678
2028	27,630	18,134	13,064	7,376
2029	26,801	16,864	11,758	6,270
2030	25,997	15,684	10,582	5,330

Block-Barrel Spread is hurting Upper Midwest dairy producers

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Block-Barrel Spread

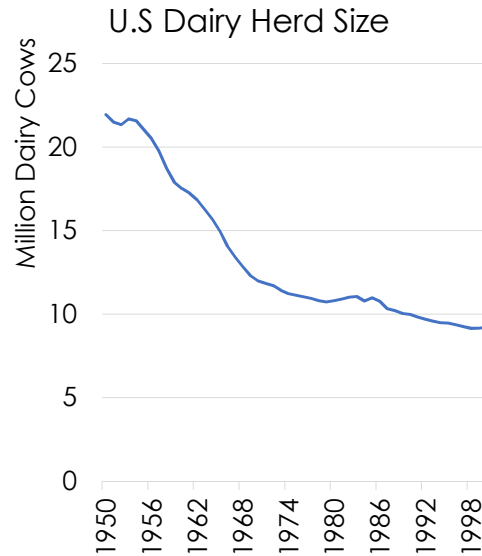
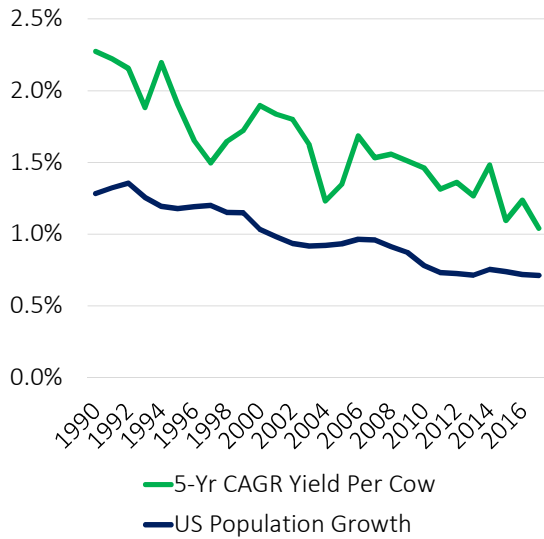


Barrel Cheese Sales reported in NDPSR (4 week moving average)



Implications of Cow Productivity Gains vs. Population Growth Rate

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Cow Productivity Gains vs. U.S. Population Growth Rate: Implications

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Supply

Milk pounds growth: $23,000 \text{ lbs/cow} \times 1\% \times 9,400,000 \text{ cows} = 2.16$ billion lbs

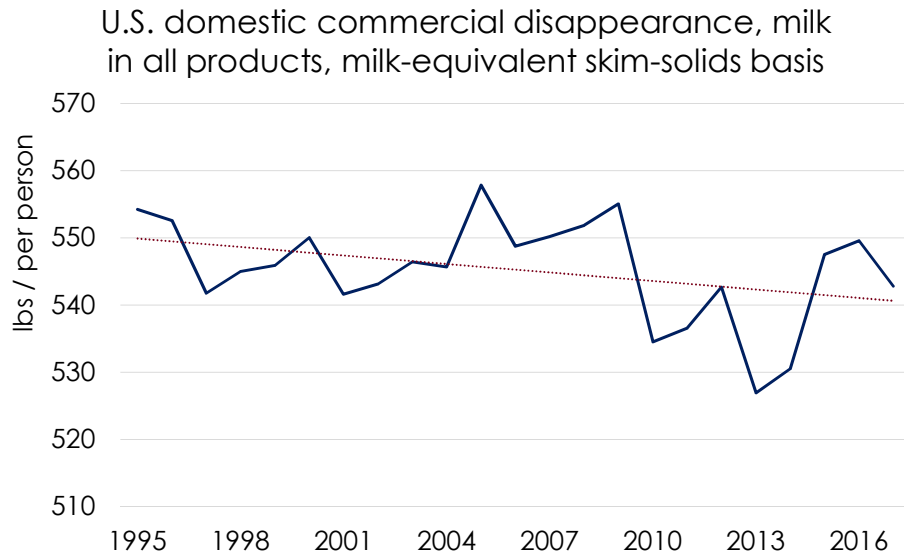
1.2% yield growth (276 lbs/cow or 0.75 lb/cow/day) → 2.6 billion lbs

1.5% yield growth (345 lbs/cow or 0.95 lb/cow/day) → 3.2 billion lbs

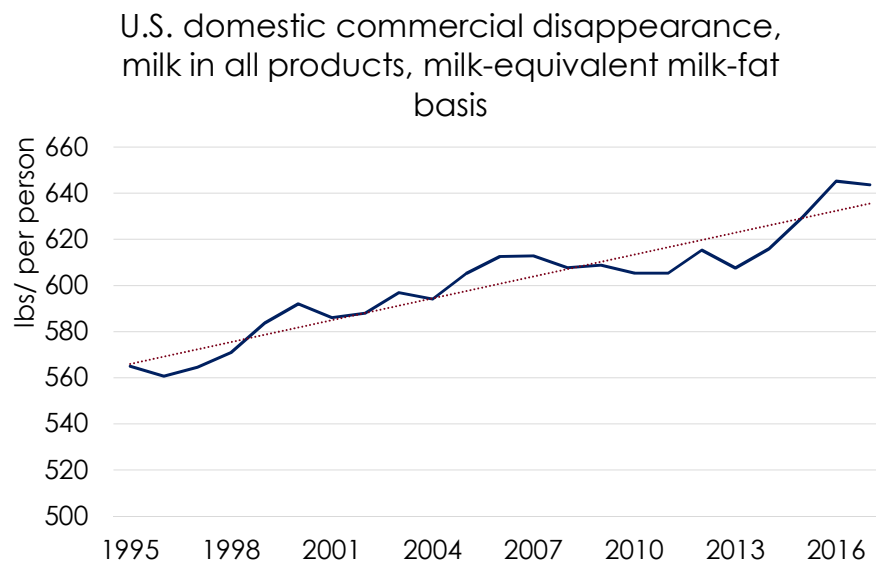
Demand

???

