Trends in US Alfalfa Production, & Hay Exports

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Susanville – March 1, 2018

California Alfalfa Blog (sign up)

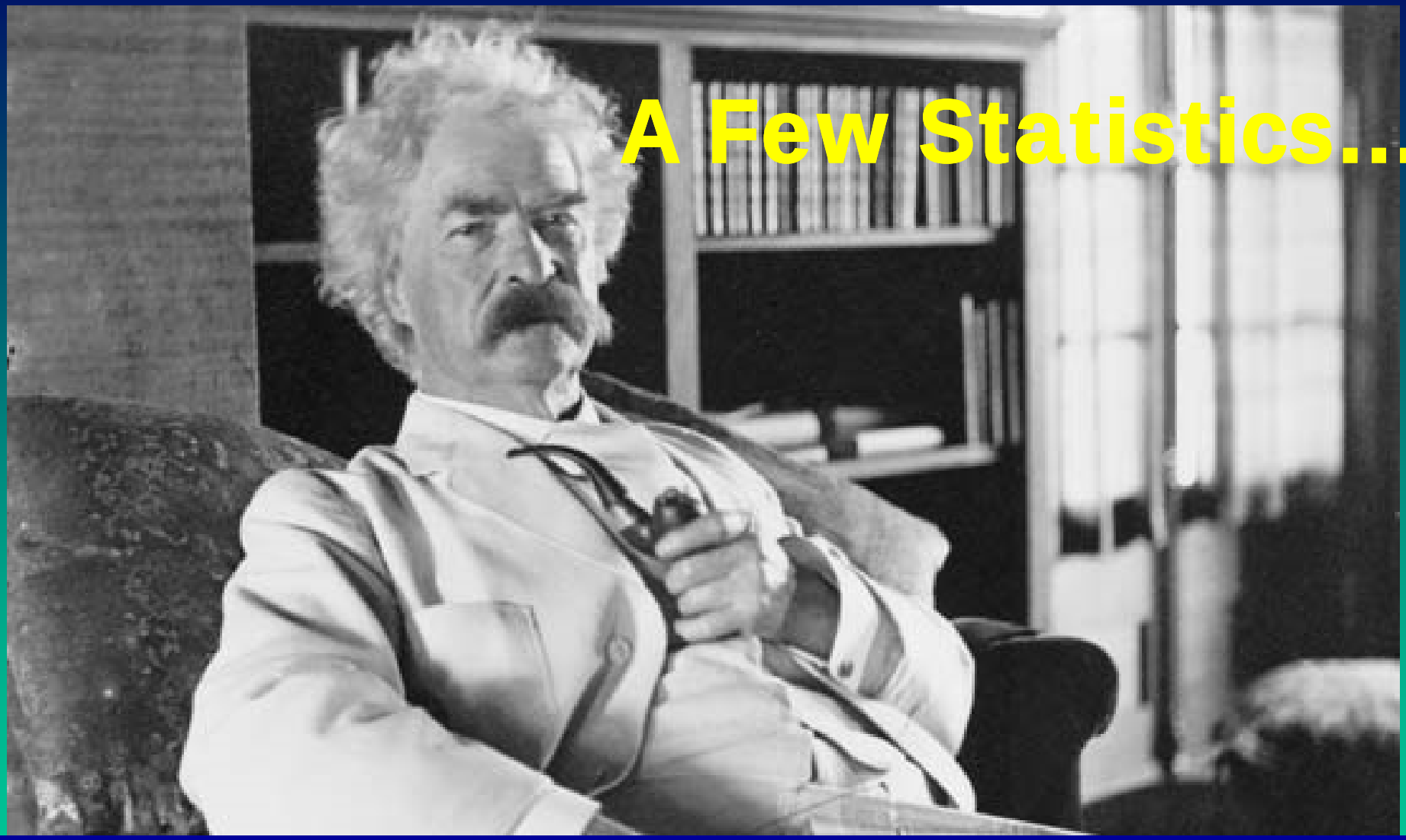
http://ucanr.edu/blogs/Alfalfa/

(google 'alfalfa blog')

