
2017 Georgia
Ag Forecast
College of Agricultural &
Environmental Sciences
UNIVERSITY OF GEORGIA

Welcome

Kent Wolfe

Director,

UGA Center for Agribusiness &

Economic Development

Local Welcome

Rolando Orellana

Cobb County Agricultural &

Natural Resources Agent,

UGA Cooperative Extension

Summary of 2017 Georgia Agricultural & Agribusiness Outlook

Ben Campbell,

Assistant Professor, UGA CAES

Department of Agricultural & Applied Economics

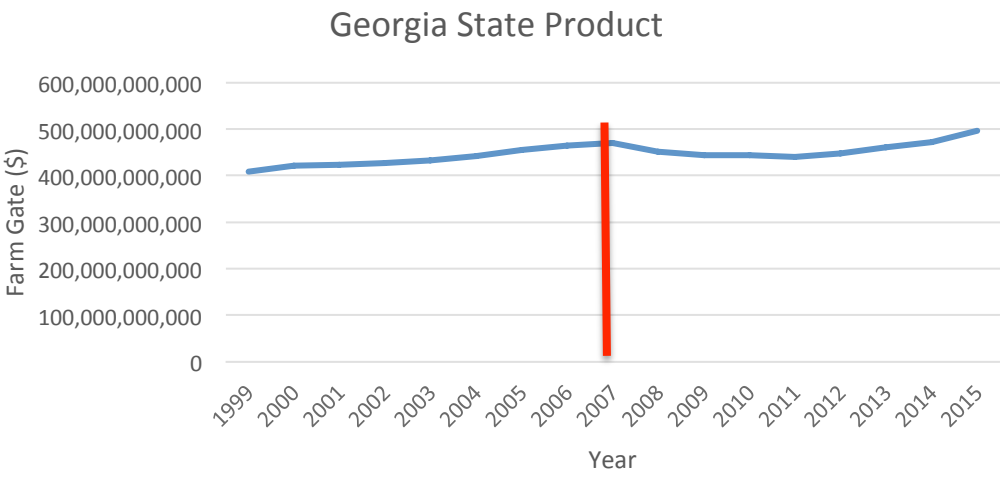
The Green Industry

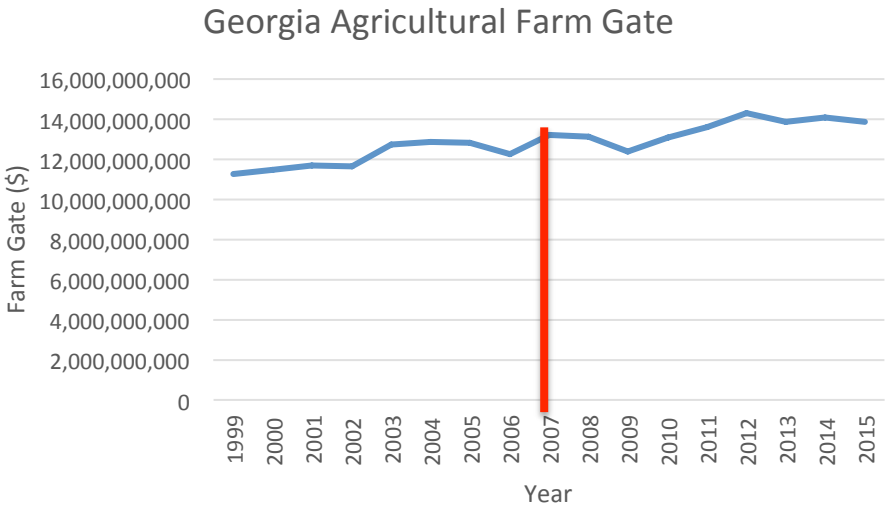
Production, distribution, wholesale retail and services

Nursery and Greenhouse

Floriculture

Turfgrass


Georgia State Product
600,000,000,000
500,000,000,000
400,000,000,000
300,000,000,000
200,000,000,000
100,000,000,000
0
Farm Gate ($)
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Year


Georgia Agricultural Farm Gate
16,000,000,000
14,000,000,000
12,000,000,000
10,000,000,000
8,000,000,000
6,000,000,000
4,000,000,000
2,000,000,000
0
Farm Gate ($)
1999
2000
2001
2002
2003
2004
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2009
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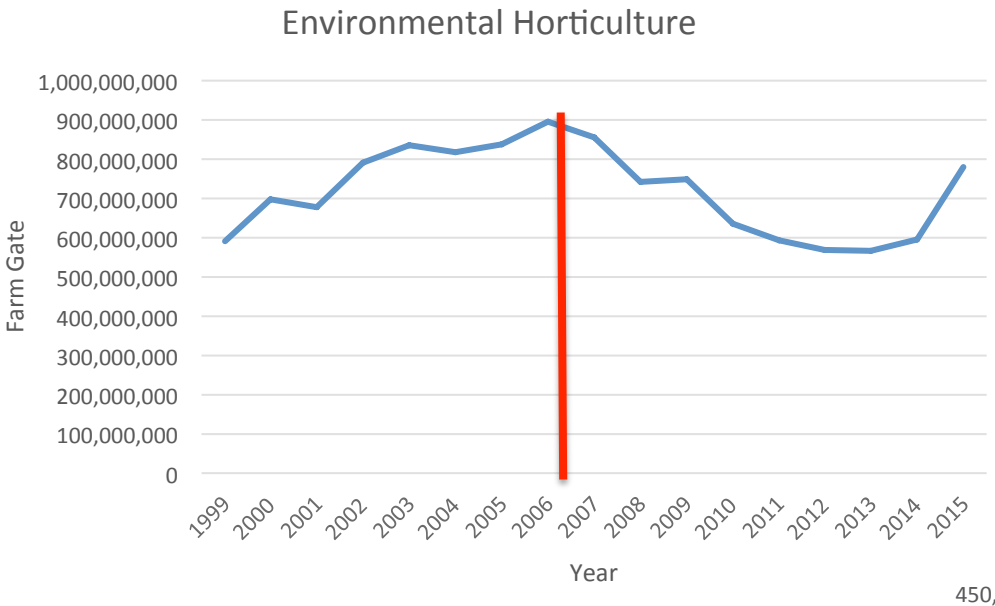
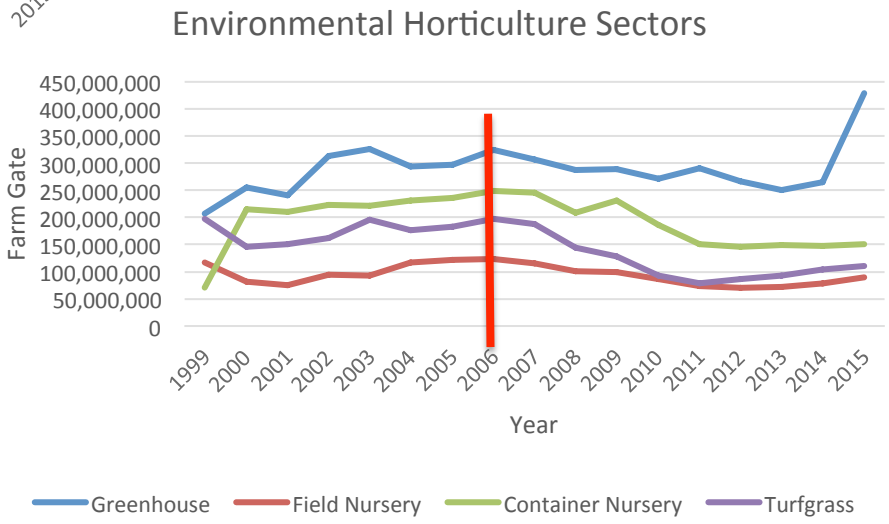
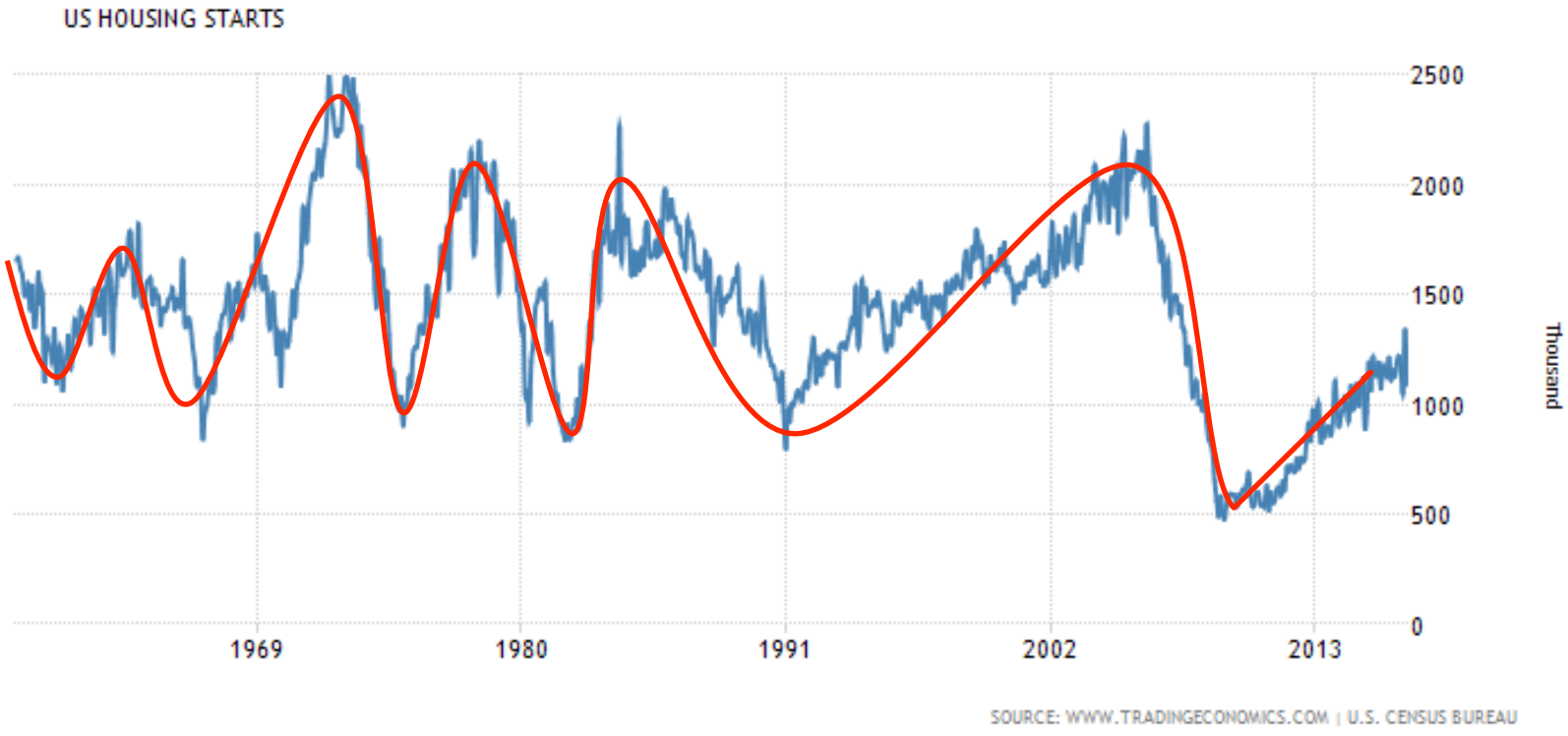
2011
2012
2013
2014
2015
Year


