THE RECENT ECONOMICS OF DROUGHT, MILK, EXPORTS AND WESTERN HAY MARKETS

Western States Alfalfa and Forage Symposium
December 3, 2015 Reno Nevada

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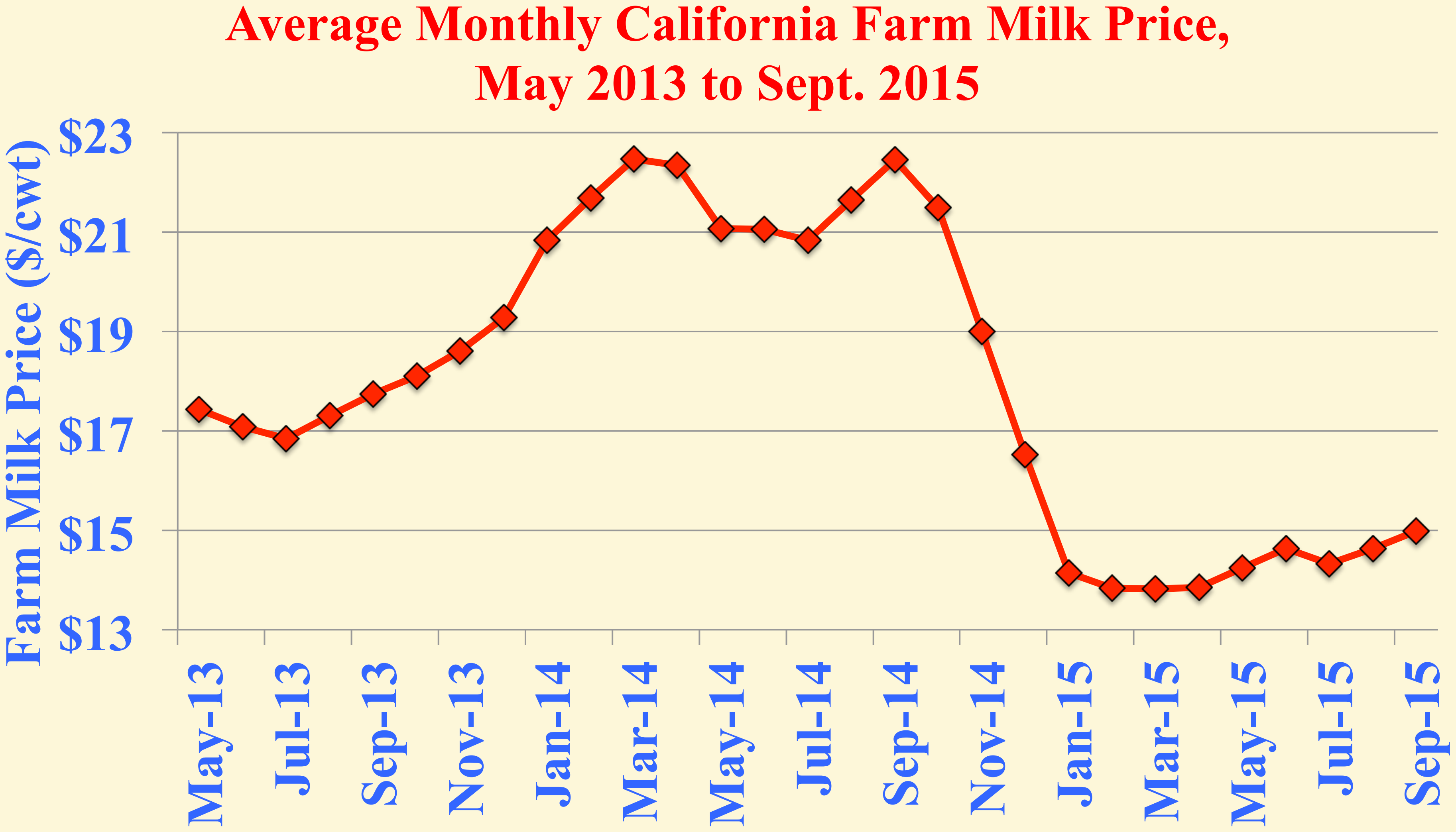
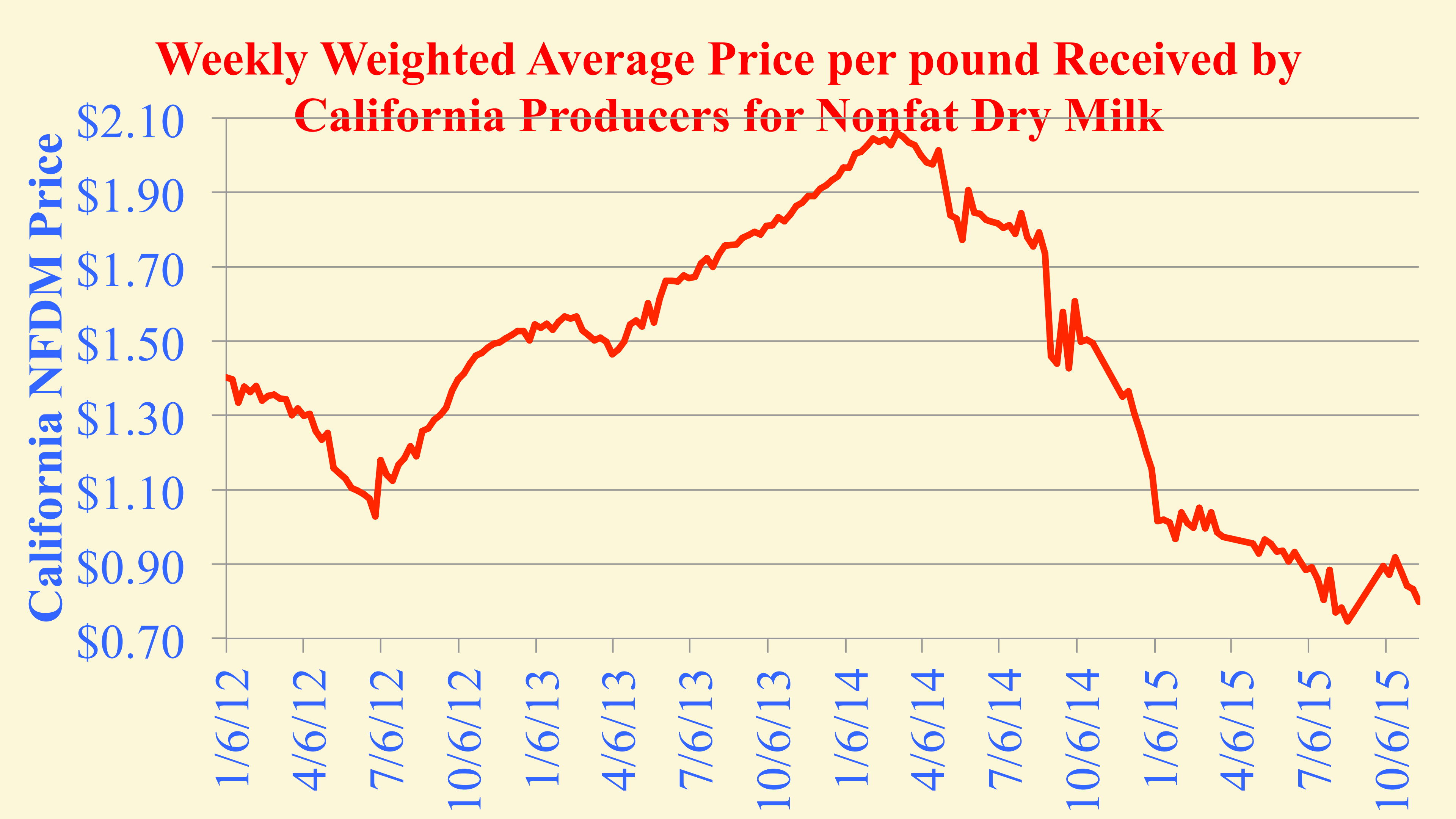
world dairy markets

with high US milk prices, hay exports declined in 2014.