California Alfalfa & Forage Symposium
Reno, November 27-29, 2018

Susanville – March 1, 2018

A Few Statistics…

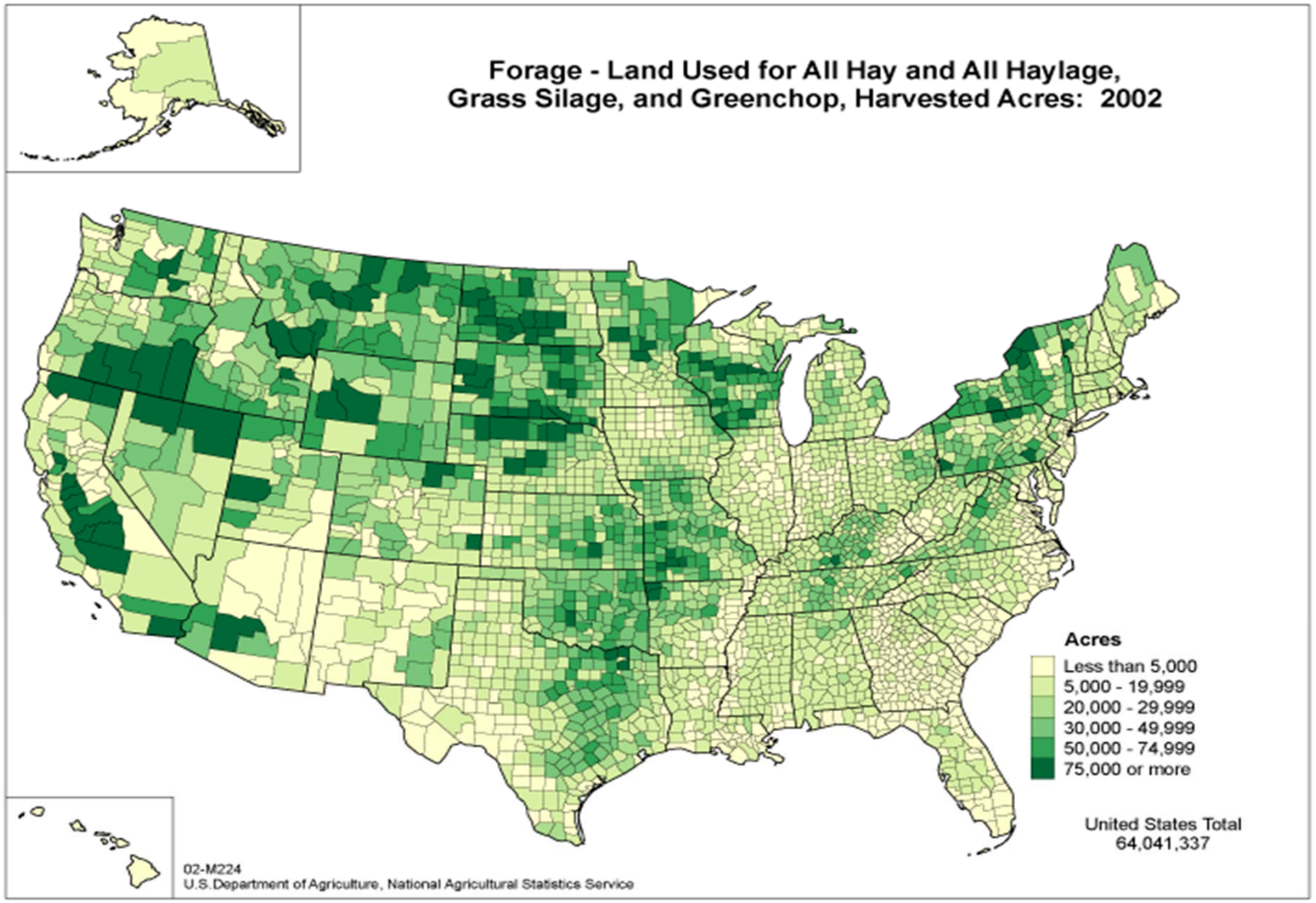


There are three kinds of lies: lies, damned lies, and statistics

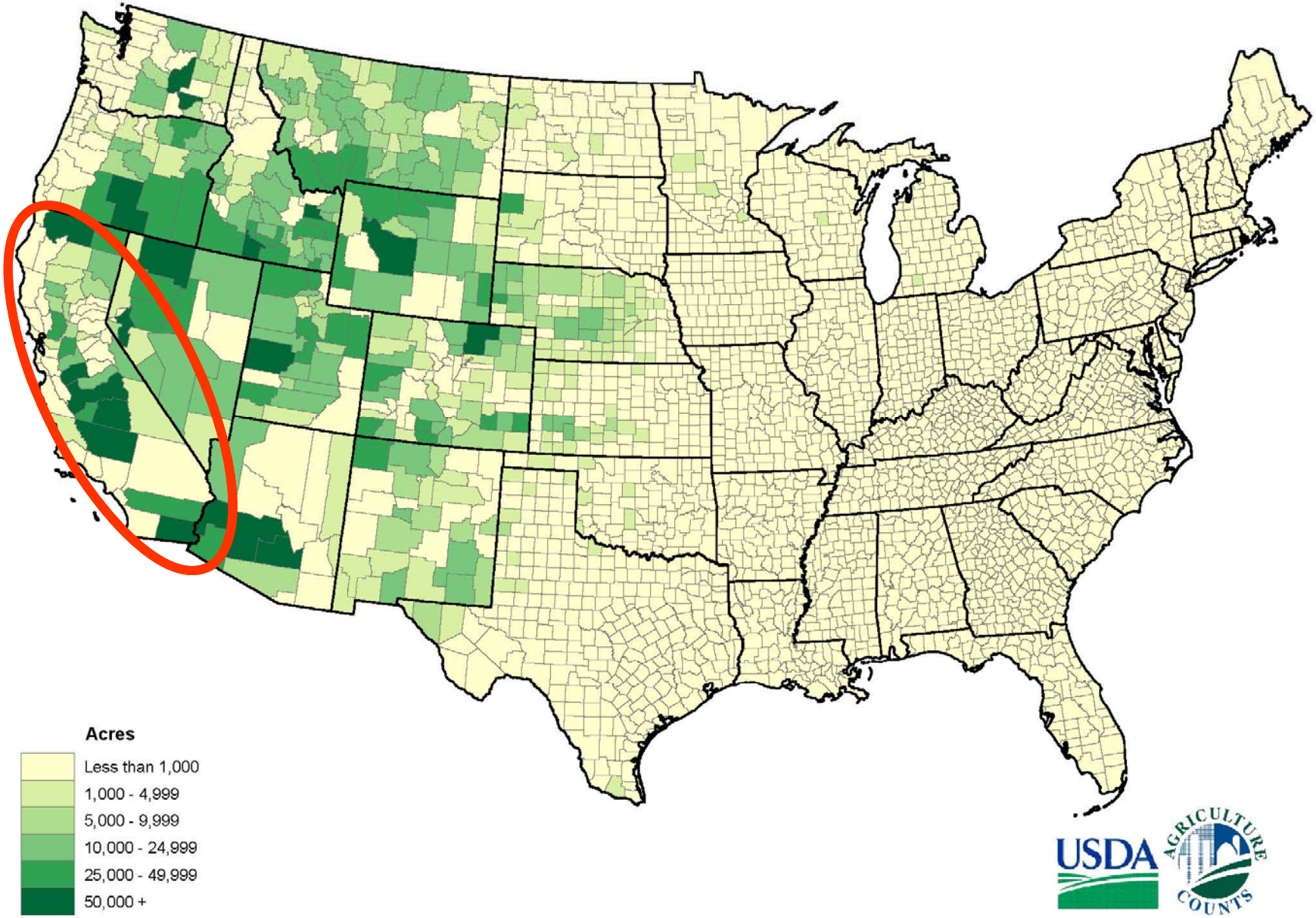
Mark Twain

Top 10 US Crops (Value of Production)				
Crop/Product	2014	2015	2016	RANK ($)
	($ Billion Dollars)			
Corn Grain	52.9	49.3	51.7	1
Cattle and Calves	71.0	78.7	64.4	
Milk and Cream	49.6	35.9	34.7	
Soybean	39.5	35.2	40.9	2
Hay/Forage (all)	19.0	16.5	15.6	3
Hay (alfalfa)	10.5	8.4	7.5	(4)
Wheat (all)	11.9	10.0	9.1	3(4)
Cotton (all)	5.1	4.0	5.6	5
Potatoes	3.9	3.9	3.9	6
Rice	3.1	2.4	2.4	7
Sugarbeet	1.4	1.0		8
Sorghum	1.7	2.1	1.3	9
Peanuts	1.1	1.2	1.1	10
All Field Crops	149.9	136.1	143.4	
All Fruit and Nuts	31.9	27.1		
Source: USDA-NASS				