Environmental Horticulture
1,000,000,000
900,000,000
800,000,000
700,000,000
600,000,000
500,000,000
400,000,000
300,000,000
200,000,000
100,000,000
0
Farm Gate
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Year


Environmental Horticulture Sectors
450,000,000
400,000,000
350,000,000
300,000,000
250,000,000
200,000,000
150,000,000
100,000,000
50,000,000
0
Farm Gate
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Year
Greenhouse
Field Nursery
Container Nursery
Turfgrass


US HOUSING STARTS
2500
2000
1500
1000
500
0
Thousand
1969
1980
1991
2002
2013
SOURCE: WWW.TRADINGECONOMICS.COM | U.S. CENSUS BUREAU

Housing Starts

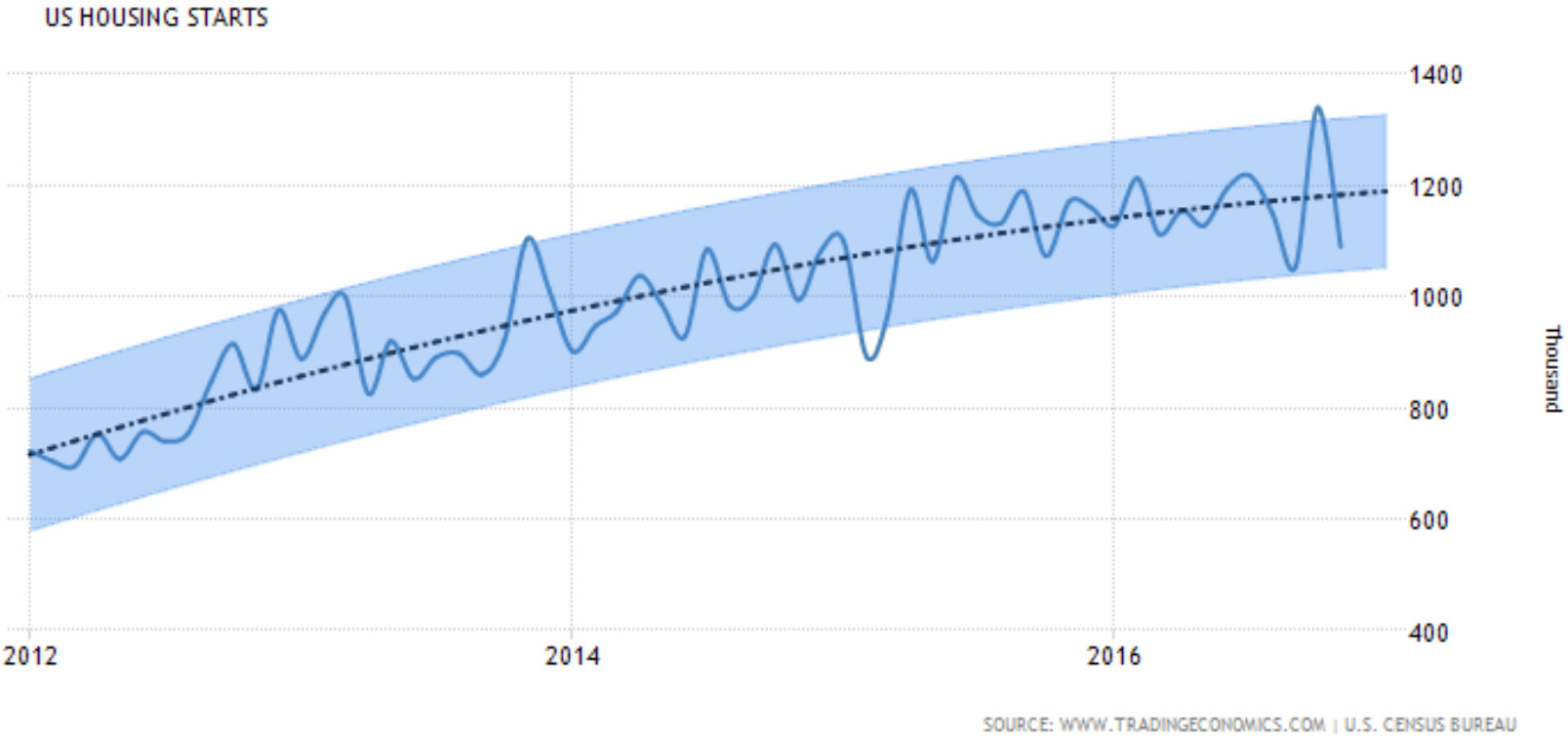
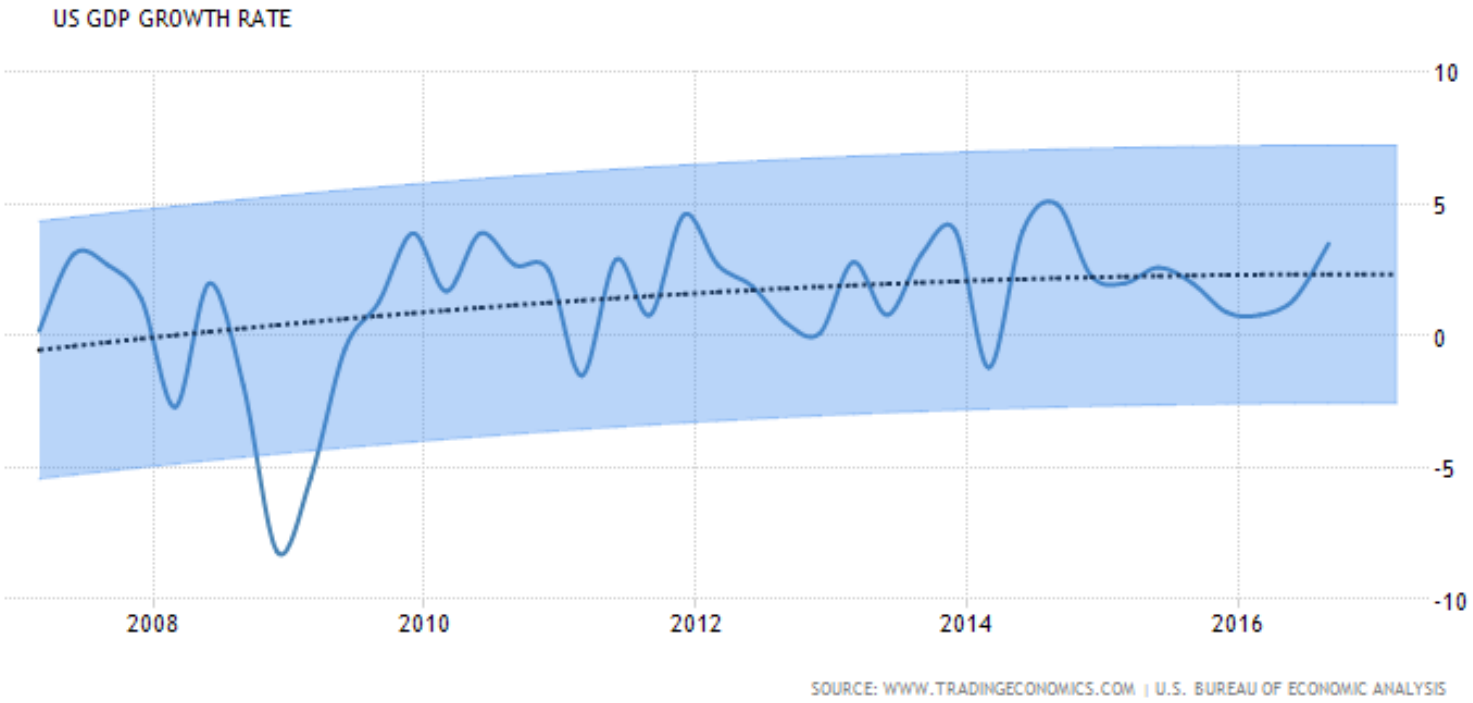