- This year hay exports have picked up despite continued drought.
- Low milk prices have reduced domestic demand for hay.
- Milk exports are down, while hay prices, also much lower than 2014 have allowed exports to expand.
- For the long term TPP has done little for dairy exports, but the US continues to be a competitive dairy exporter.
- Hay exports can be seen as a substitute for dairy exports.


Average Monthly California Farm Milk Price,
May 2013 to Sept. 2015
Farm Milk Price ($/cwt)
$23
$21
$19
$17
$15
$13
May-13
Jul-13
Sep-13
Nov-13
Jan-14
Mar-14
May-14
Jul-14
Sep-14
Nov-14
Jan-15
Mar-15
May-15
Jul-15
Sep-15



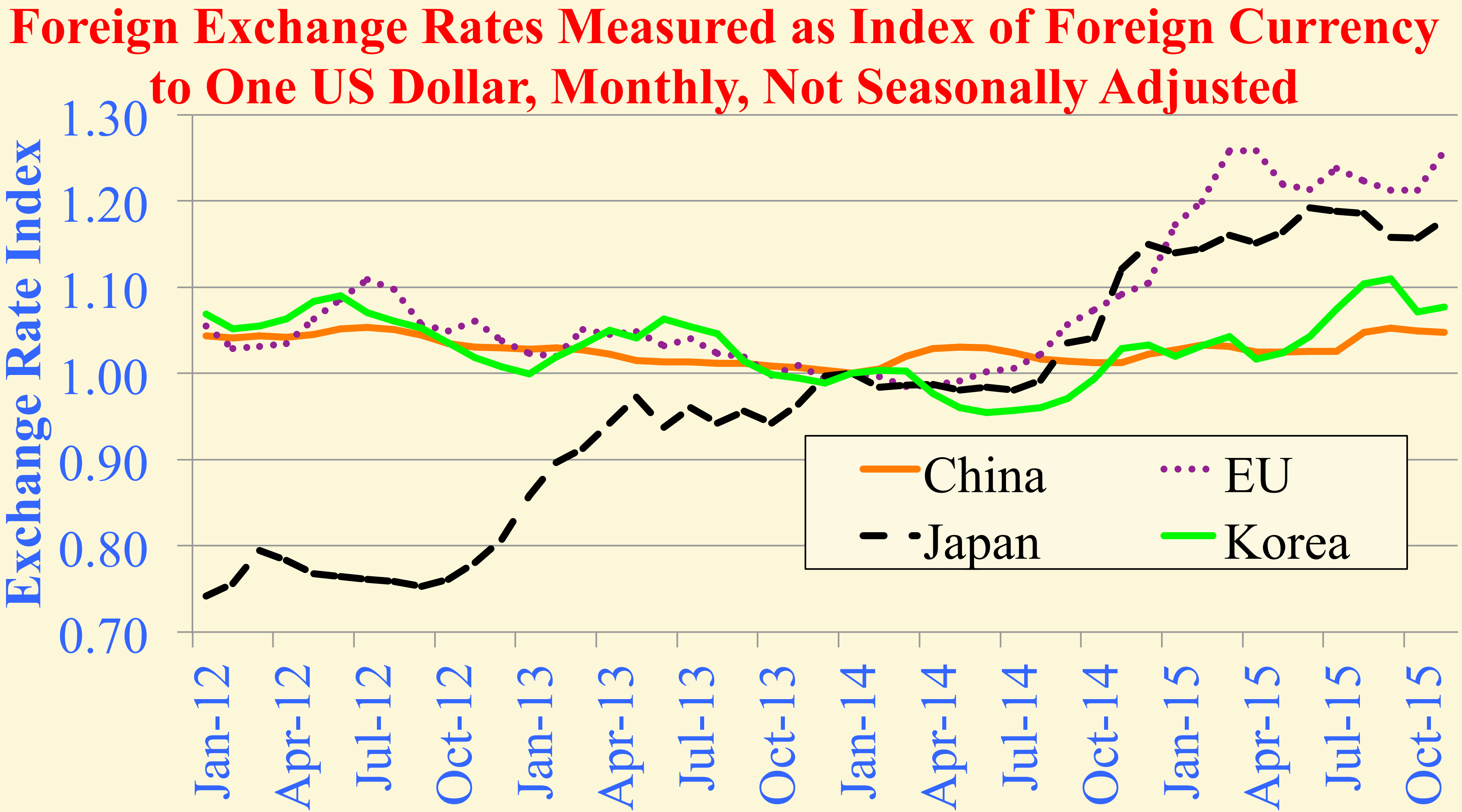
Weekly Weighted Average Price per pound Received by California Producers for Nonfat Dry Milk
California NFDM Price
$2.10
$1.90
$1.70
$1.50
$1.30
$1.10
$0.90
$0.70
1/6/12
4/6/12
7/6/12
10/6/12
1/6/13
4/6/13
7/6/13
10/6/13
1/6/14
4/6/14
7/6/14
10/6/14
1/6/15
4/6/15
7/6/15
10/6/15