Hay – Major Footprint in US



Irrigated Alfalfa Hay, Harvested Acres: 2012



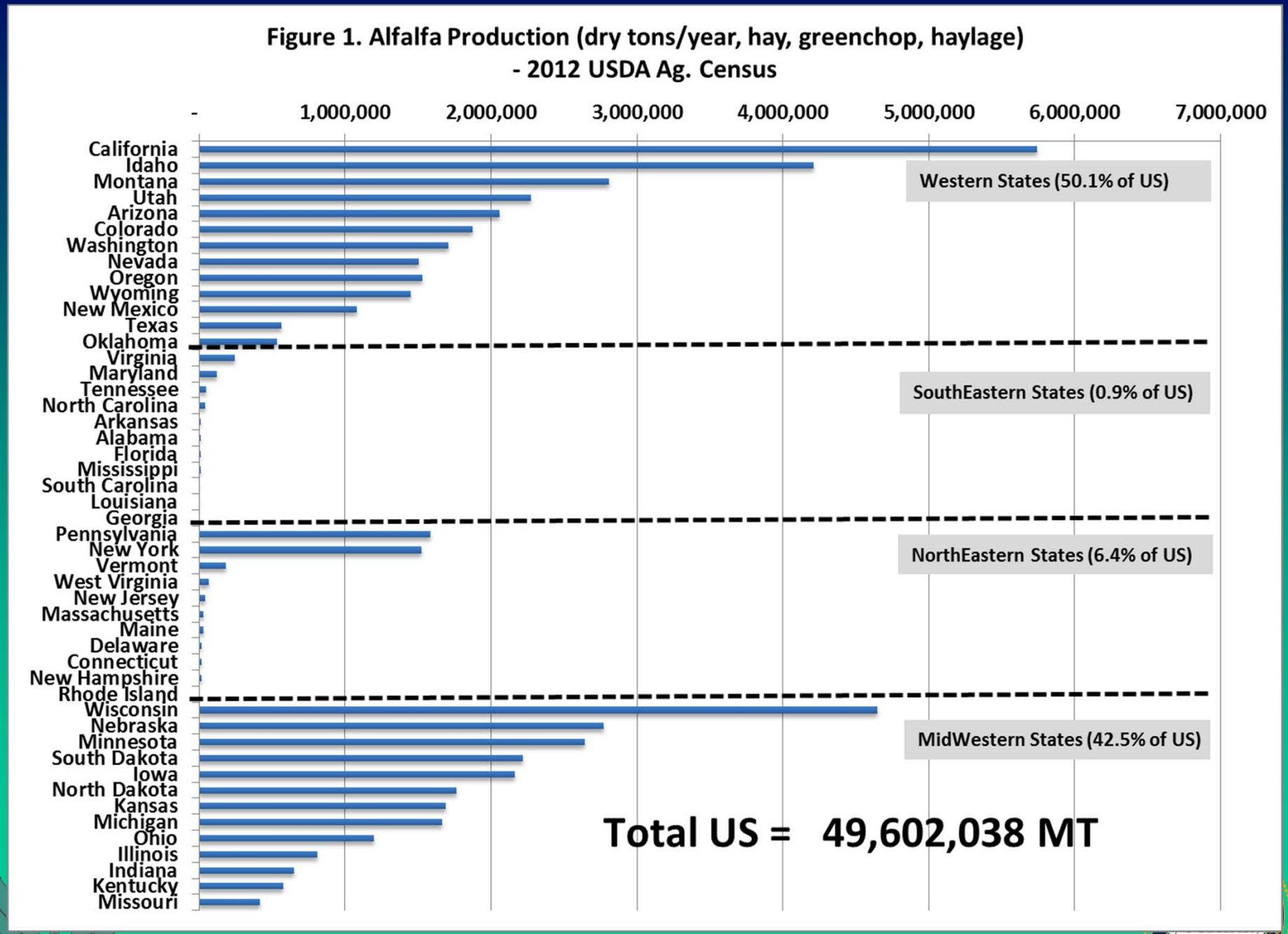
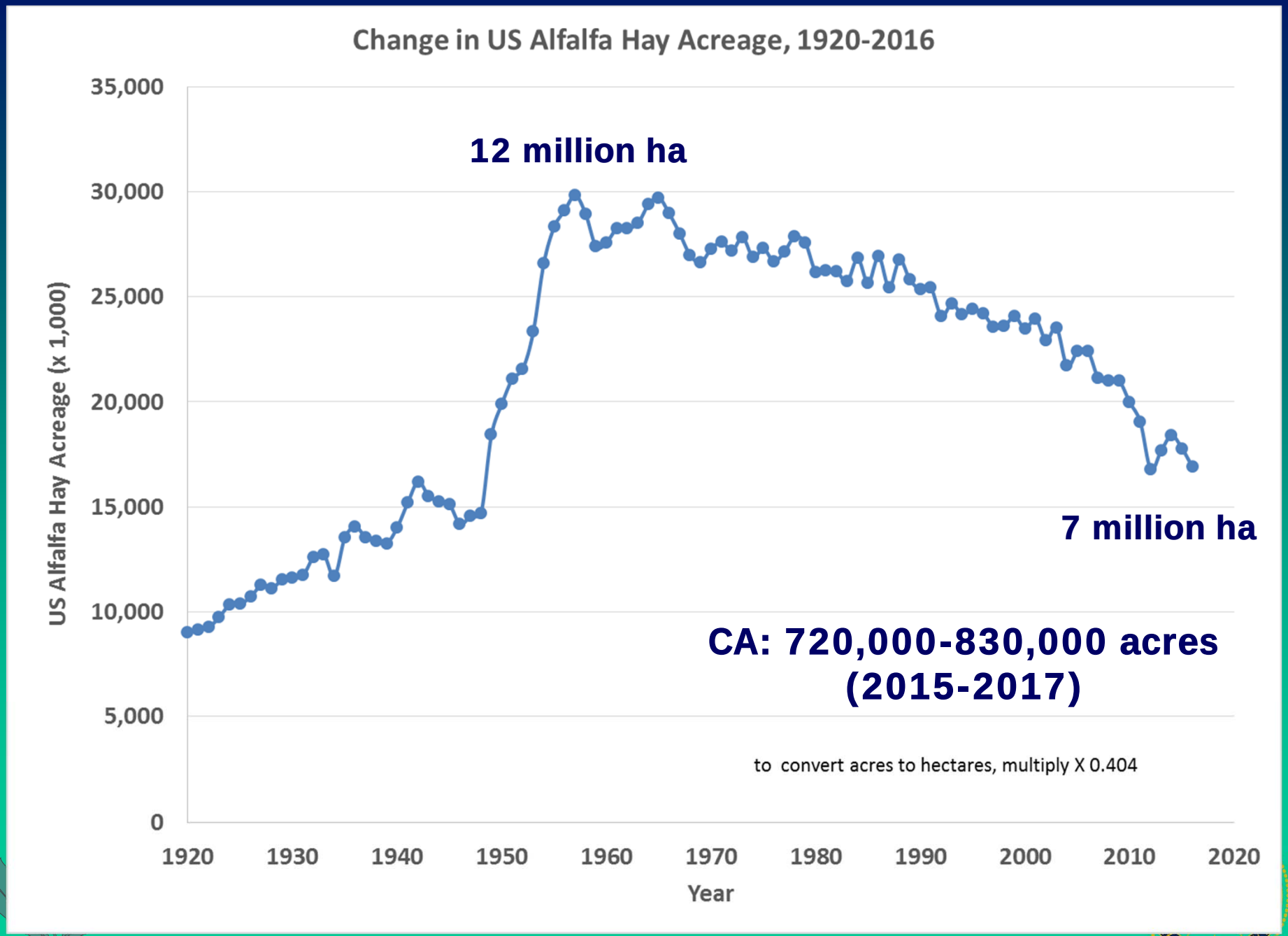
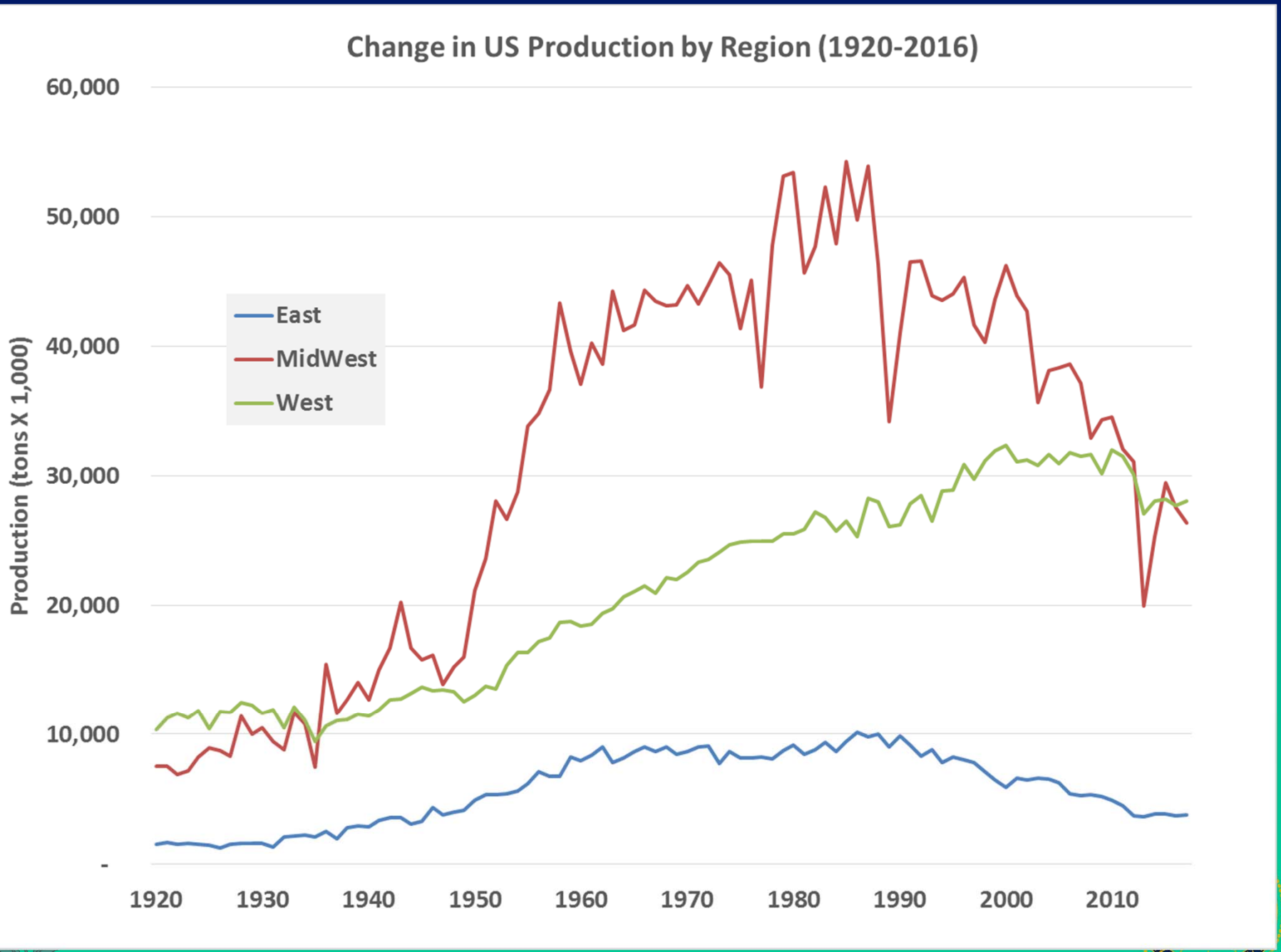
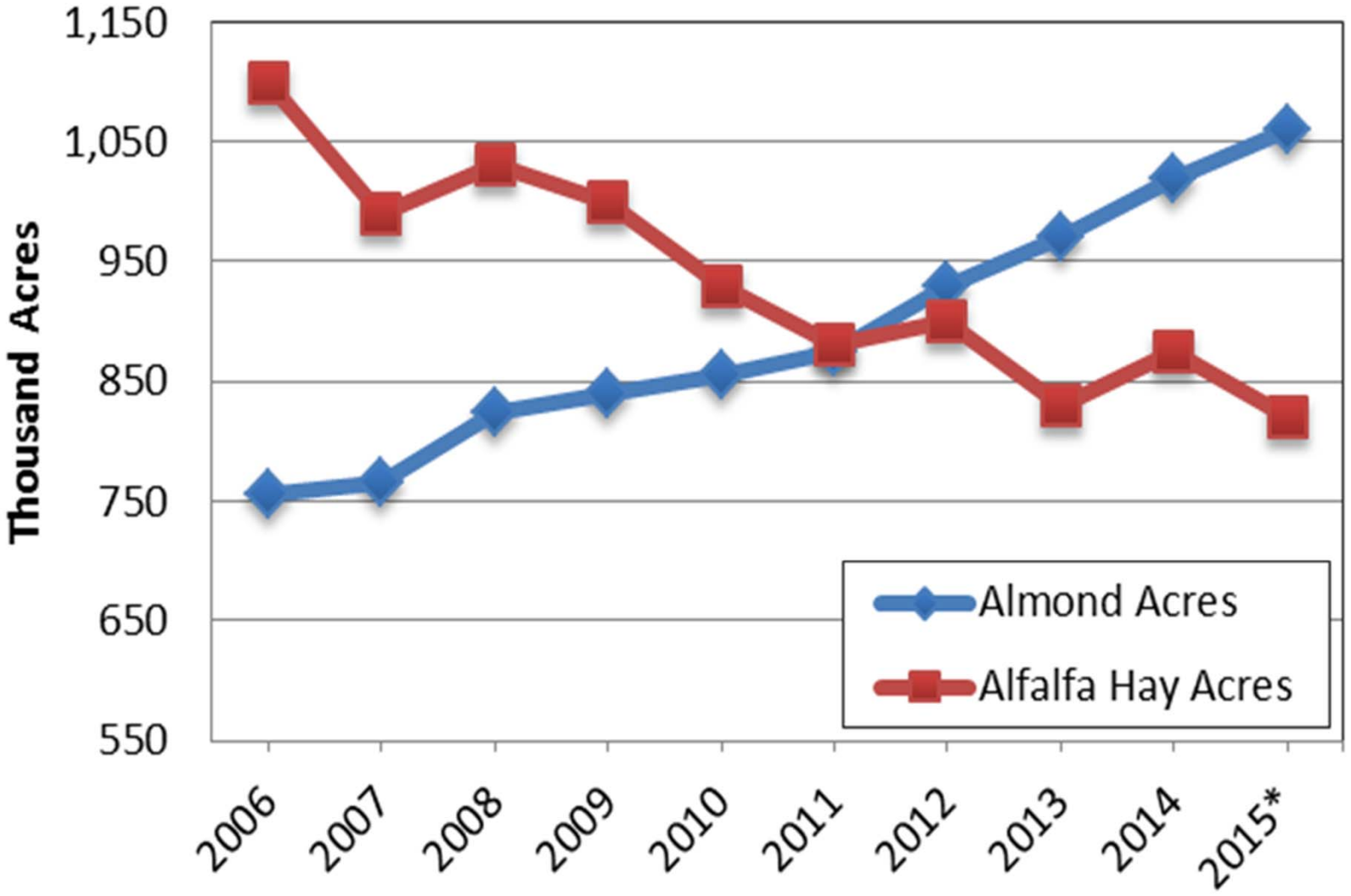


Figure 1. Alfalfa Production (dry tons/year, hay, greenchop, haylage)
- 2012 USDA Ag. Census
-
1,000,000
2,000,000
3,000,000
4,000,000
5,000,000
6,000,000
7,000,000
California
Idaho
Montana
Utah
Arizona
Colorado
Washington
Nevada
Oregon
Wyoming
New Mexico
Texas
Oklahoma
Virginia
Maryland
Tennessee
North Carolina
Arkansas
Alabama
Florida
Mississippi
South Carolina
Louisiana
Georgia
Pennsylvania
New York
Vermont
West Virginia
New Jersey
Massachusetts
Maine
Delaware
Connecticut
New Hampshire
Rhode Island
Wisconsin
Nebraska
Minnesota
South Dakota
Iowa
North Dakota
Kansas
Michigan
Ohio
Illinois
Indiana
Kentucky
Missouri
Western States (50.1% of US)
SouthEastern States (0.9% of US)
NorthEastern States (6.4% of US)
MidWestern States (42.5% of US)
Total US = 49,602,038 MT