	Table 1. New Privately-Owned Housing Units Authorized in Permit-Issuing Places				
	US	Northeast	MidWest	South	West
2014-2016	11%	4%	13%	9%	18%
2015-2016	4%	-19%	31%	5%	-1%

U.S. Dept. of Housing and Urban Development

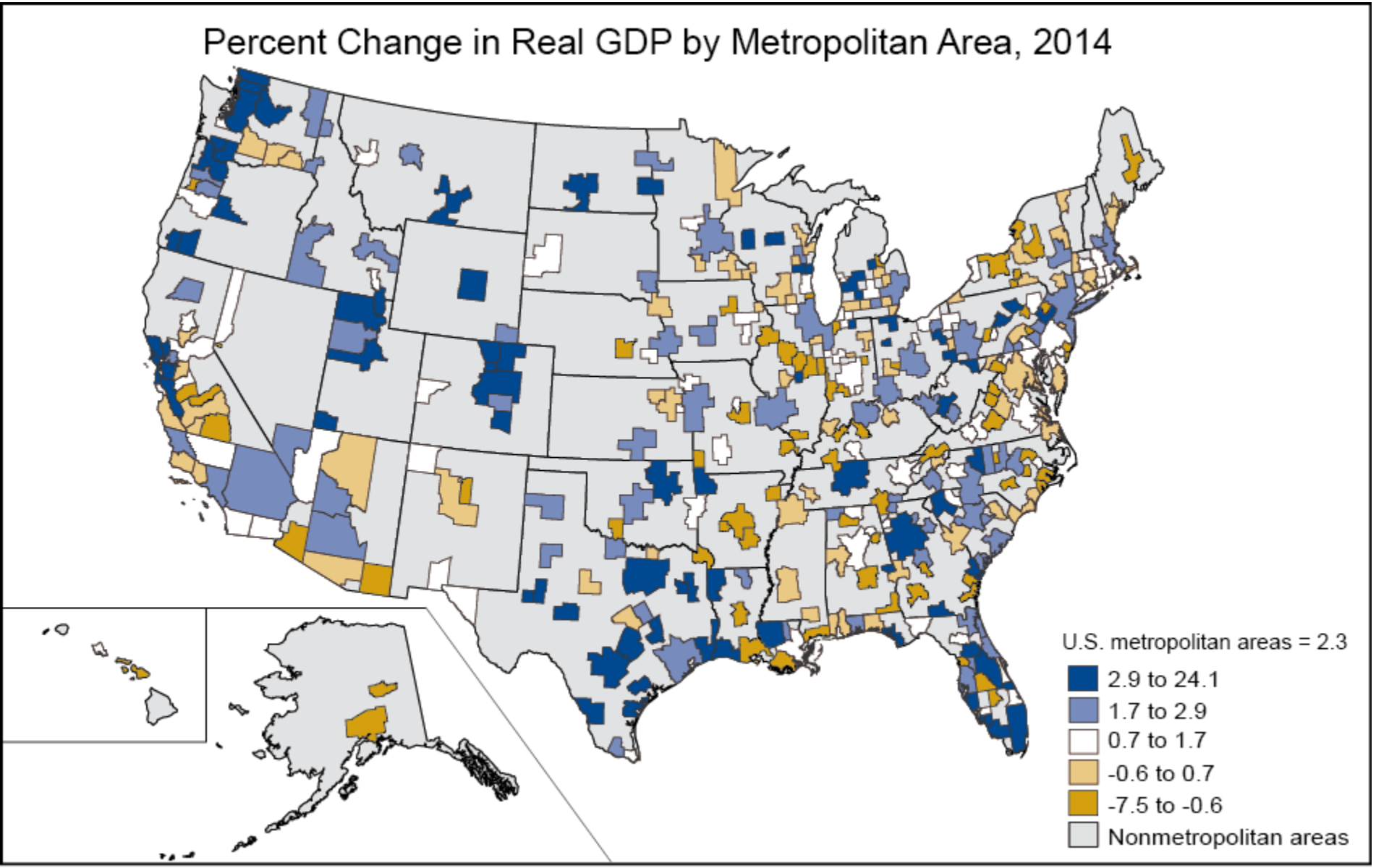
US GDP


US GDP GROWTH RATE
10
5
0
-5
-10
2008
2010
2012
2014
2016
SOURCE: WWW.TRADINGECONOMICS.COM | U.S. BUREAU OF ECONOMIC ANALYSIS

Georgia Gross State Product	
Year	Percent
2005	2.9
2006	1.9
2007	2.4
2008	-1.9
2009	-3.1
2010	13.1
2011	1.4
2012	0.9
2013	2
2014	2.3
2015	0.7
2016	2.1
2017	2.6

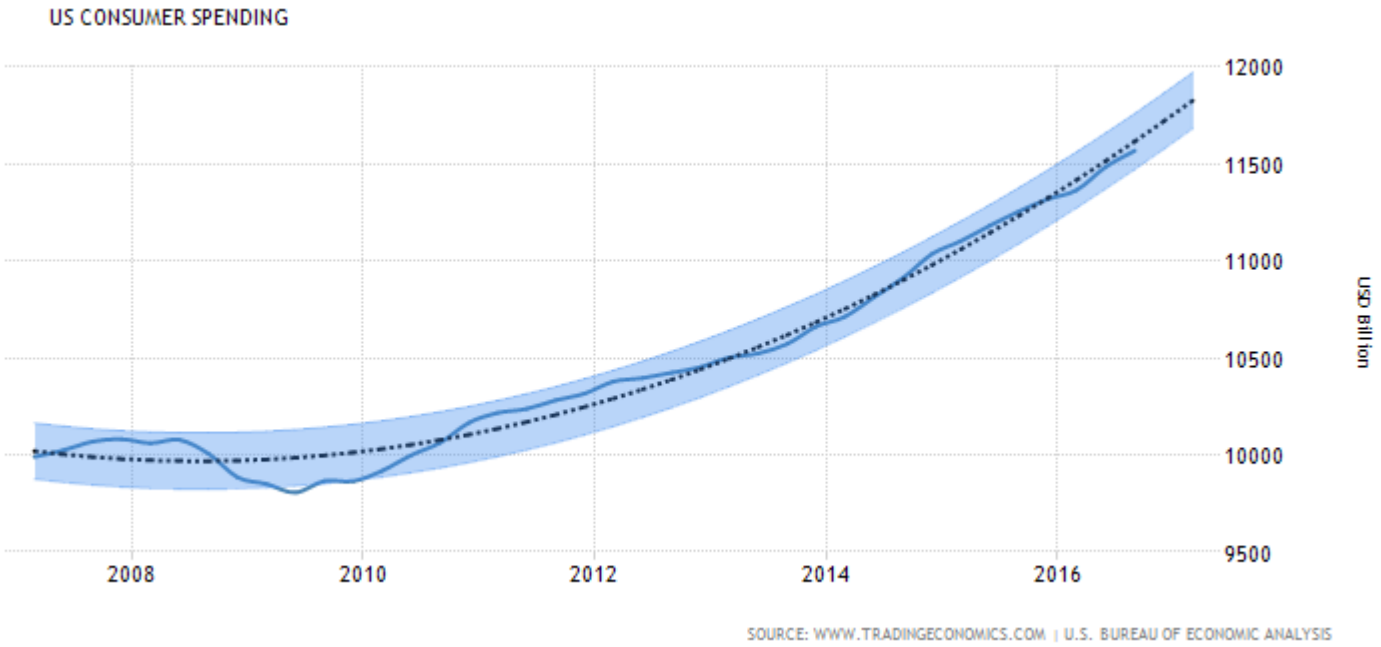
http://www.usgovernmentspending.com/compare_state_spending_2017bZ0a