Historical U.S. per capita dairy consumption 19



Historical U.S. per capita dairy consumption 20



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Cow Productivity Gains vs. U.S. Population Growth Rate: Implications

Supply

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Demand

Using per capita commercial disappearance, milk in all products, skim-solids basis (no per capita consumption growth)

542 lbs / per person \times 330 million \times 0.7% → 1.25 bil lbs

560 lbs / per person \times 330 million \times 0.7% → 1.29 bil lbs

Milk-fat basis

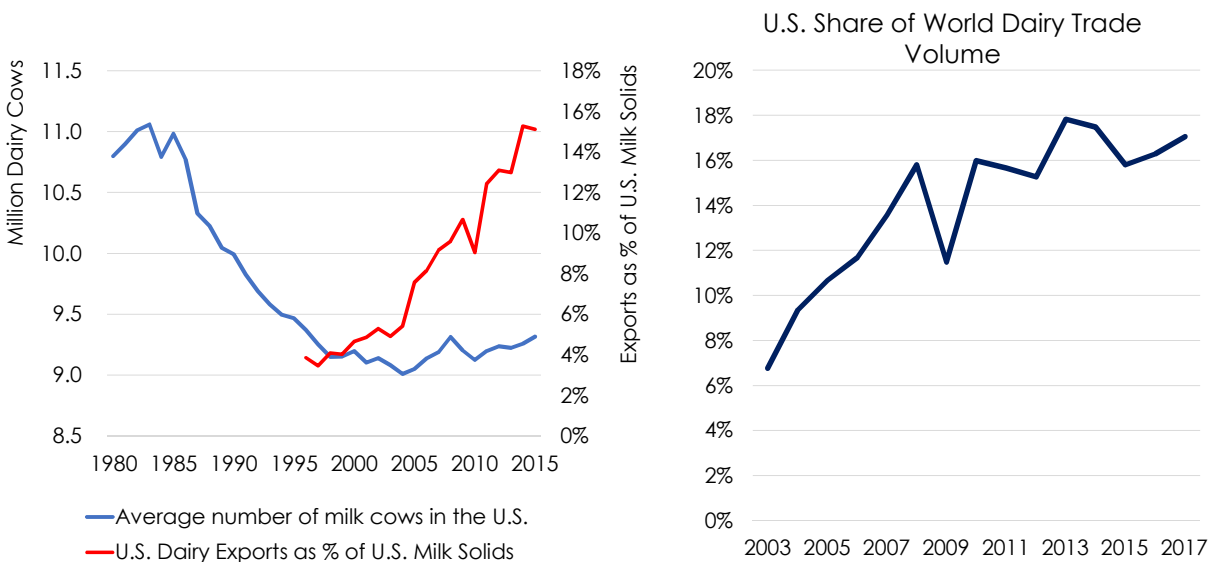
643 lbs / per person \times 330 million \times (0.7% + 0.5% per head) → 2.5 bil lbs

643 lbs / per person \times 330 million \times (0.7% + 1% per head) → 3.6 bil lbs

643 lbs / per person \times 330 million \times (0.7% + 2% per head) → 4.2 bil lbs

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Why was the herd stable since 2000?



Golden era of U.S. exports lasted until 2015, when EU abolished milk quotas

Exports growth as % of milk production growth

Period	Milk-Fat Basis	Skim-Solids Basis
2007-2017	13%	59%
2007-2014	34%	79%
2014-2017	-31%	18%



To keep the U.S. dairy herd stable, U.S. needs to exports 40-50% of incremental skim solids (protein & lactose). The single most important reason why U.S. dairy producers did not enjoy decent profit margins since 2015 are languishing exports. Without exports, markets need to depress the milk price sufficiently to incentivize herd contraction.



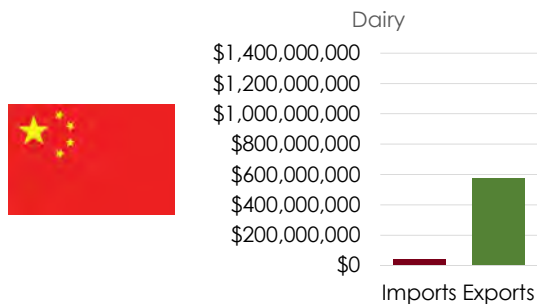
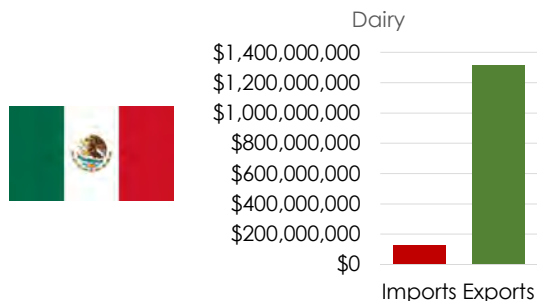
Most-favored-nation (MFN): treating other people equally. Under the WTO agreements, countries cannot normally discriminate between their trading partners. **Grant someone a special favor (such as a lower customs duty rate for one of their products) and you have to do the same for all other WTO members.**