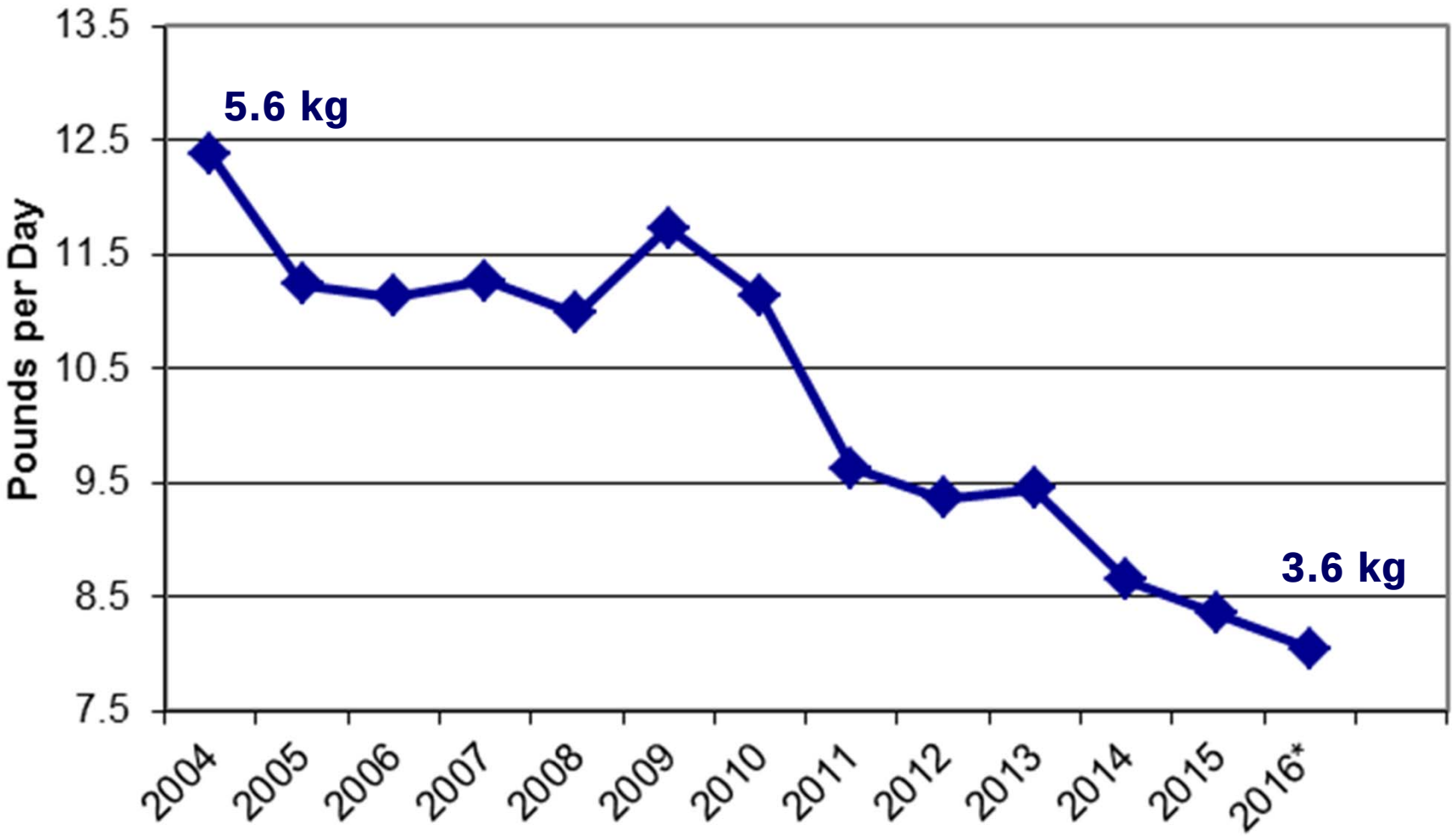

Change in US Alfalfa Hay Acreage, 1920-2016
US Alfalfa Hay Acreage (x 1,000)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010
2020
Year
12 million ha
7 million ha
CA: 720,000-830,000 acres
(2015-2017)
to convert acres to hectares, multiply X 0.404


Change in US Production by Region (1920-2016)
Production (tons X 1,000)
60,000
50,000
40,000
30,000
20,000
10,000
-
East
MidWest
West
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010

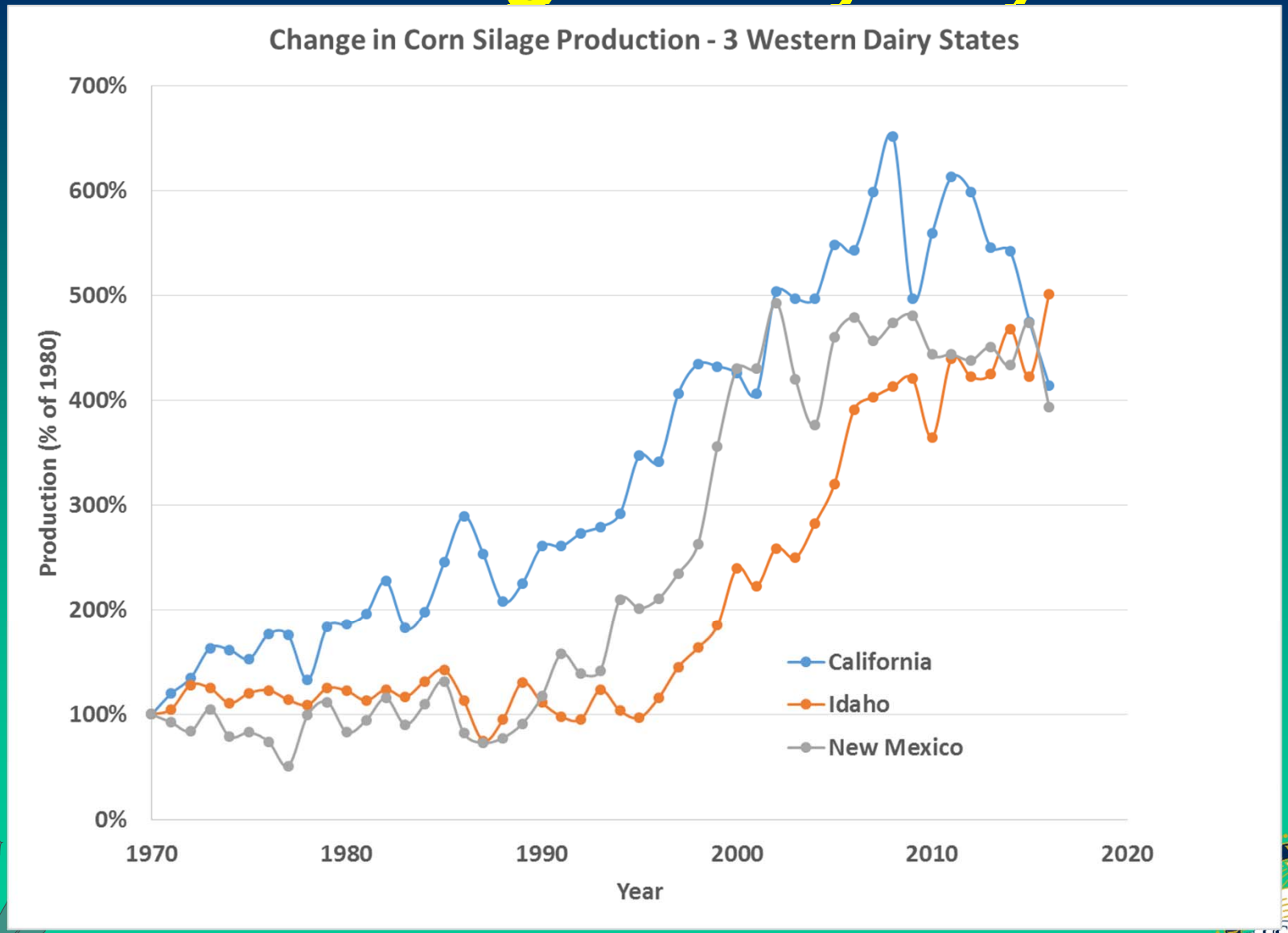
Alfalfa Hay VS Almond Acres in California 2006 to 2015



Source: USDA/NASS *Forecast


Average Pounds of Alfalfa Hay Fed per Head/per Day
to Milk Cows in California, 2004-2016
Pounds per Day
13.5
12.5
11.5
10.5
9.5
8.5
7.5
5.6 kg
3.6 kg
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016*
Source: CDFA
2016 - * Second Quarter

Corn Silage– CA, ID, NM



Why decline in Acres?

- Competition with other crops
  - Corn/Soy in Midwest
  - Permanent/specialty crops in California
- Competition in utilization
  - Corn silage, grains, concentrates (lower % in ration)
- Complexity of alfalfa production (labor, investment) compared with grains
- Water limitations (West)
- Opportunities for those remaining!

What about Exports?

Arizona hay grown for Export, Nov. ‘17

Large Bales – for export

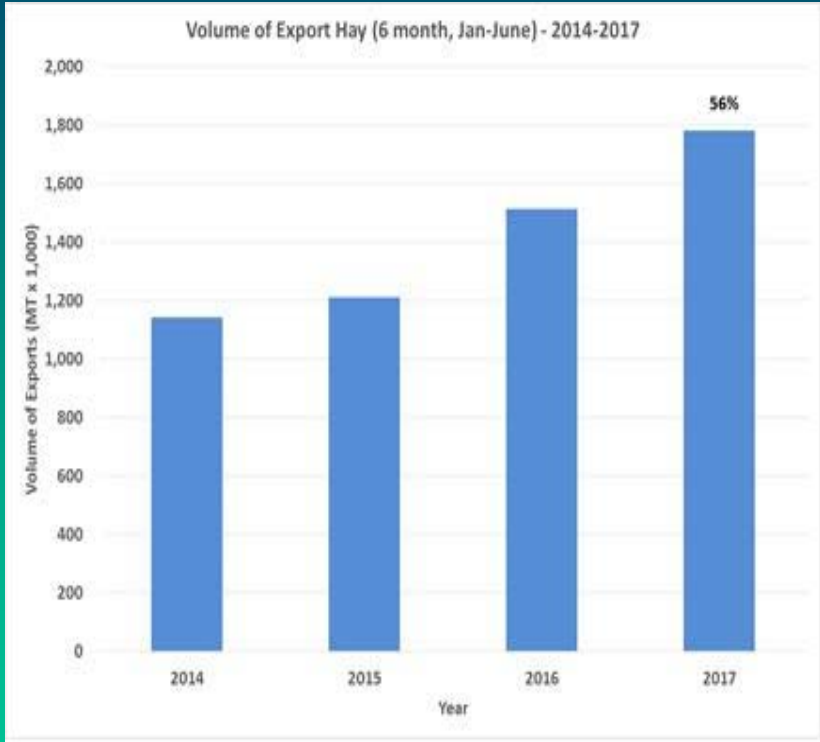
Exports

- In the past 10 years, exports have gone from a minor to a major component of Western US alfalfa.