Percent Change in Real GDP by Metropolitan Area, 2014



U.S. Bureau of Economic Analysis

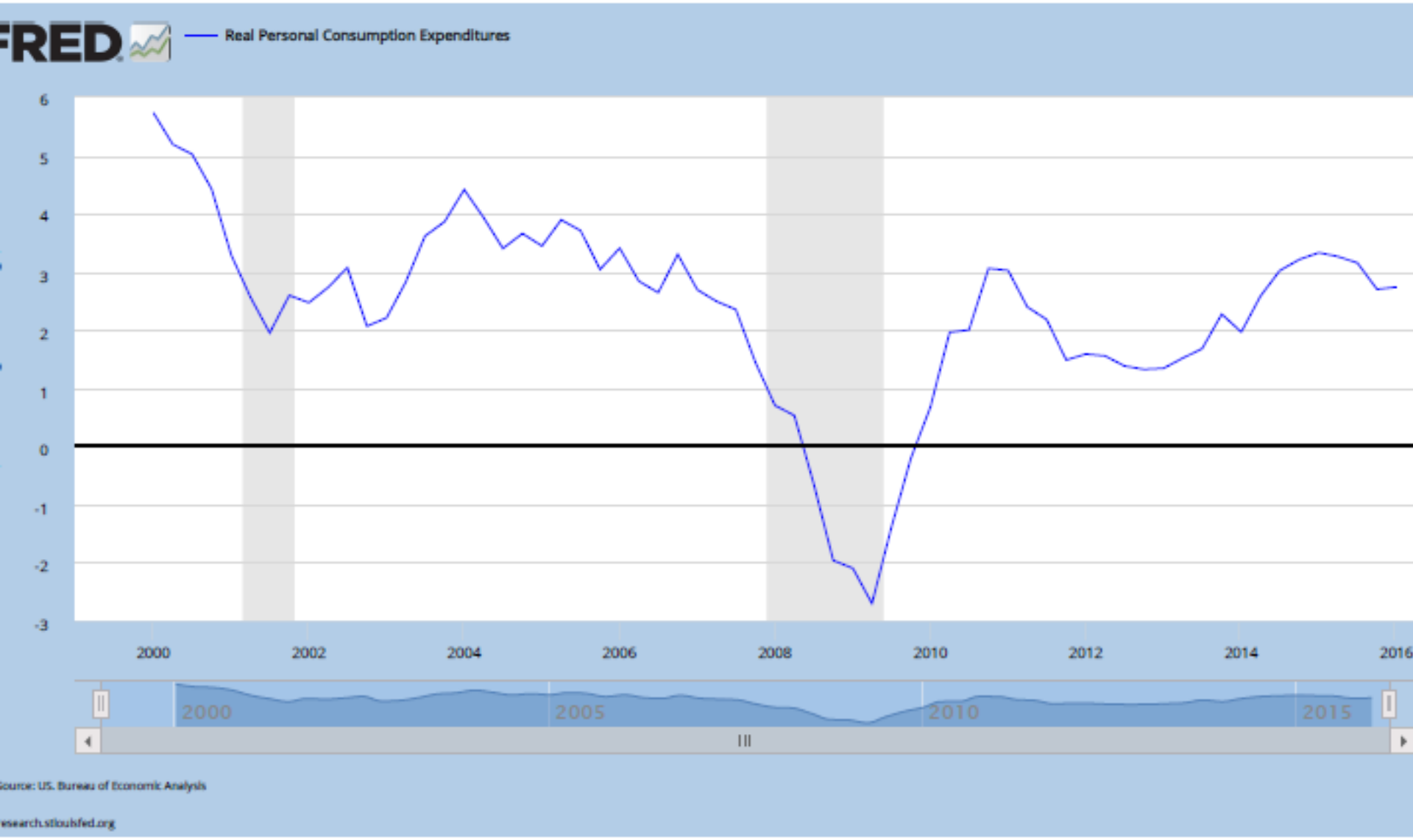
Consumer spending



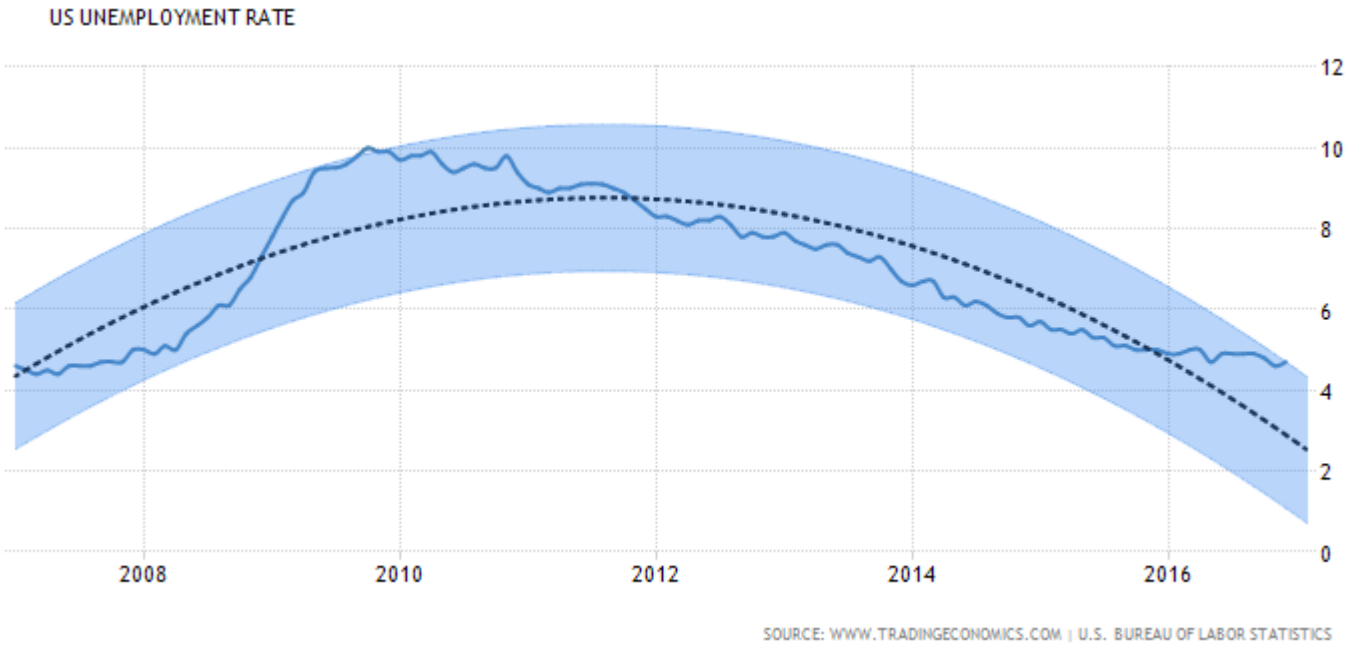
raph: Real Personal Consumption Expenditures