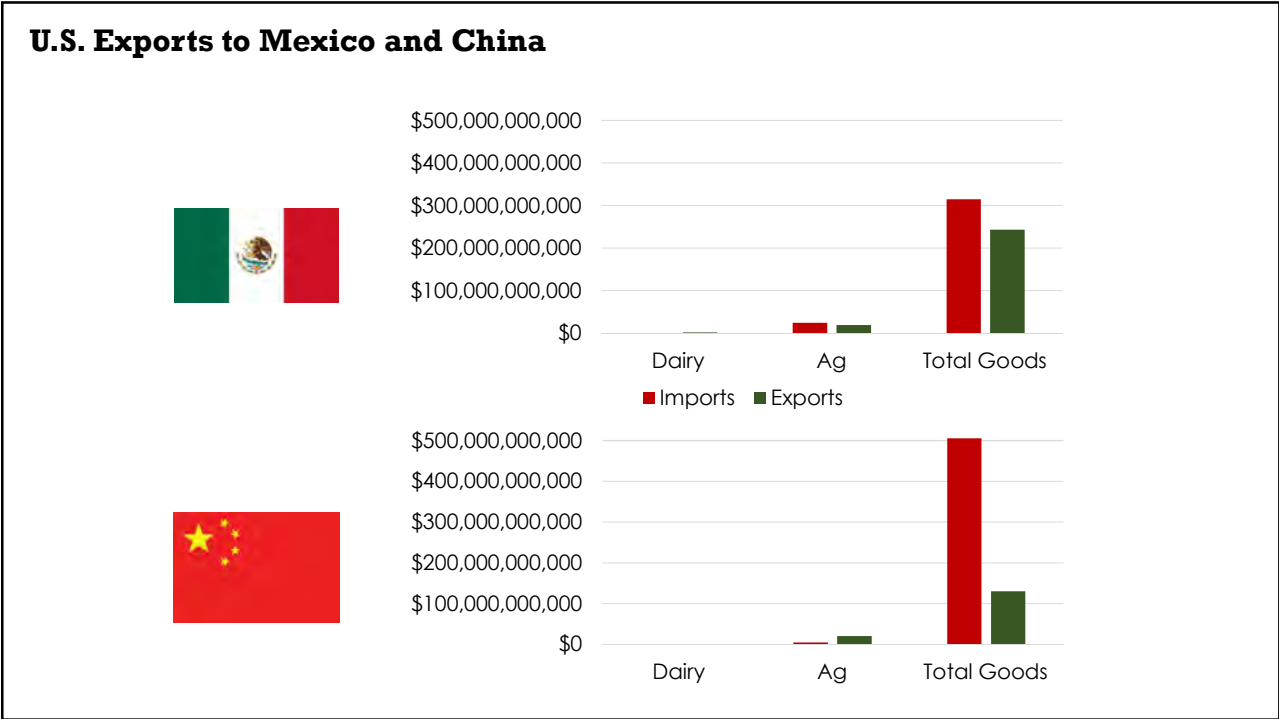
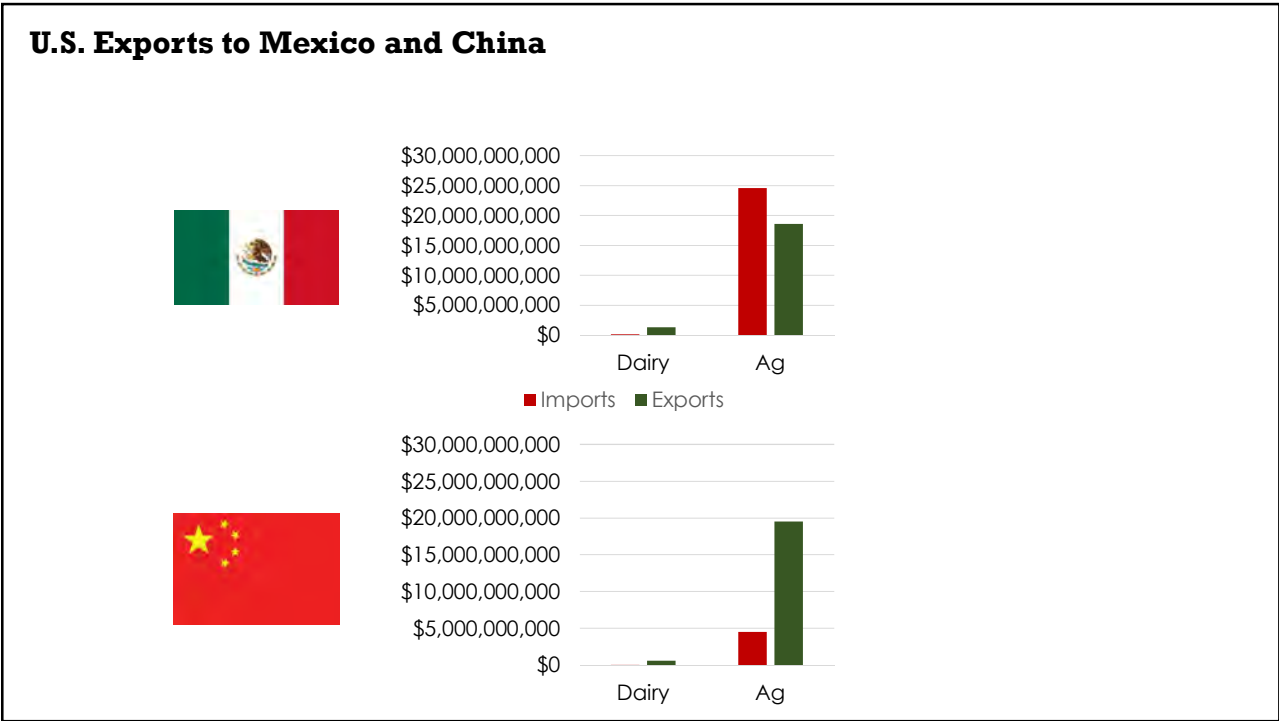


Do these events confuse you?