Recent Export Trends (US)

ALFALFA HAY						
	Value ($ millions)		Percent Change	Volume (1,000 MT)		Percent Change
	2015	2016		2015	2016	
China/HK	317	358	12.9	929	1,153	24.1
Japan	202	198	-1.7	602	637	5.8
United Arab Em	58	81	40.6	223	320	43.6
Korea	61	64	5.1	195	227	16.6
Saudi Arabia	24	79	232.1	73	260	256.5
Total Exports	661	780	18.0	2,022	2,597	28.5
ALL HAY						
	Value ($millions)		Percent Change	Volume (1,000 MT)		Percent Change
	2015	2016		2015	2016	
Japan	498	469	-5.8	1,543	1,577	2.2
China/HK	379	428	13.1	1,126	1,401	24.4
Korea	260	245	-6.0	907	935	3.1
United Arab Em	96	110	15.3	329	399	21.4
Saudi Arabia	24	80	232.3	74	264	257.3
Total Exports	1,257	1,332	6.0	3,979	4,577	15.0

Value of Hay Export (Jan-June) – 4 year trend



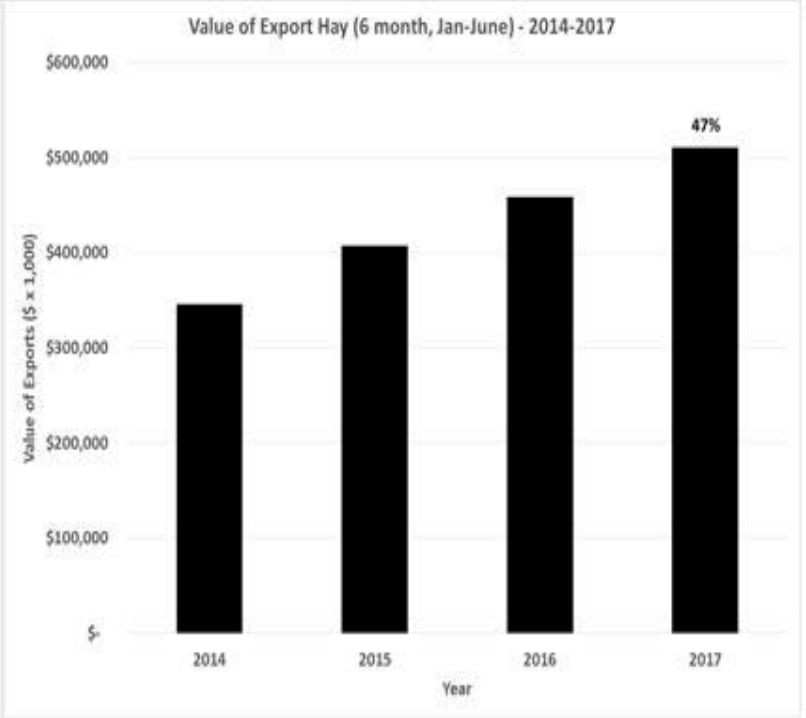
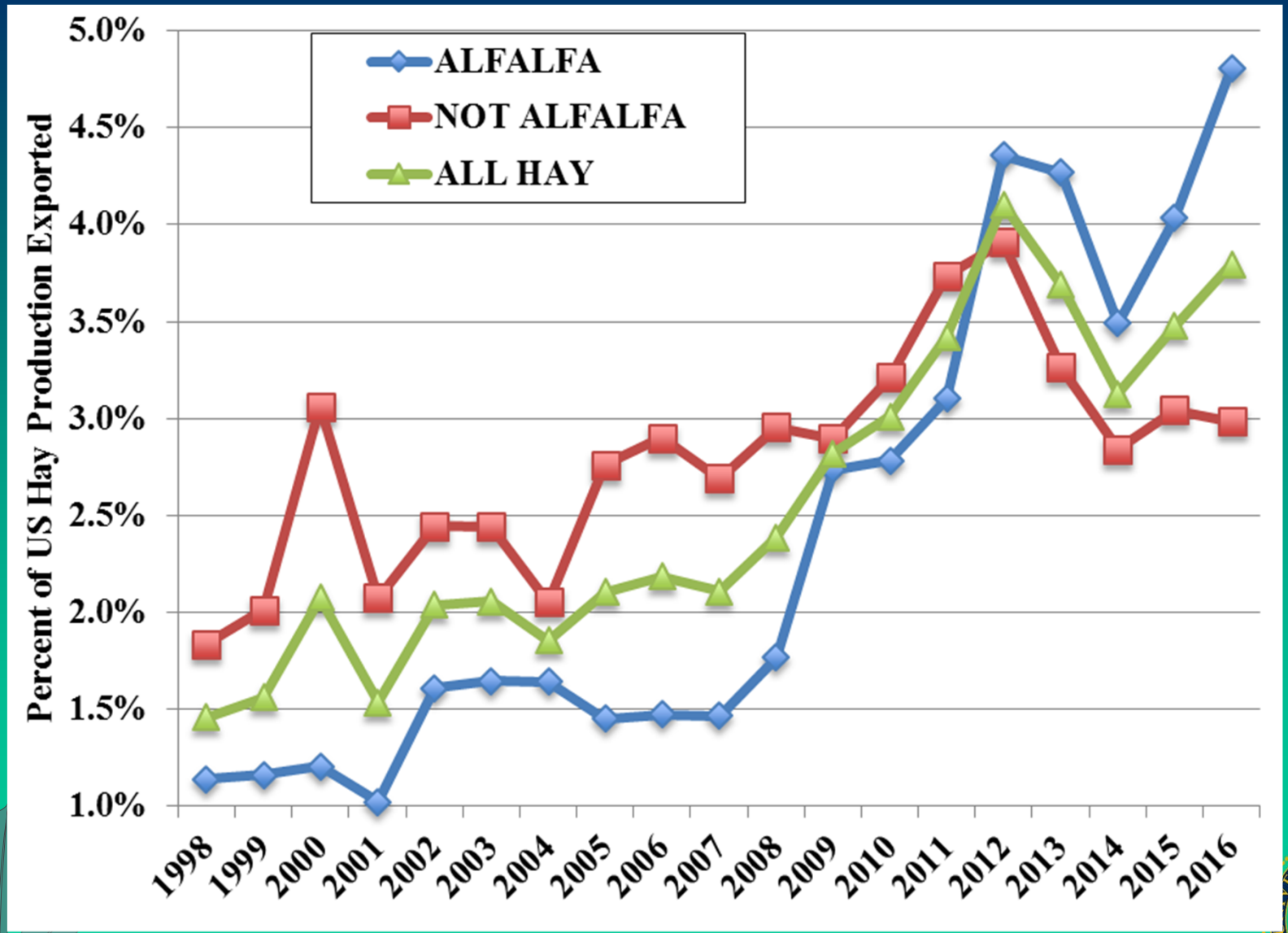
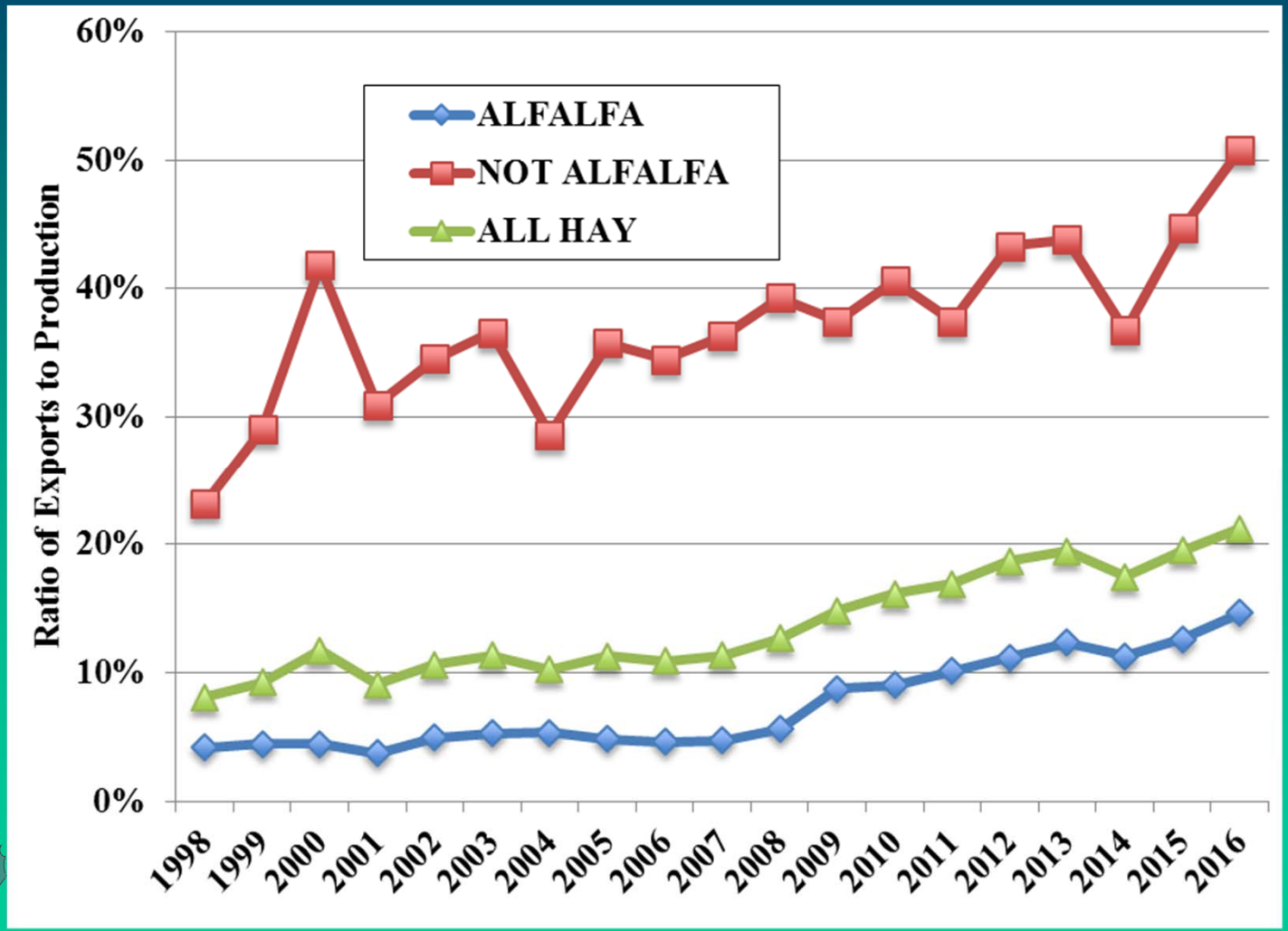