1yr | 5yr | 10yr | Max

1999-01-01 to 2016-04-01



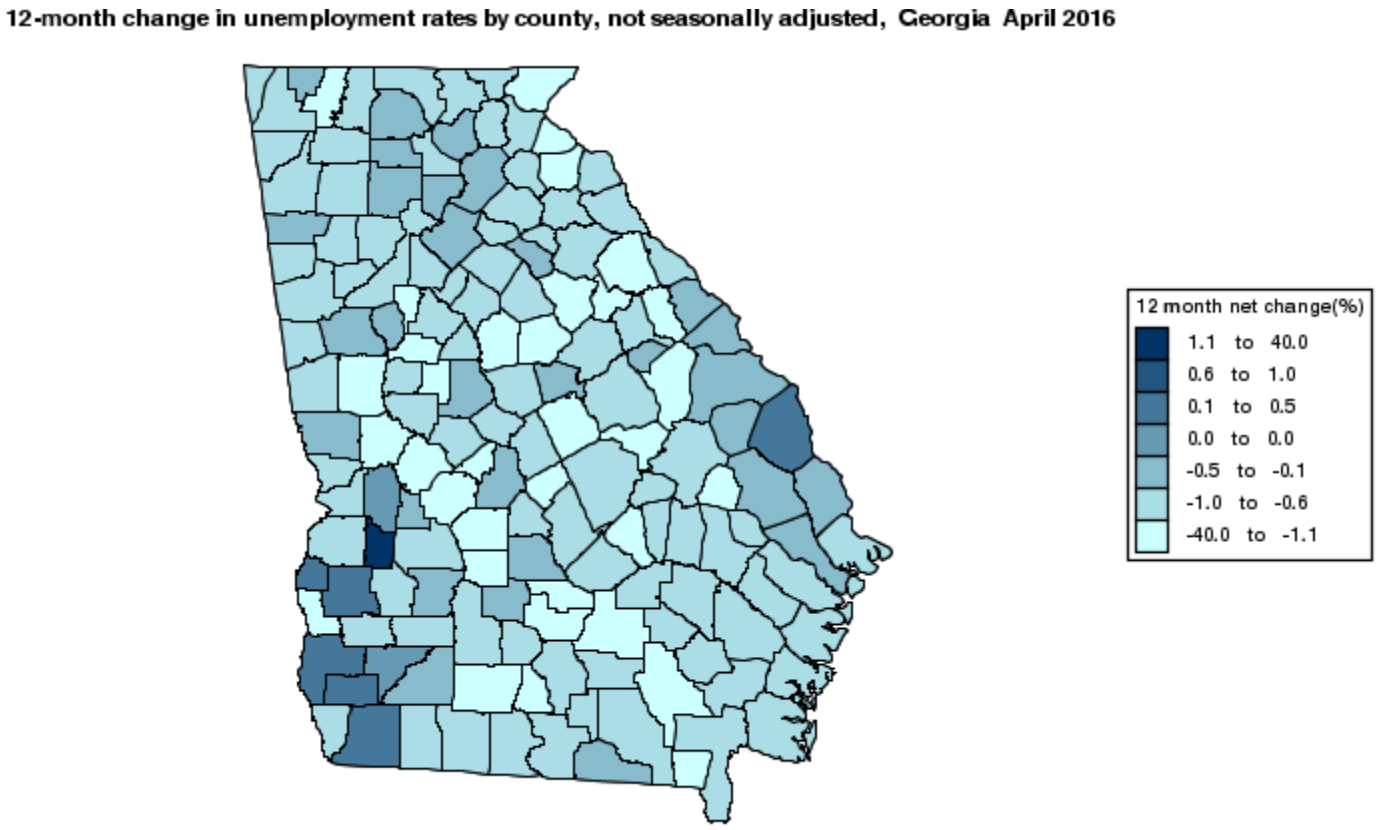
US Unemployment Rate



Georgia

U.S. Bureau of Labor Statistics

Unemployment rate by county 2015 to 2016



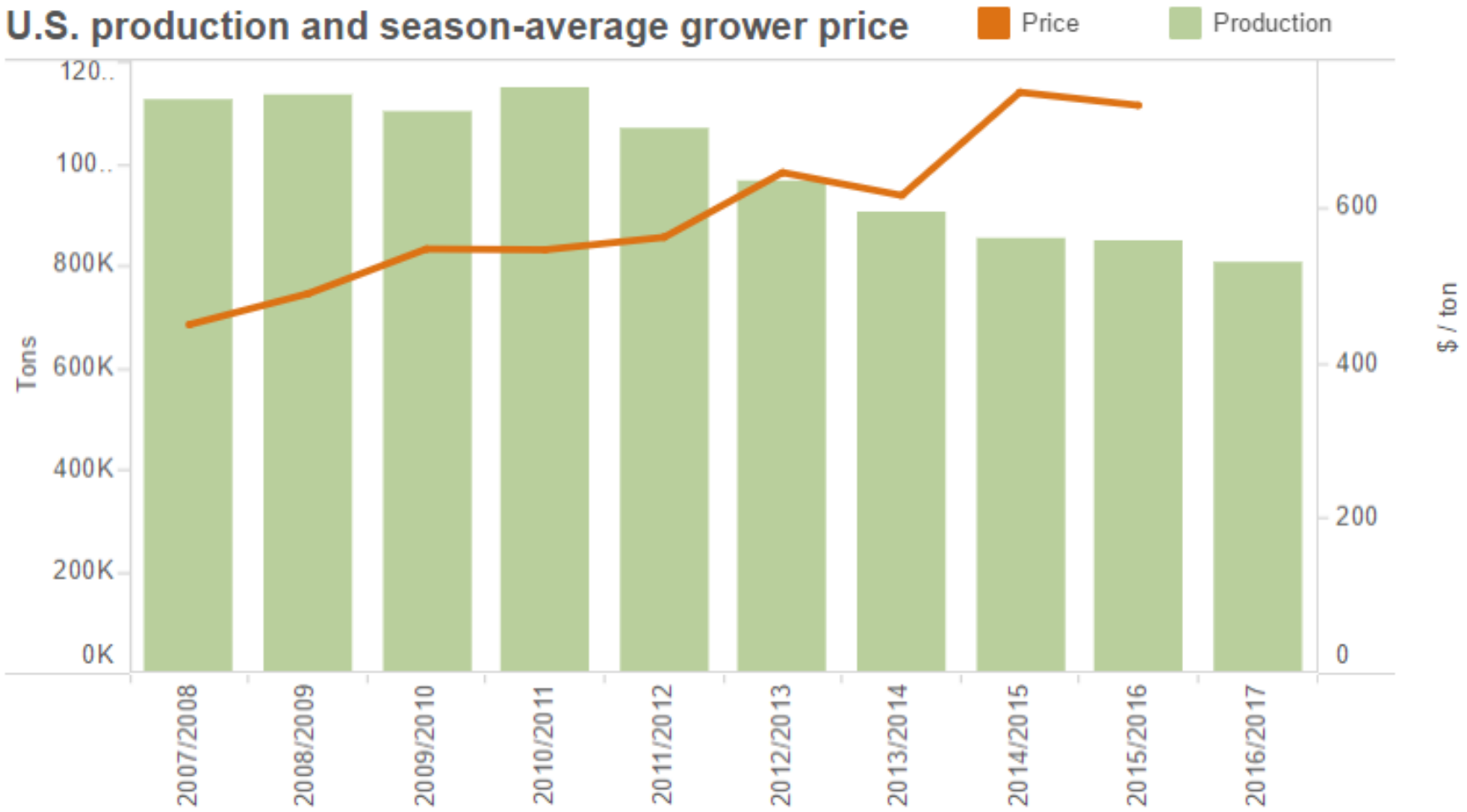
- Expect limited growth in 2017
  - Industry goes as economy and weather goes
  - Weak economic growth for Green Industry in 2017
  - 1—2% growth most likely
  - Price competition

  - Other factors:
  - Household incomes – slow, but upward growth for GA incomes
  - Political
  - New administration and single party controlled government
  - Weather (hoping for dry weekends during the spring)
  - Forecast is for normal spring weather
  - Input costs: especially water and labor

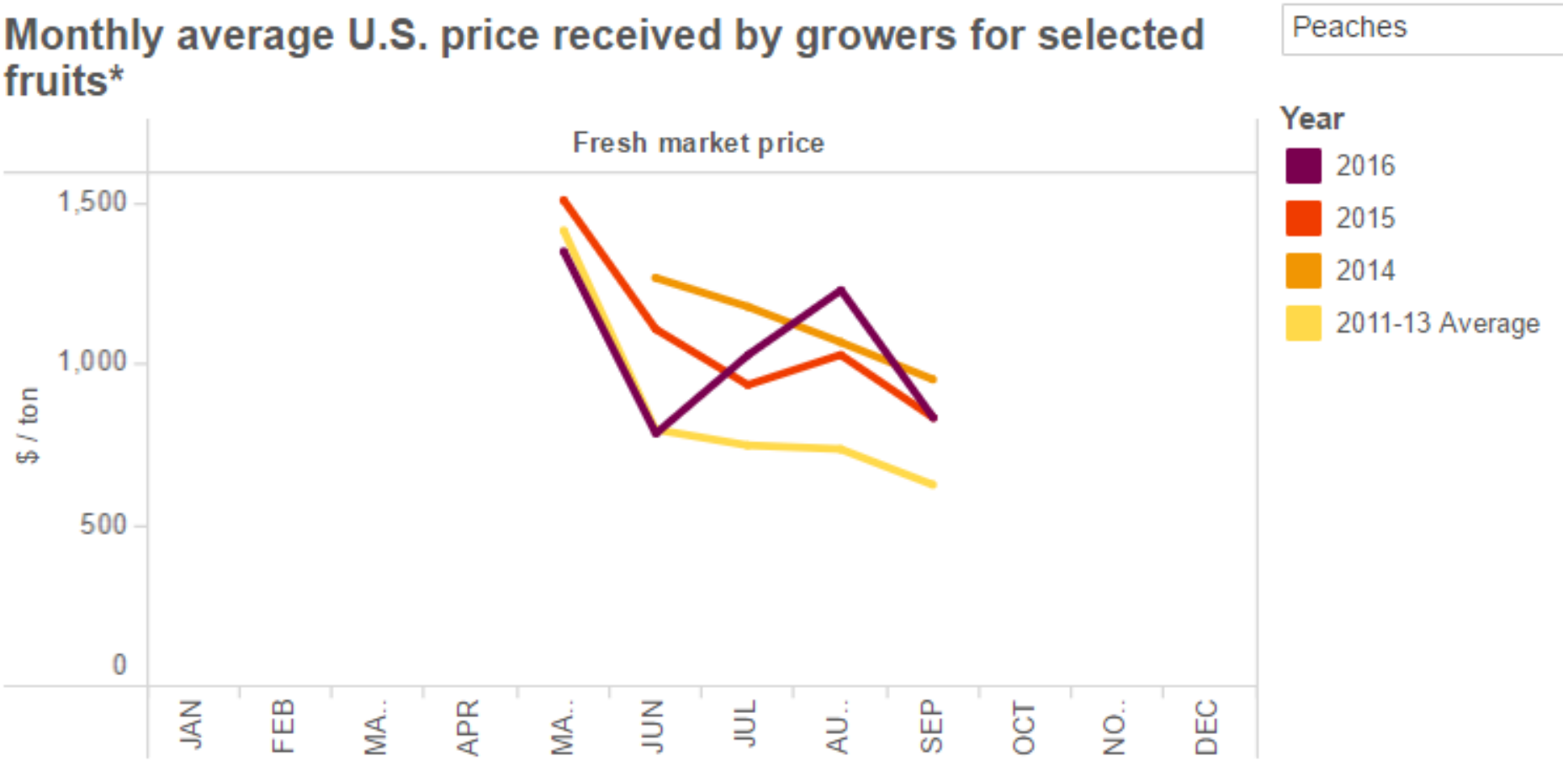
Fruit and Vegetables

Peaches

Georgia 2016/17 forecast 5.9% increase to 43,000 Tons.