U.S. Exports to Mexico and China





2019 Trade Policy Agenda
and
2018 Annual Report
of the President of the United States on
the Trade Agreements Program



Office of the United States Trade Representative
Ambassador Robert E. Lighthizer

Source: https://ustr.gov/sites/default/files/2019_Trade_Policy_Agenda_and_2018_Annual_Report.pdf

“The current healthy state of the U.S. economy – and the recent boom in employment, including manufacturing employment – shows that the **U.S. government can and should adjust trade policy as necessary to avoid the type of challenges inherited by this Administration. Trade policy, like tax policy, must reflect the wishes, concerns, and priorities of the American people** – and should not be dictated by technocrats who are not responsible to Americans. The United States remains an independent nation, and our trade policy will be made here – not in Geneva. **We will not allow the WTO Appellate Body and dispute settlement system to force the United States into a straitjacket of obligations to which we never agreed.**”

Meanwhile in China...



迪士尼中国

2013-9-2 17:31 专业版微博



#小熊维尼的智慧# 找到一样你所钟爱的事物，然后，永不放手。Find the thing you love and stick with it.



Xi Jinping becomes most powerful leader since Mao with China's change to constitution

Rare accolade puts Xi's Thought on Socialism with Chinese Characteristics into Communist charter and sets him on course for indefinite spell in power

Is Xi or isn't Xi? Who said it - Jinping or Mao Zedong?



China's Communist party enshrines Xi Jinping ideology in constitution - video



REUTERS

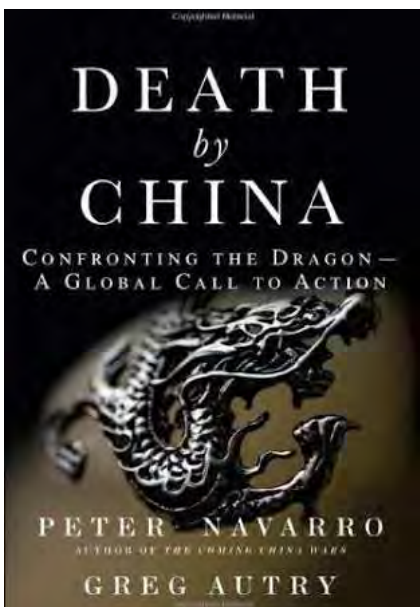
Business Markets World Politics TV More

WORLD NEWS OCTOBER 12, 2018 / 4:49 PM / 9 MONTHS AGO

U.S. security adviser Bolton vows tougher approach to China

5 MIN READ

WASHINGTON (Reuters) - U.S. national security adviser John Bolton has vowed to further intensify the Trump administration's tough approach to China, saying Beijing's "behavior needs to be adjusted in the trade area, in the international, military and political areas."



South China Morning Post

Top US negotiator Robert Lighthizer 'read Chinese the riot act' to get trade talks back on track, Larry Kudlow says

- US trade representative was not pleased when deputy-level negotiations hit an impasse last week, according to the White House economic adviser
- Kudlow appeared optimistic during an interview on CNBC, citing 'terrific' progress in talks


Owen Churchill
Updated: Friday, 1 Mar, 2019 11:31pm



US Trade Representative Robert Lighthizer reportedly read the riot act to Chinese delegates during a stand-off in trade negotiations last week. Photo: Bloomberg

“Our Sovereign Lord the King
chargeth and commandeth all
persons, being assembled,
immediately to disperse
themselves, and peaceably
depart to their habitations, or
their lawful business, upon the
pains contained in the Act made
in the first year of King George
the First for preventing tumults
and riotous assemblies.”


GOD SAVE THE KING



A black and white cartoon showing a bear on the left and an eagle on the right. The bear has a hammer and sickle symbol on its forehead. Two signs are attached to the bear: one says "RESPONSIBLE STATEMENT?" and the other says "DEEPENING SUSPICIONS".

Does U.S. still have a primary strategic adversary?