Figure 1. *Volume (left) and value (right) of hay exports during first 6 months of each year, past 4 years. Percentage change from 2014 is shown.*

% of US Hay Exported

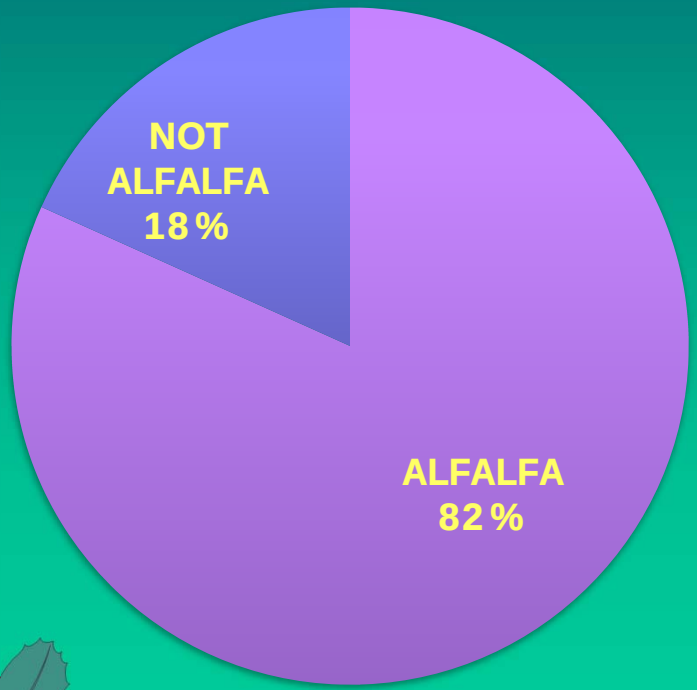


% of Western state's Hay Exported (7 states)

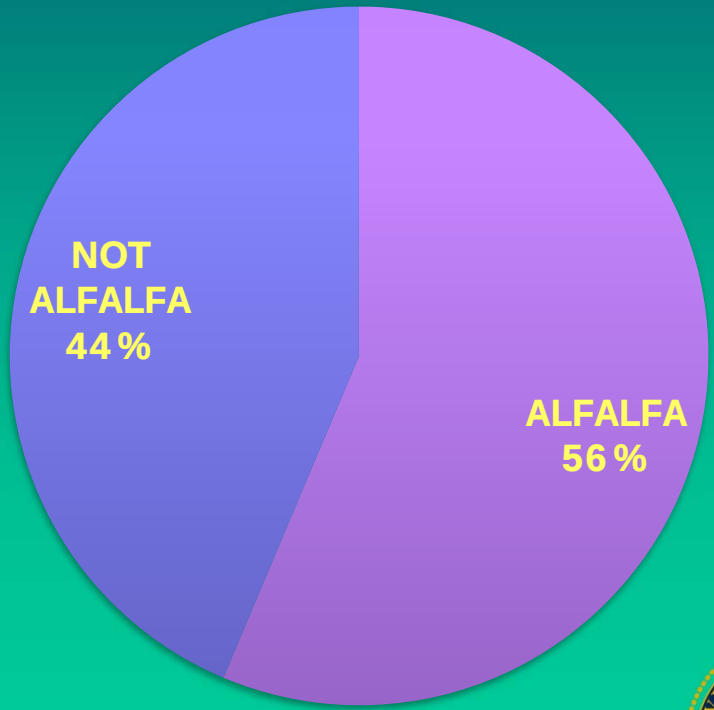


Seven Western States

Production:



Exports:

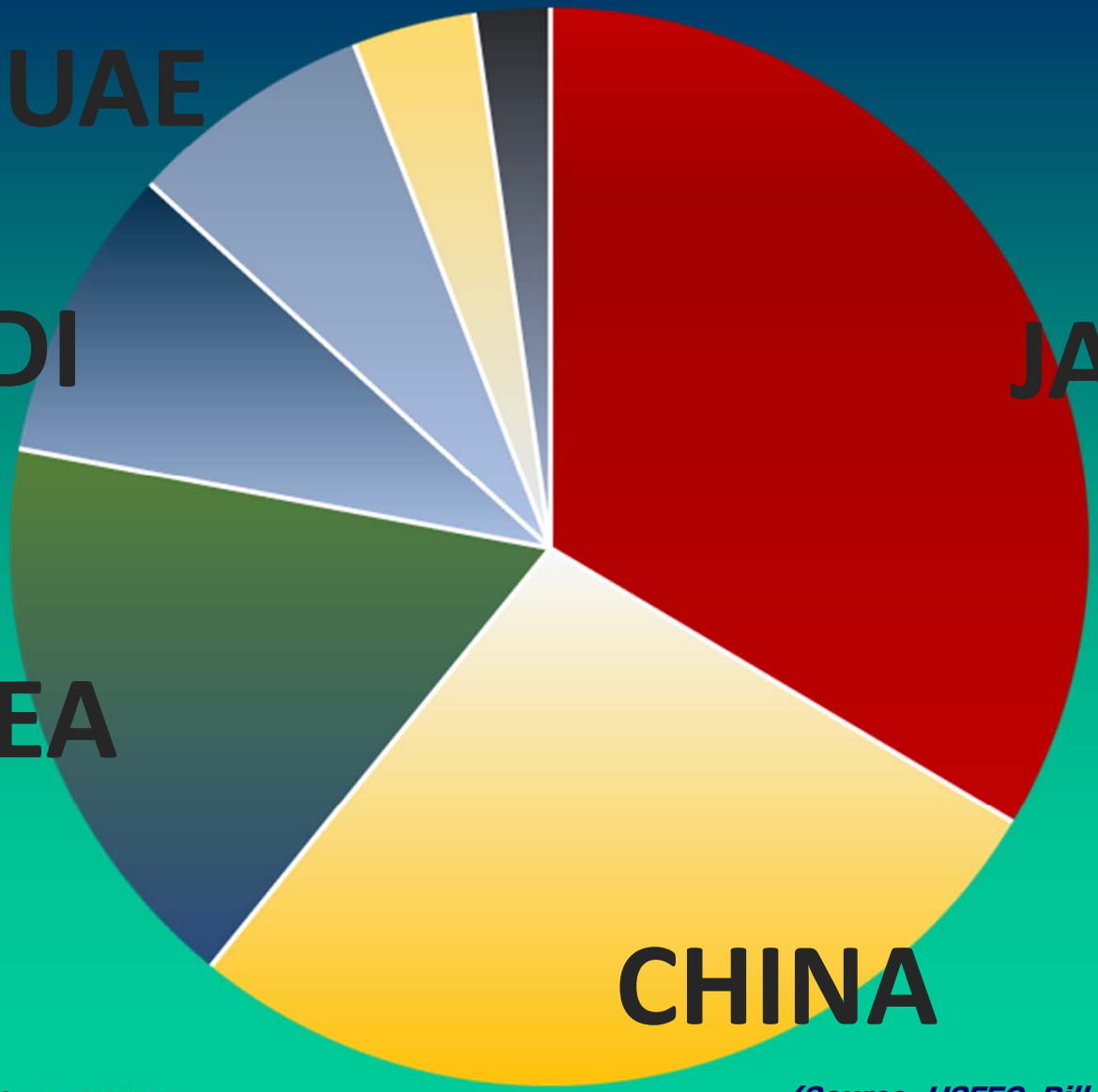


Export Product Mix

50 %	Alfalfa			Timothy	11 %
7 %	Perennial Ryegrass			Annual Ryegrass	2 %
11 %	Fescue			Orchardgrass	1 %
1 %	Bentgrass			Klein	4 %
9 %	Sudangrass			Bermuda	4 %

(Source: USFEC, Bill Plourd)

Global Markets



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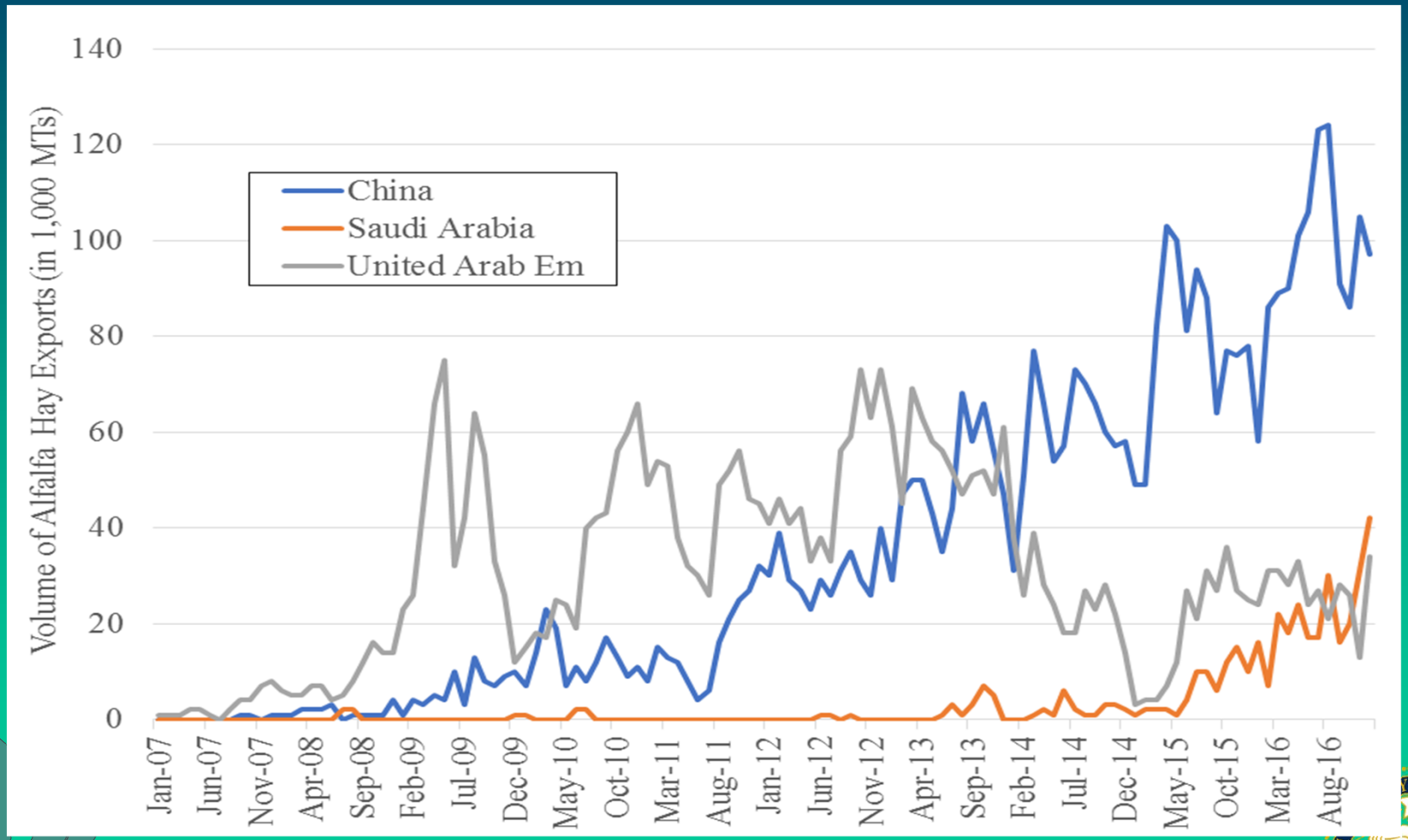
(Source: USFEC, Bill Plourd)