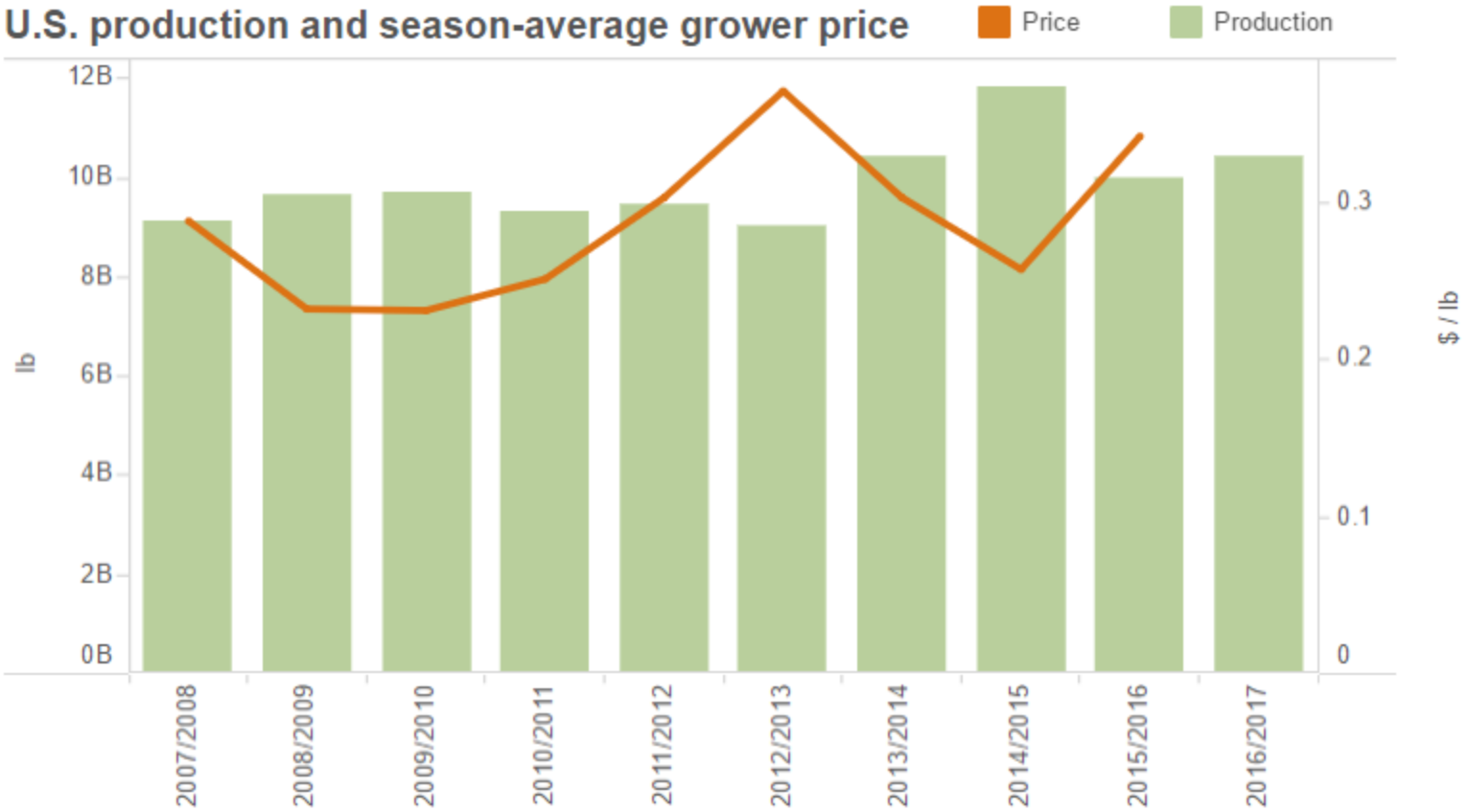


Source: USDA Fruit-tree-nuts Market-outlook



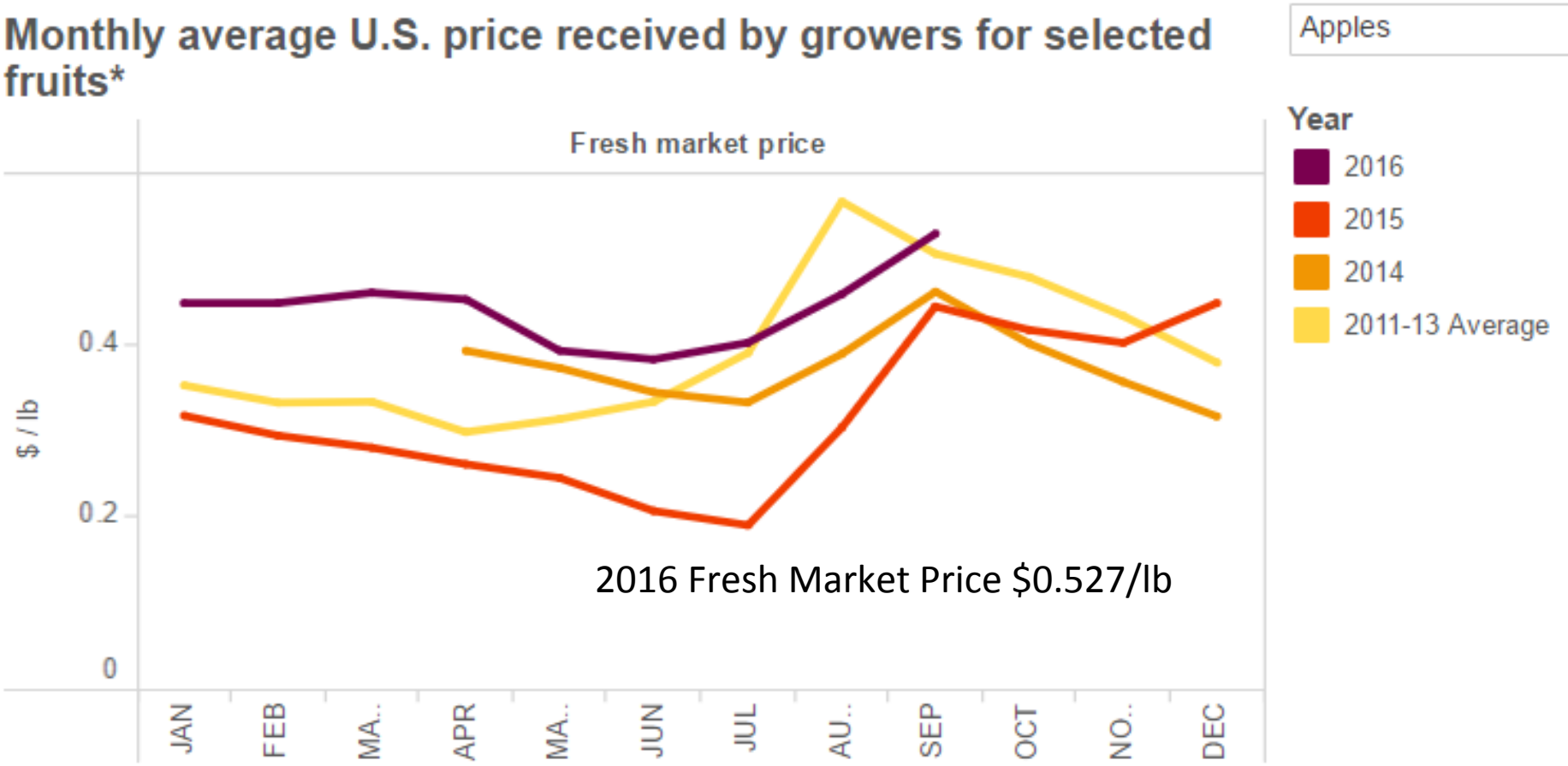
Source: USDA Fruit-tree-nuts Market-outlook