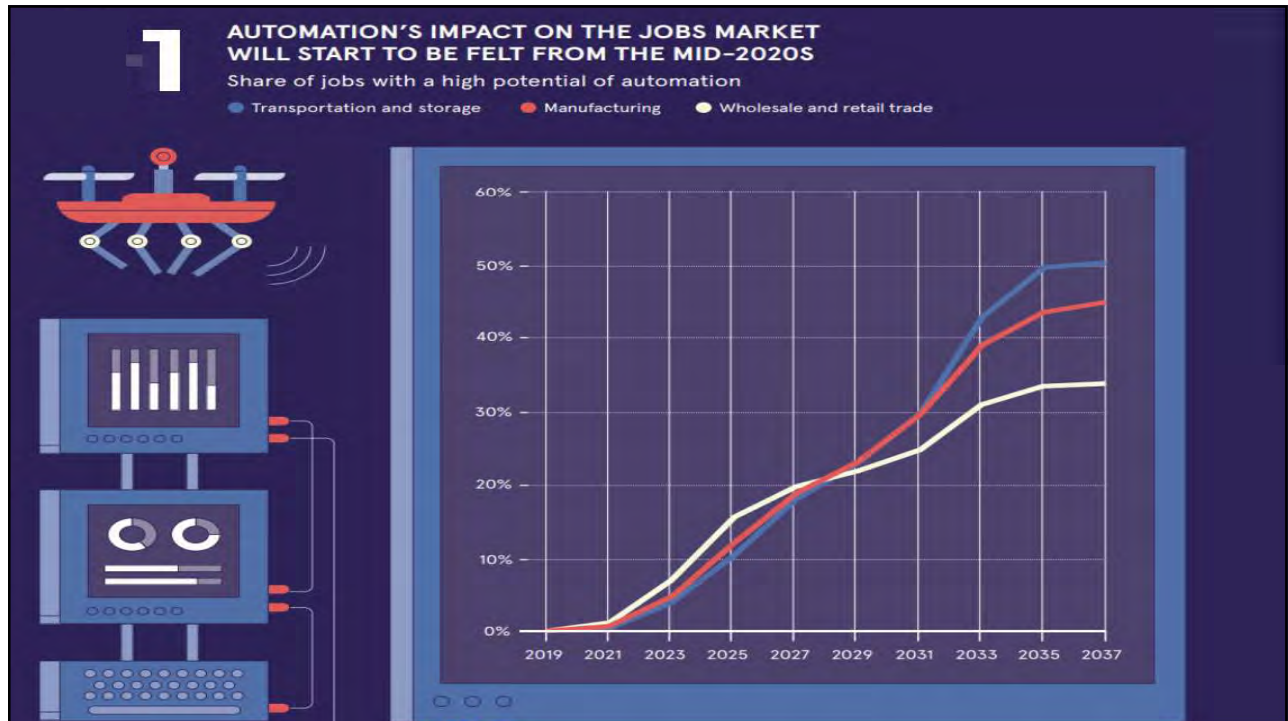
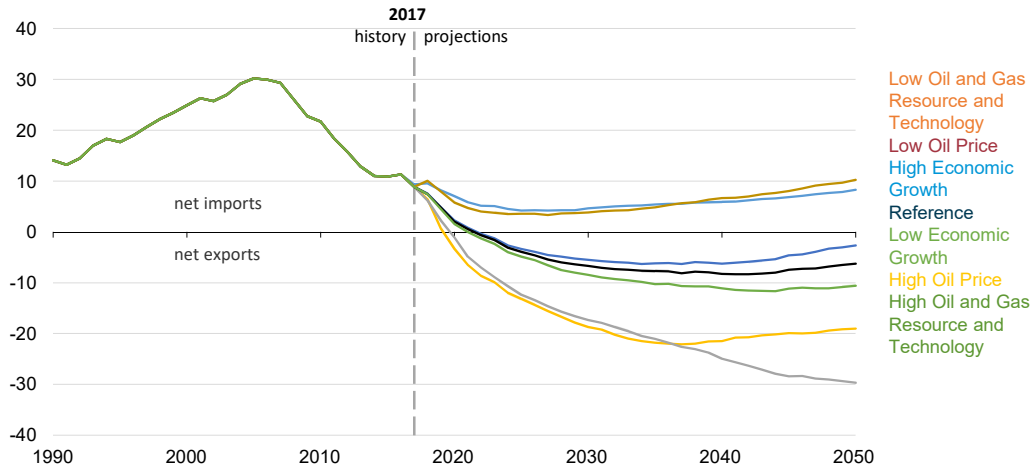
If that is China, what is strategy for the new Cold War?



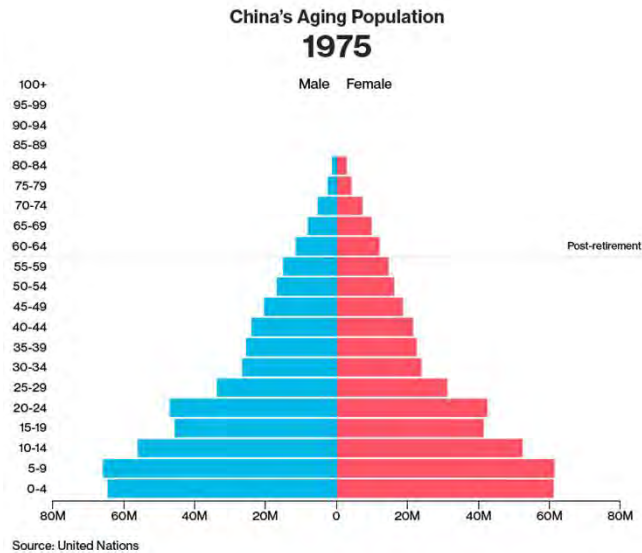
A cartoon showing a yellow dragon with a red star on its chest and a bald eagle with an American flag on its chest. They are facing each other at a table, appearing to be in a tense conversation.

U.S. is Energy Independent

Net energy trade
quadrillion British thermal units



World is graying...