Growth Markets for US Exported Alfalfa Hay



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(Source: US Dept. Commerce)

The dynamic increase of hay exports

- 4.8 m MT, up 13% from 2015, 73% from 2006. Record high (likely 2017)
- Now ~ 1.5 m MT alfalfa to China, >55% of alfalfa exports
- Value projected to be $1.5 Billion, 2017
  - $870 million alfalfa, $600 million grass
  - Alfalfa to China increased 5x since 2010

Why China?

- Expansion of milk demand/wealth
- Rapid Expansion of modern dairies (~2008)
- Infrastructure limitations within China for shipping
- Competing Crops within China & govt. Policy favoring grains vs. forage
- China weather patterns (summer rains, brutal winters) – poor quality
- Ease of shipping to Asia (balance of trade (~ $200-300/container)
- Western US will remain competitive for many years to come.


Slide: Bill Plourd, USFEC


Slide: Bill Plourd, USFEC

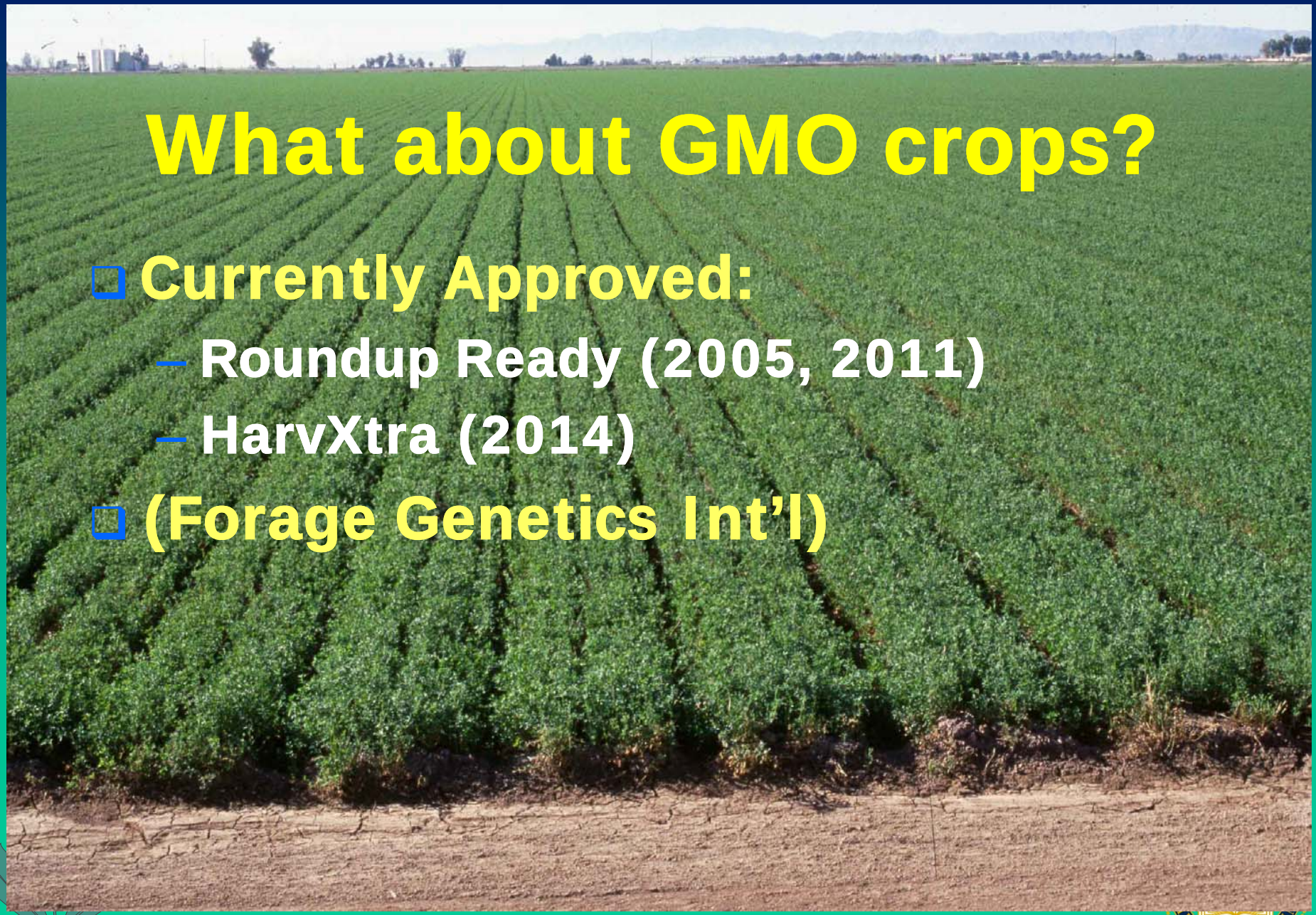
Why Middle East?

- UAE and Saudi Arabia have poorest renewable water sources in the world.
- Curtailed domestic production
- High population
- Middle Eastern Cultures are dairy cultures
- Saudi has very sophisticated dairies.
- Camels, goats, sheep (Bedowin)
- Unlike Asia, we have many potential competitors (Spain, Australia, Sudan, Egypt (Nile), Romaia, Pakistan) – but some lack infrastructure/expertise
- High Quality reputation of US West important

A few problems can occur

Key Problem Issues

- Importers have world perspective
  - Can reject from one area, favor another (play games)
- Cost / price sqeeze (favors low-cost producers)
- Distance from farm to port
- Dock Strike, slowdown (2014)
- Maintaining, defining quality
- GMO sensitivity
  - Rejection of loads with low level detection (China)



What about GMO crops?

- Currently Approved:
  - Roundup Ready (2005, 2011)
  - HarvXtra (2014)
- (Forage Genetics Int'l)

Roundup-Ready Alfalfa

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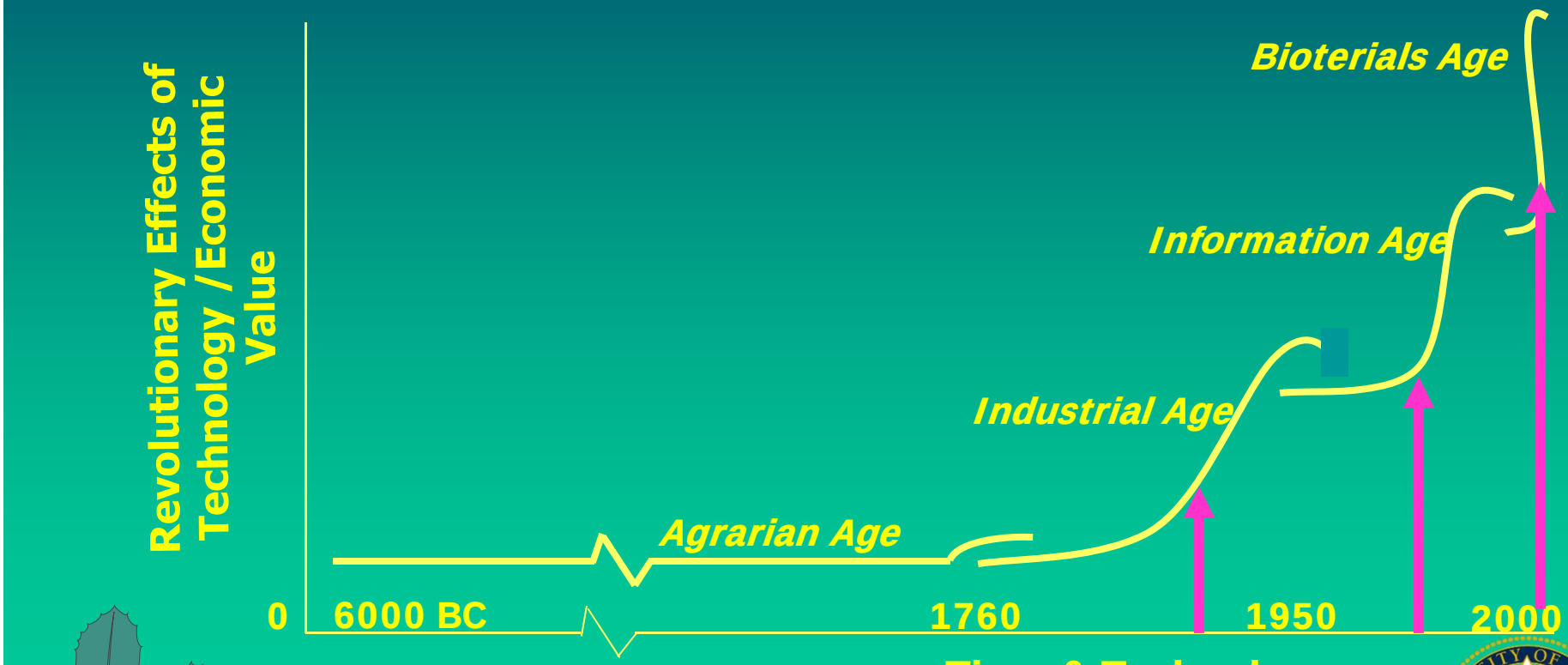
Technology Creates Economic Eras