Apples



Source: USDA Fruit-tree-nuts Market-outlook

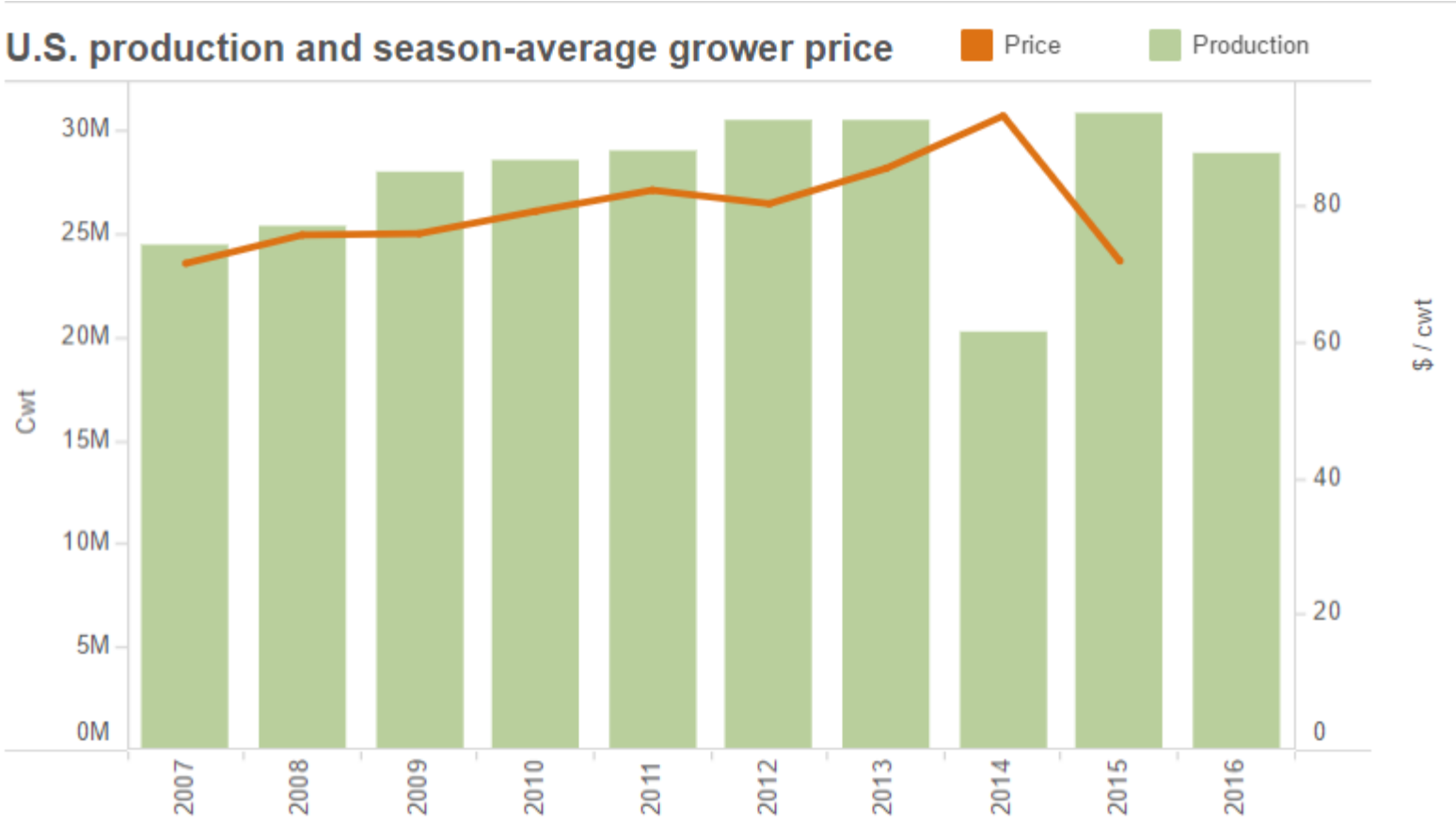
Apples



2016 Fresh Market Price $0.527/lb

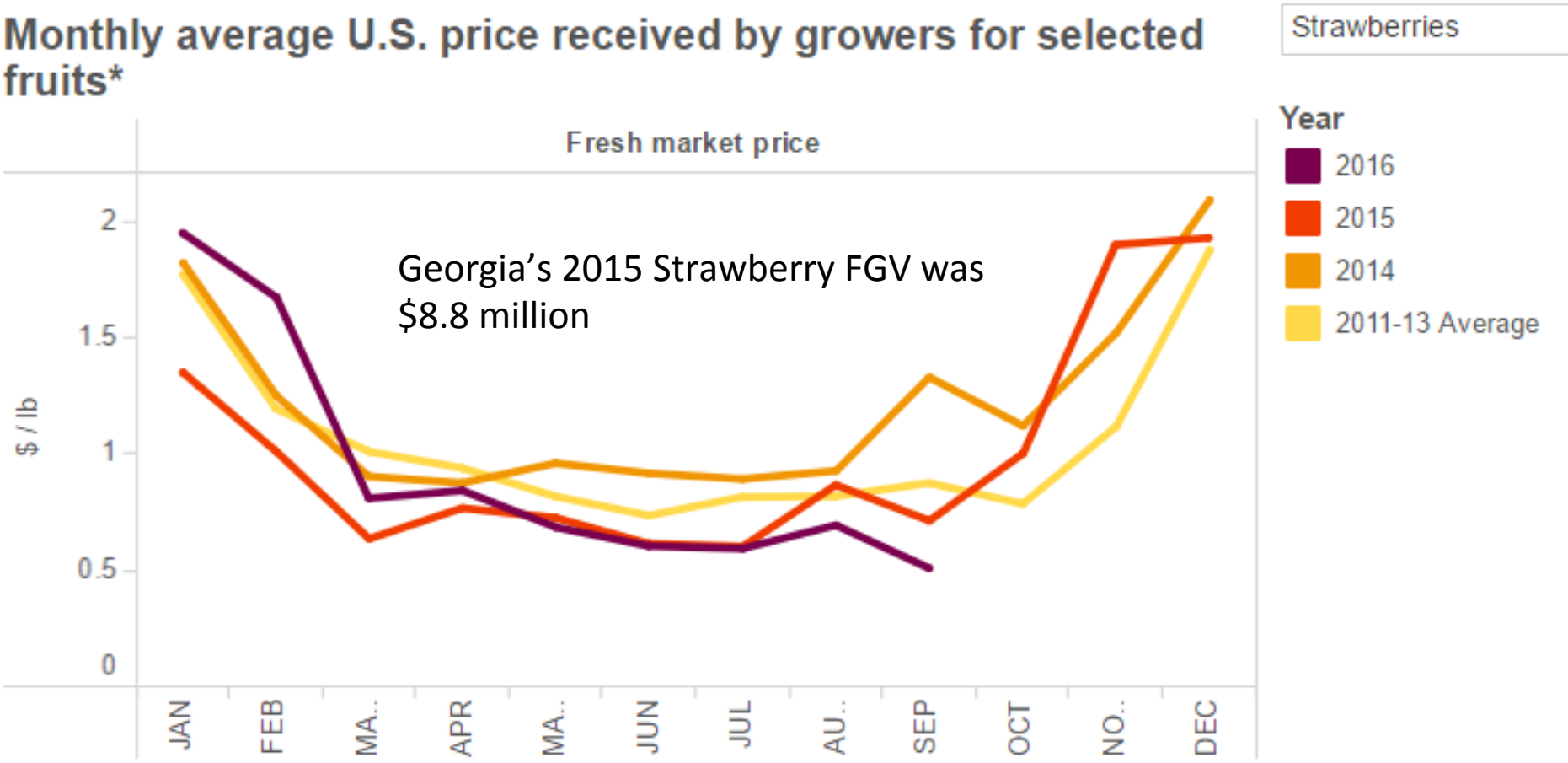
Source: USDA Fruit-tree-nuts Market-outlook