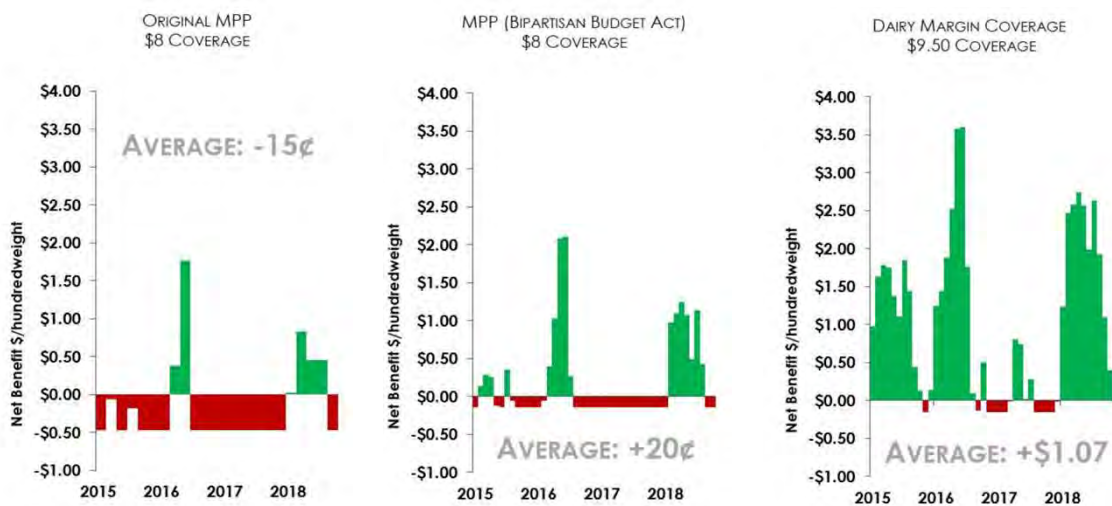
The world we face

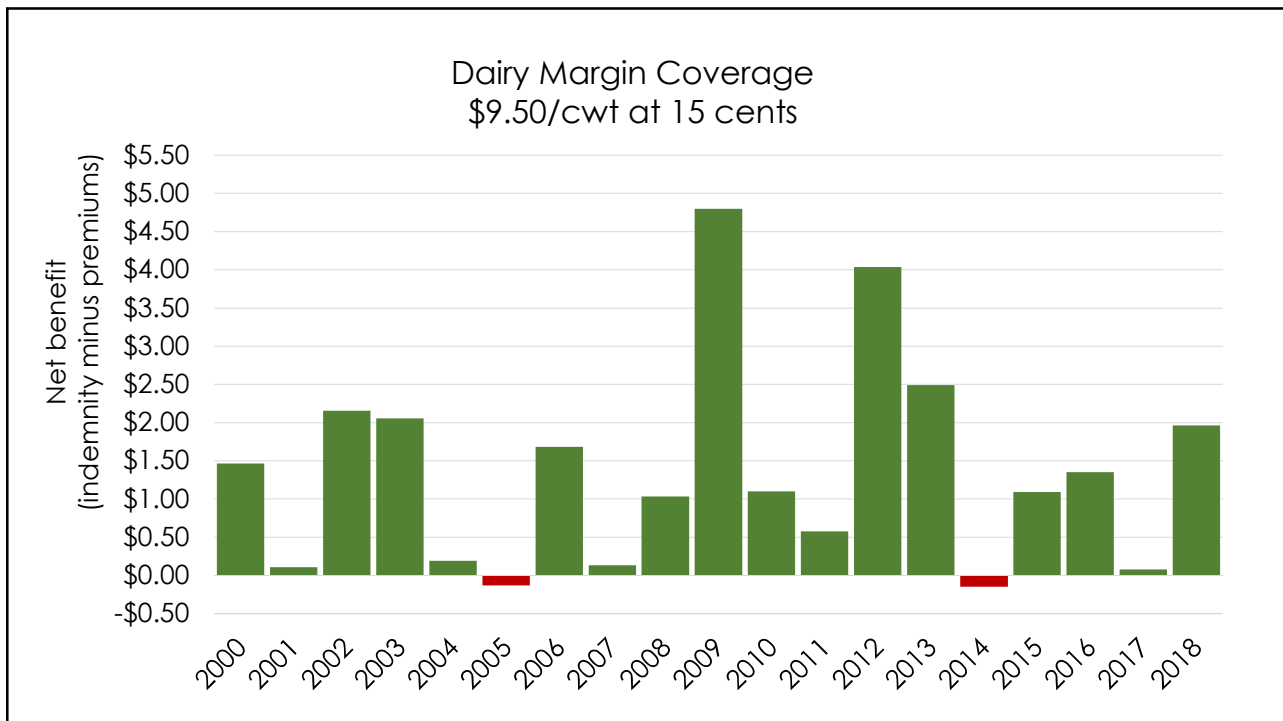
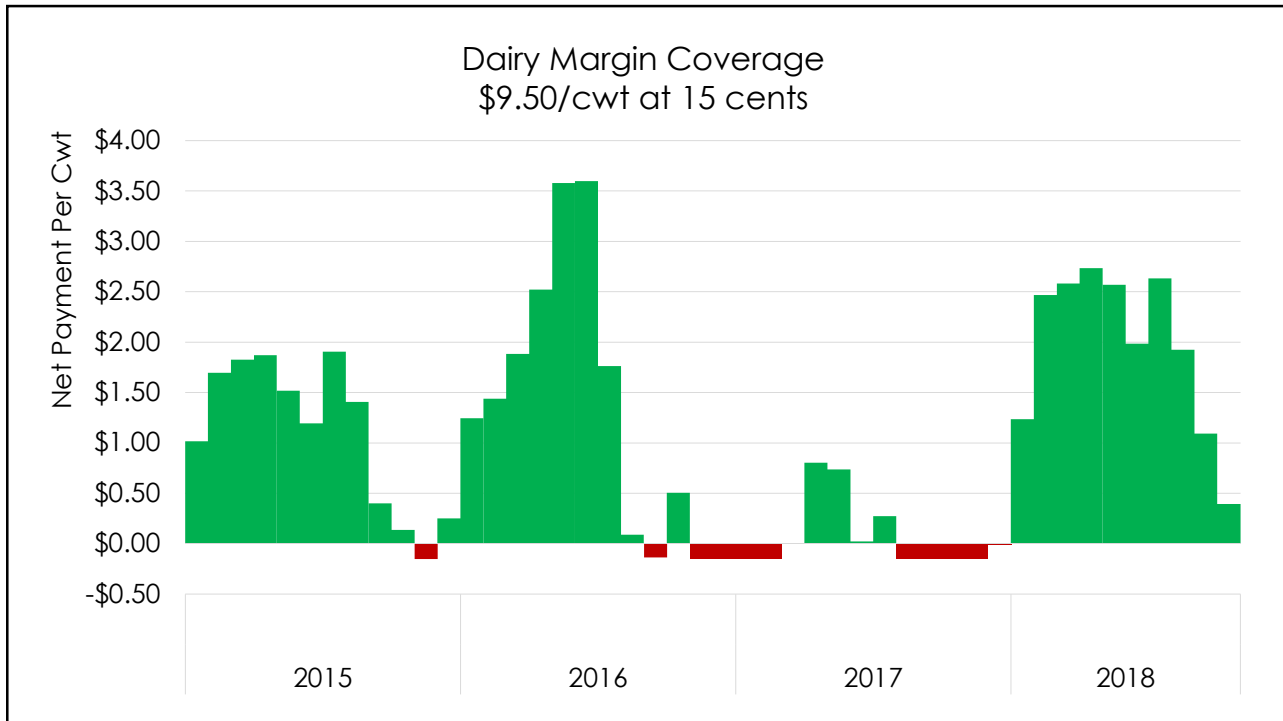
- Causes:
 - change in strategic adversary and optimal neutralization strategy (Russia to China)
 - Advances in artificial intelligence / robotics and impact on labor force
 - Energy independence
 - Aging population in countries providing cheap labor (e.g. China)
- Consequences:
 - Withdrawal from Trans Pacific Partnership and Paris Climate Agreement
 - Making conciliatory overtures to North Korea, abandoning Iraq, Syria, Afghanistan
 - New aggressively negotiated bilateral and regional trade agreements: South Korea, USMCA, Japan. Southeast Asia may follow
 - Trump wins 2nd term