(Becky Greenwald—Pioneer HiBred)

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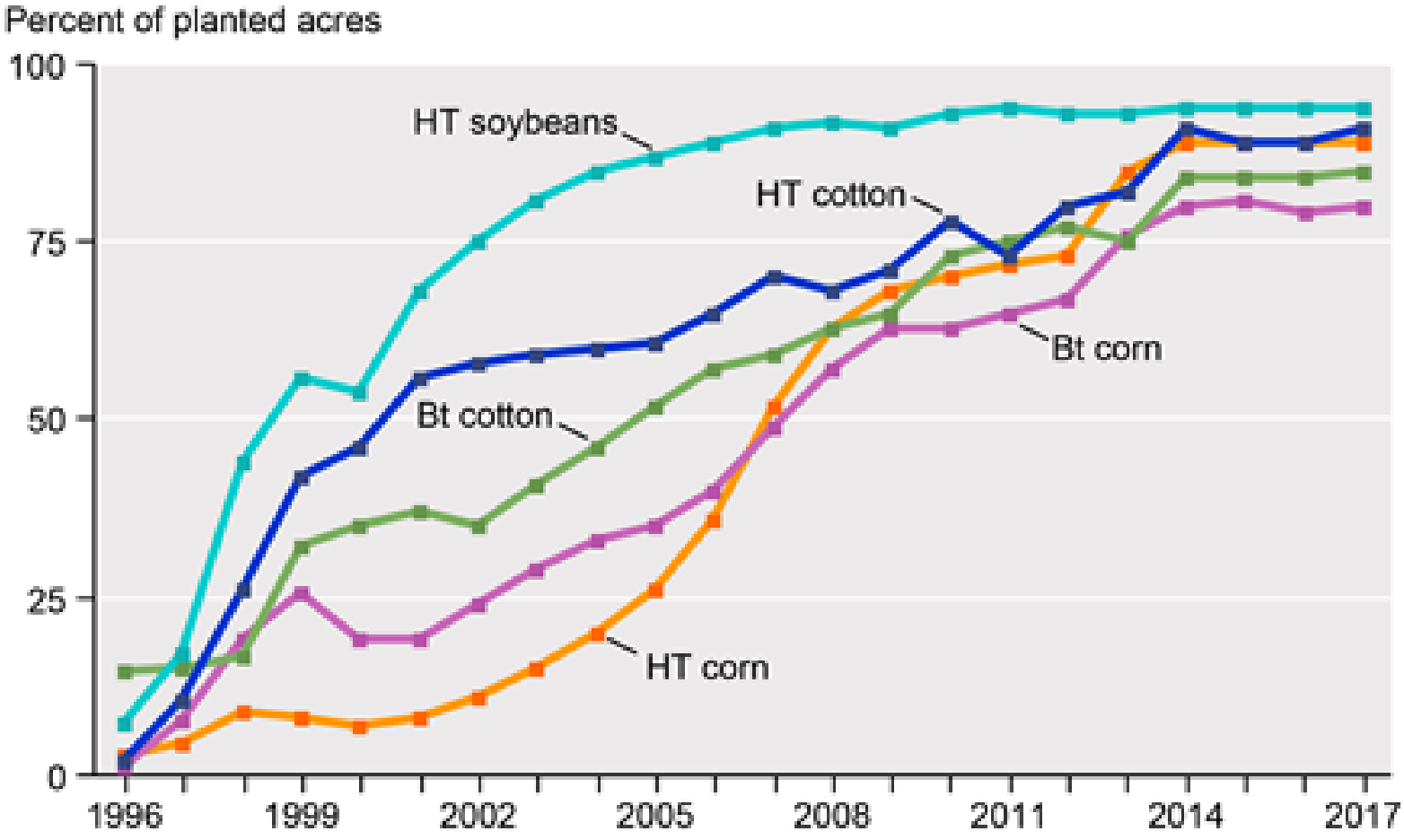
Adoption of genetically engineered crops in the United States, 1996-2017

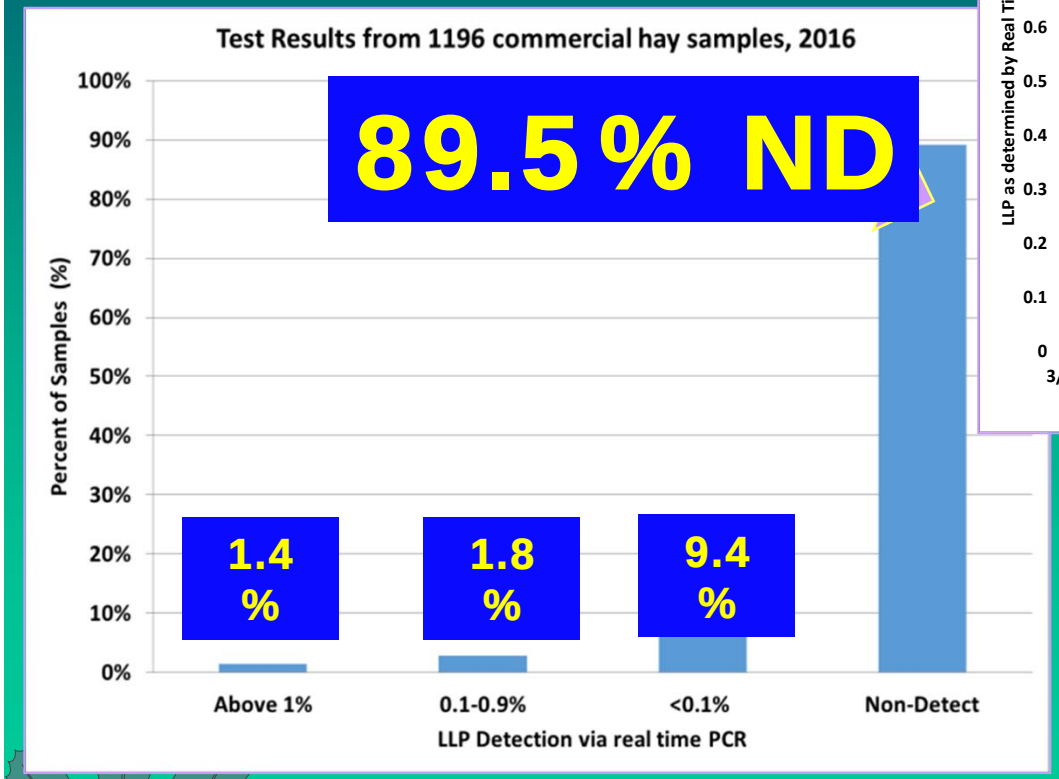


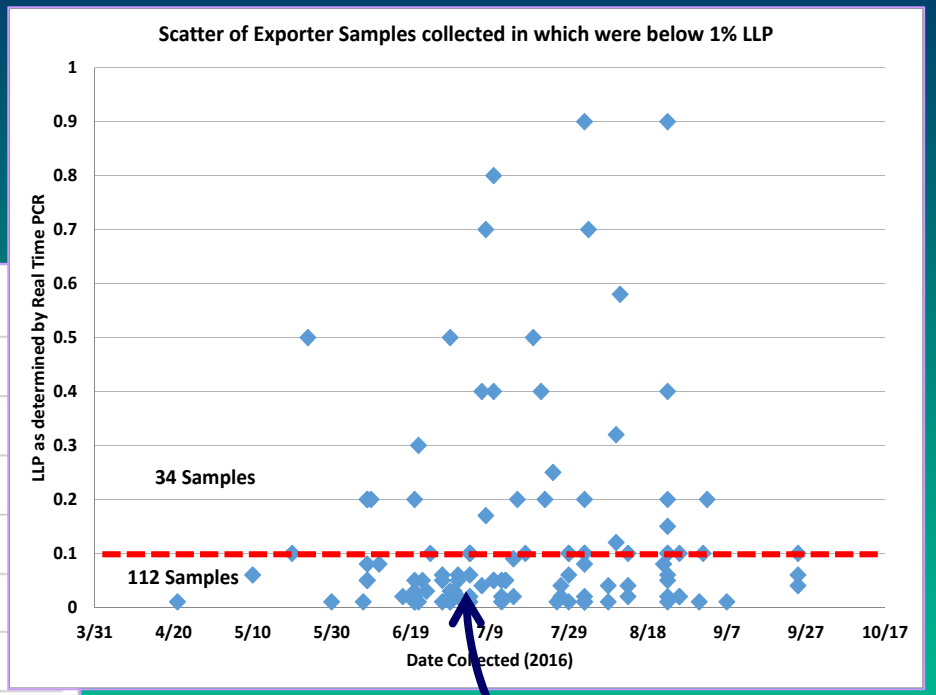
Data for each crop category include varieties with both HT and Bt (stacked) traits.
Sources: USDA, Economic Research Service using data from Fernandez-Cornejo and McBride (2002) for the years 1996-99 and USDA, National Agricultural Statistics Service, *June Agricultural Survey* for the years 2000-17.

GM Exports

- RR Allowed in virtually all countries, but currently not China (tested)
- RR alfalfa may be approved in China
- HarvXtra later (prohibited now)
- Exporters can demand non-GMO crops (risk analysis)
- Some GMO alfalfa has been exported
- If you are planting for export – TEST THE SEED!!

Evidence for LLP in Exports





Many thanks to USFEC for discussions and data

ND <0.1%

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Summary

- Exports of hay crops, historically a minor issue, have become a major component of Western alfalfa and grass hay markets.
- Have influenced price.
- Exports are here to stay
- Export hay demands high but not always highest quality. Considerable room for different hay types.
- Currently mostly non-GMO

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