Value of U.S. Dry Milk Powder Exports to Top Destination Countries and Rest of the World (to Sep 2015)

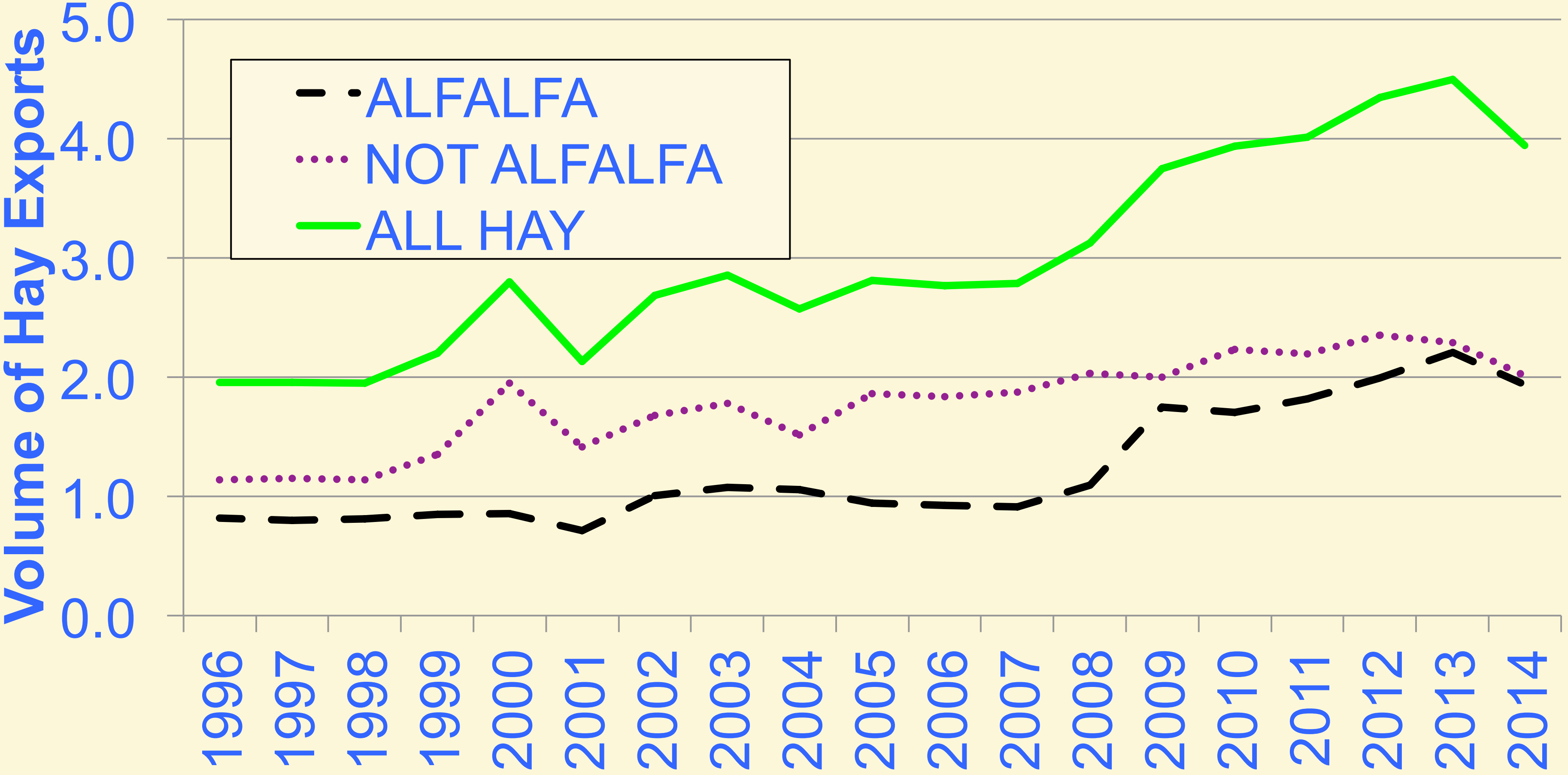
	2013	2014	2014 YTD	2015 YTD
	Value ($1 million)			
Mexico	698	801	617	427
Philippines	222	296	246	137
Vietnam	144	192	164	93
Indonesia	205	183	142	101
China	239	182	170	62
Rest of World	668	640	529	324
Total	2,177	2,293	1,868	1,144