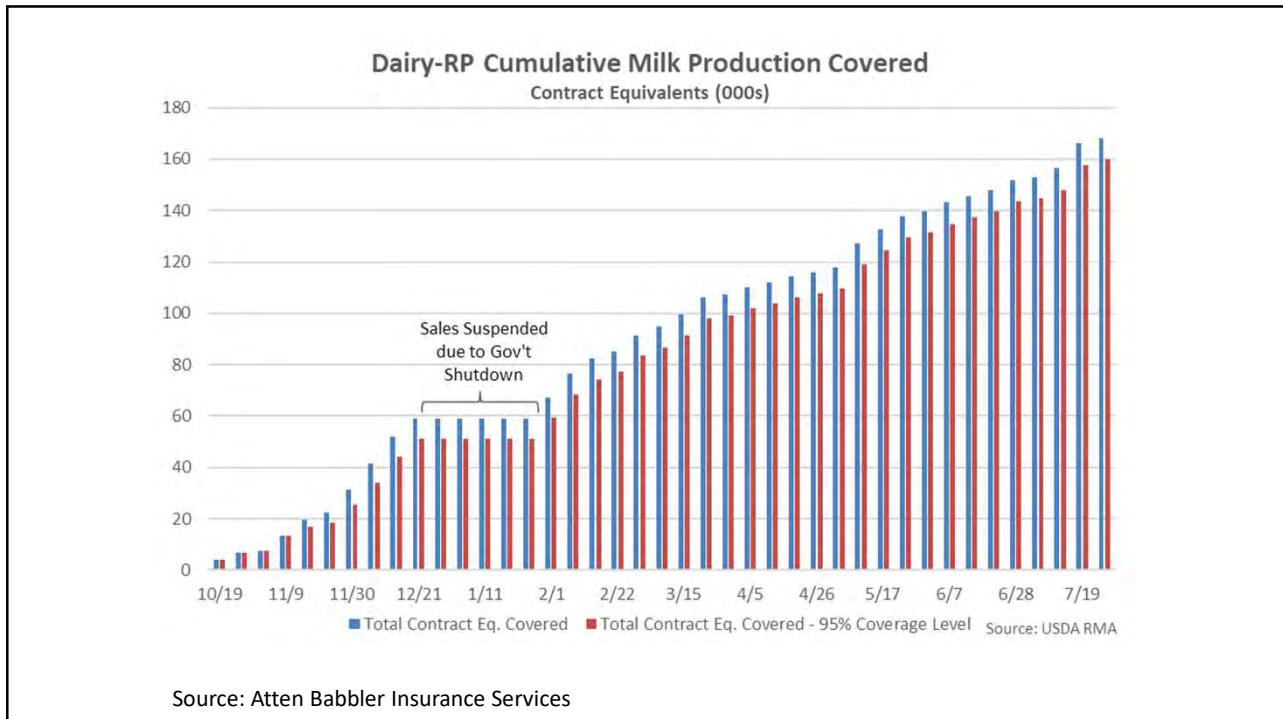
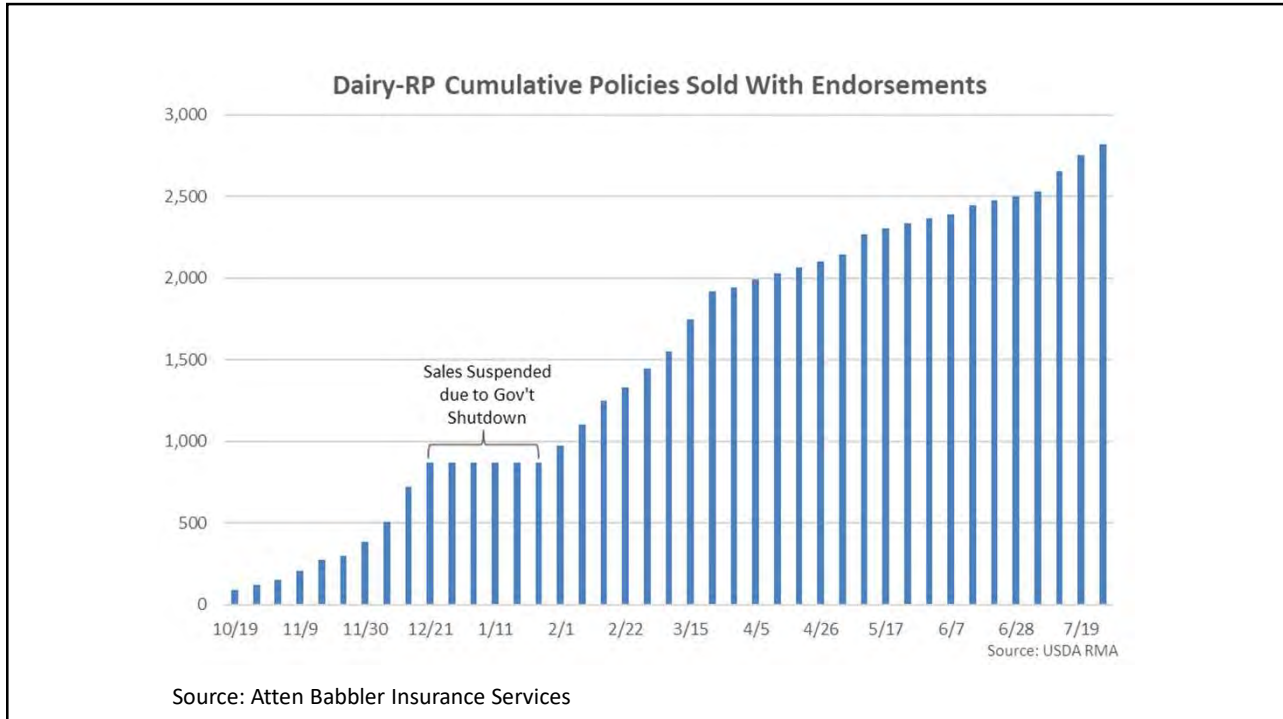
Implications for dairy