Volume of U.S. Dry Milk Powder Exports to Top Destination Countries and Rest of the World

	2013	2014	2014 YTD	2015 YTD
	Volume (1,000 MTs)			
Mexico	187	210	155	182
Philippines	60	72	58	52
Vietnam	41	53	44	38
Indonesia	56	45	34	32
China	67	52	47	26
Rest of World	184	167	135	120
Total	594	600	473	450


Foreign Exchange Rates Measured as Index of Foreign Currency to One US Dollar, Monthly, Not Seasonally Adjusted
Exchange Rate Index
1.30
1.20
1.10
1.00
0.90
0.80
0.70
Jan-12
Apr-12
Jul-12
Oct-12
Jan-13
Apr-13
Jul-13
Oct-13
Jan-14
Apr-14
Jul-14
Oct-14
Jan-15
Apr-15
Jul-15
Oct-15
China
EU
Japan
Korea

Volume of US Hay Exports in Million Tons, 1996 to 2014



Value and Volume of Hay Exports from California, Oregon and Washington Ports (to Sep 2015)

	2013	2014	2014 YTD	2015 YTD
		Value ($1 million)		
Alfalfa	645	601	450	518
Not Alfalfa	735	629	459	481
All Hay	1,379	1,230	910	999
		Volume (1,000 MTs)		
Alfalfa	2,209	1,928	1,462	1,561
Not Alfalfa	2,289	2,006	1,468	1,555
All Hay	4,498	3,934	2,930	3,116

Value of US Hay Exports to Asia by Country (to Sep 2015)

	2013	2014	2014 YTD	2015 YTD
	Value ($1 million)			
Japan	559	485	362	351
China	237	276	206	268
Korea	195	173	129	151
Rest of Asia	58	50	38	42
Total	1,049	984	734	812

US Hay Exports to Asia by Country (to Sep 2015)

	2013	2014	2014 YTD	2015 YTD
		Volume (1,000 MTs)		
Japan	1,603	1,428	1,066	1,036
China	794	858	655	775
Korea	594	529	392	473
Rest of Asia	195	166	127	132
Total	3,186	2,981	2,240	2,416

Unit Values of US Alfalfa Hay Exports to Top Asia Destinations and All of Asia

	2013	2014	2014 YTD	2015 YTD
		($/MT)		
Japan	327	328	326	340
China	303	324	318	345
Korea	320	331	328	320
All Asia	316	326	322	341

Unit Values of All US Hay Exports to Top Asia Destinations and All of Asia

	2013	2014	2014 YTD	2015 YTD
		($/MT)		
Japan	349	340	339	339
China	299	321	314	345
Korea	329	327	329	319
All Asia	329	330	328	336

Economic Prospects for Hay and Forage

- It remains to early to know 2016 weather, but drought impacts will not end even with a wet year.
- Milk prices have risen a little as fat prices are up, but SNF prices remain severely depressed, especially for cheese milk. These prices reflect world market conditions and the strong dollar.
- It is hard for hay prices to rise with a depressed dairy market, but we do not have precise estimates of this linkage.
- The strong dollar also affects hay export prospects.
- The linkage between hay and dairy exports also deserves more study.