- USMCA will go through, tariffs will be dropped, exports to Mexico will resume, likely already in 2019
- FTA with Japan in 2019 or 2020
- FTA with Britain in 2020 – on U.S. terms
- 50% chance of deal with China in short-term. Strict implementation mechanism –U.S. to start making noise again after 2020 presidential elections
- Global recession coming soon (2020-21?) – global demand for dairy may be affected. U.S. may *not* import the recession.

Dairy Margin Coverage is a **massive** improvement over MPP



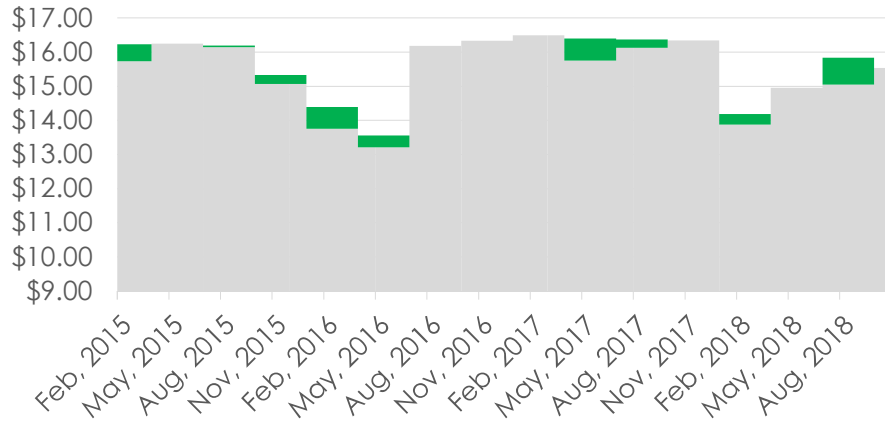




Historical Performance

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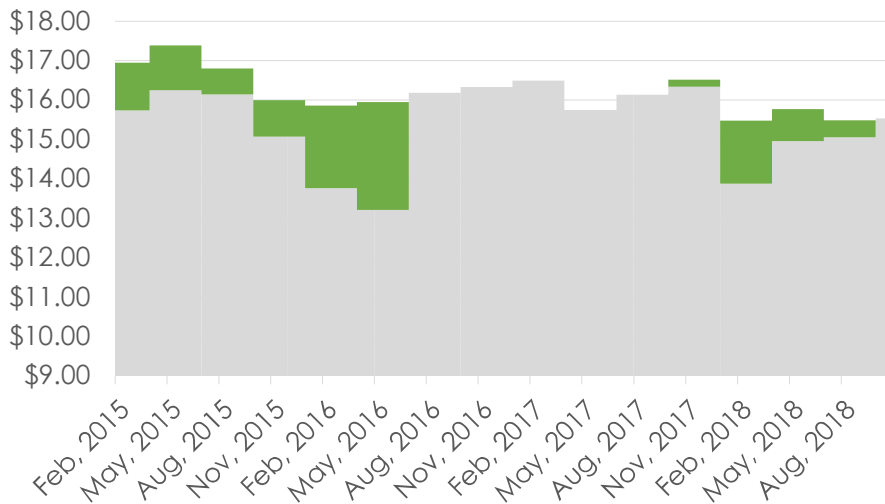
DRP Gross Indemnities (Assuming No Yield Shocks)
 Insurance Strategy: 100% Class III, 95% Coverage Level, Always
 Protect Front Quarter



Historical Performance

46

DRP Gross Indemnities (Assuming No Yield Shocks)
 Insurance Strategy: 100% Class III, 95% Coverage Level, Always
 Protect Most Distant Quarter



The road ahead

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- Global and US Milk Production slowing, prices expected \$1-\$1.50 higher in 2019 vs 2018.
- Productivity gains, changes in dairy production models, liberalization of milk production in EU and trade disorders are factors driving consolidation in U.S.
- Recent changes in U.S. dairy safety net will likely slow down U.S. consolidation rates in Q4 2019 and later. As small dairy farms (under 300 cows) start feeling less pressure to exit, medium-size farms (500-2000 cows) will carry more of the burden for matching supply and demand, and we may see higher exit rate in this category.
- Adverse block – barrel spread will continue to burden Minnesota, and to some extent Wisconsin dairy sectors – regional exit rates likely to stay higher than national.



Thank You!

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