Strawberries



Source: USDA Fruit-tree-nuts Market-outlook

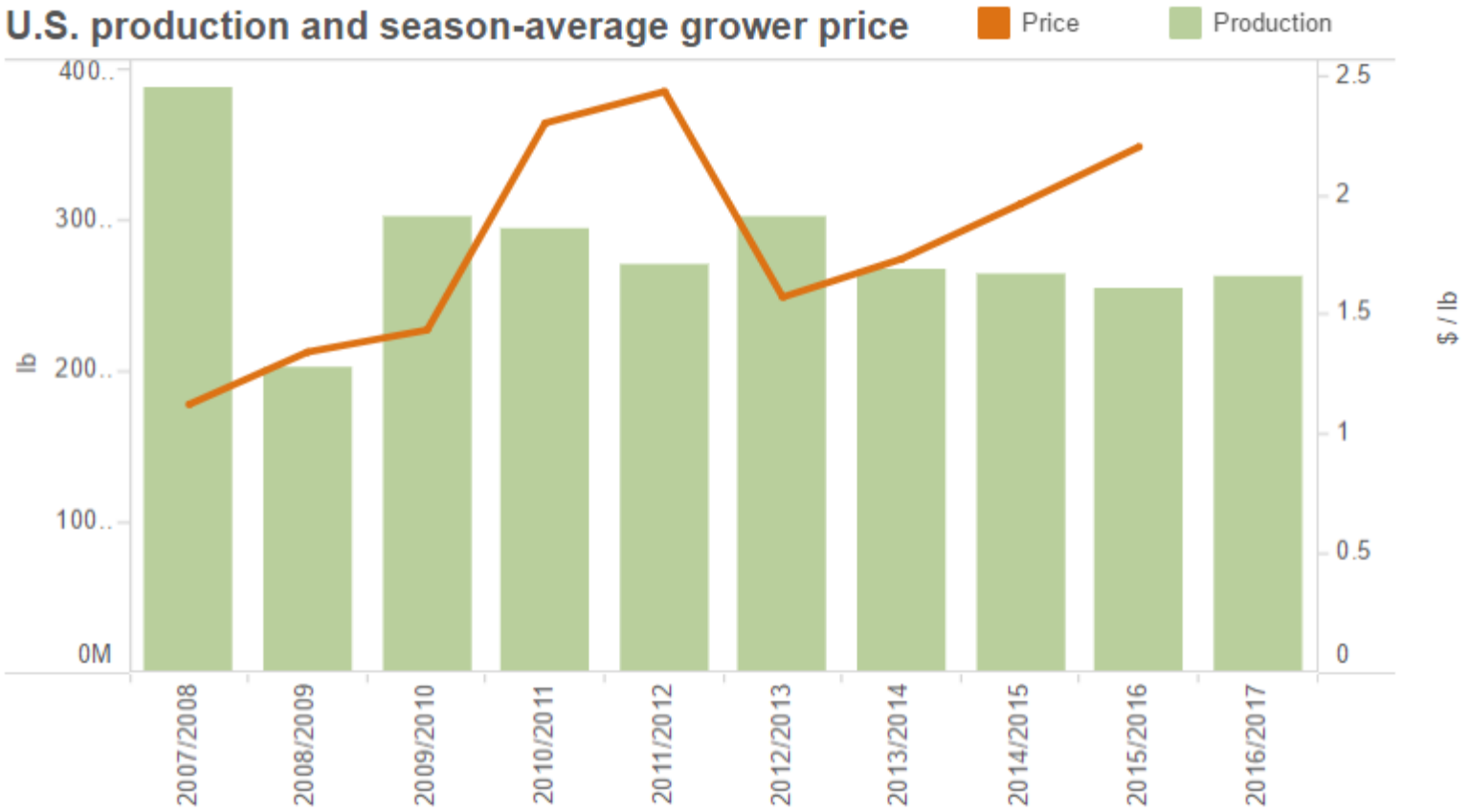
Strawberries



Source: USDA Fruit-tree-nuts Market-outlook

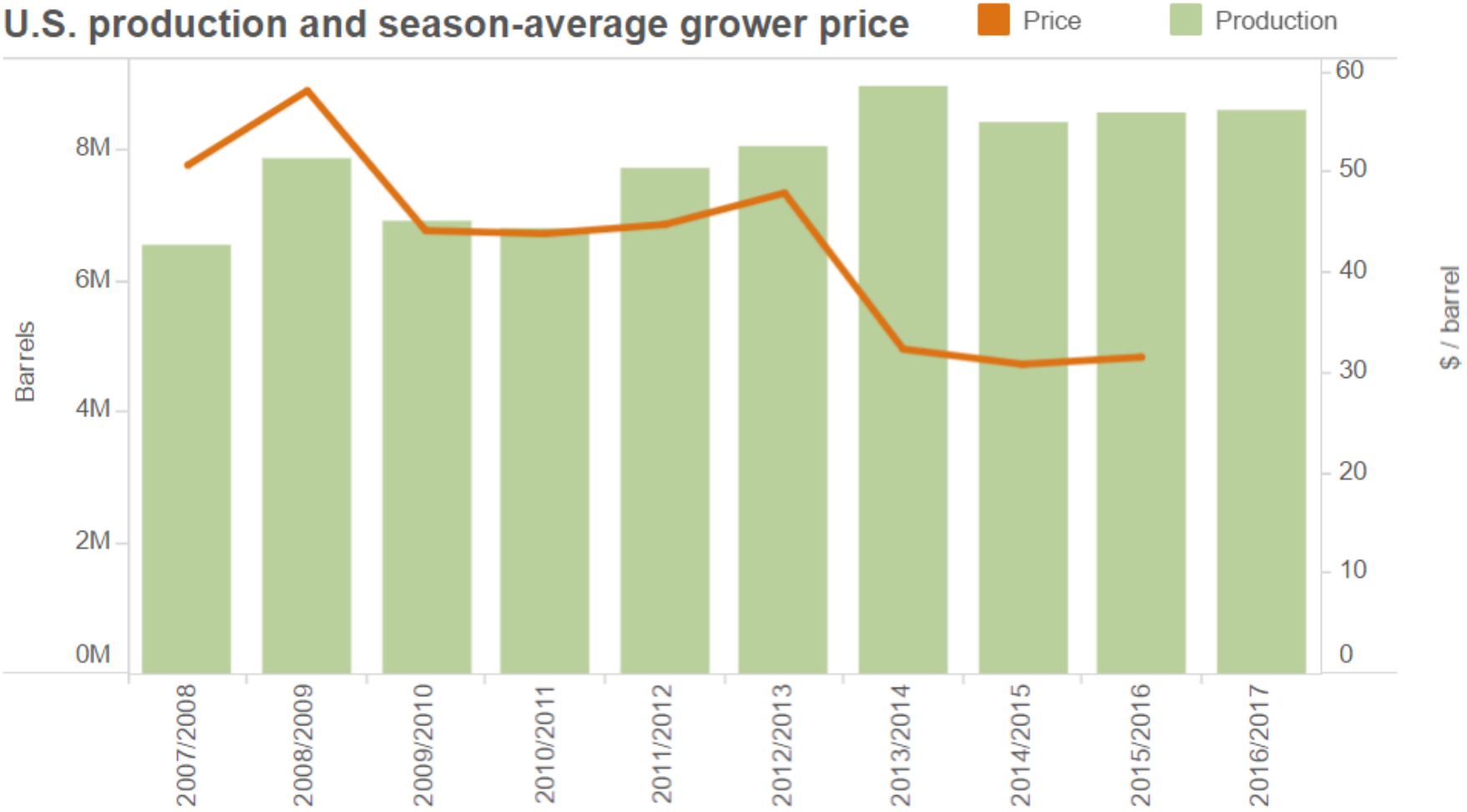
Pecans

Georgia 2016/17 forecast 5.4% increase to 98 million pounds.



Source: USDA Fruit-tree-nuts Market-outlook

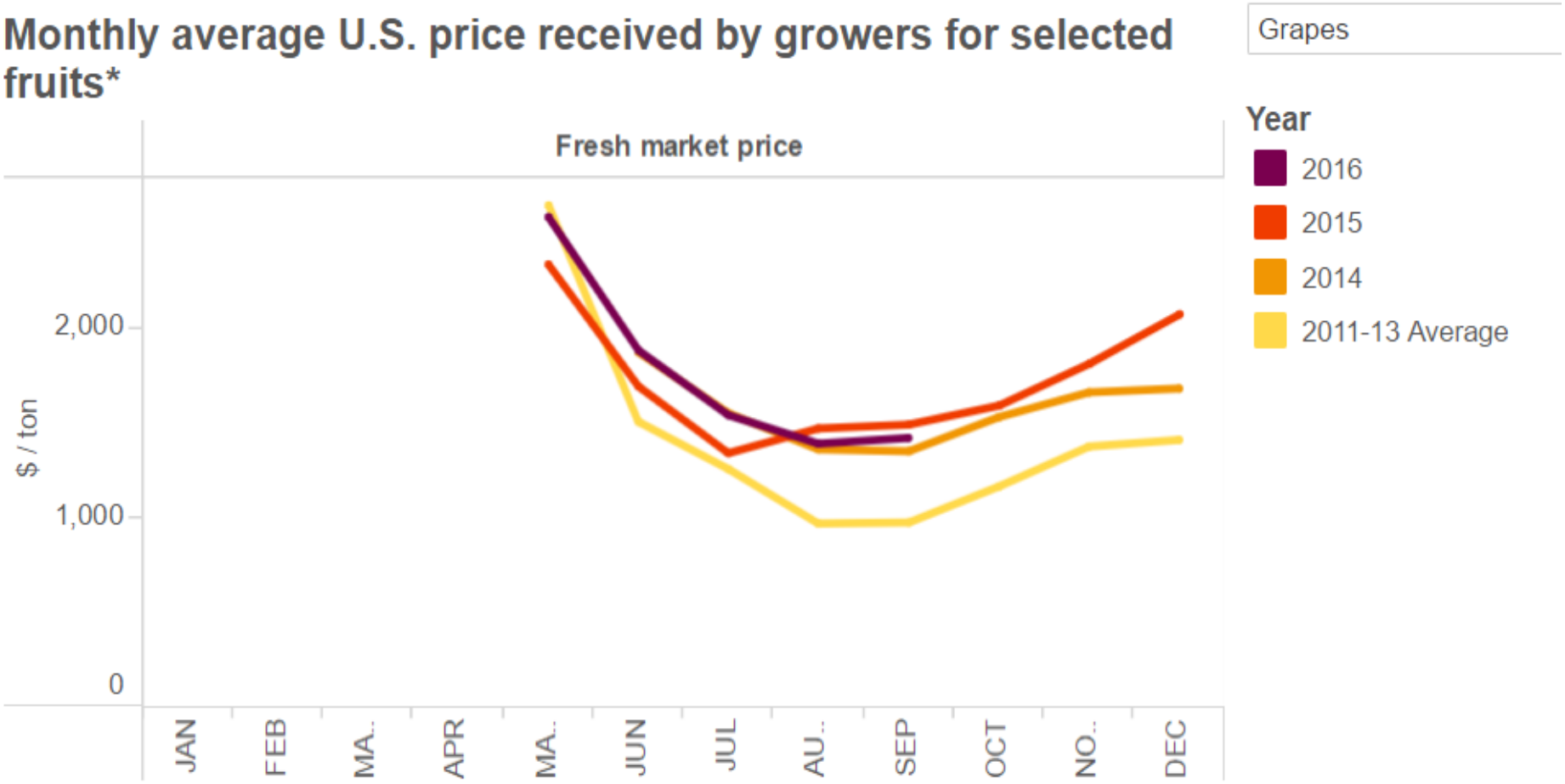
Grapes



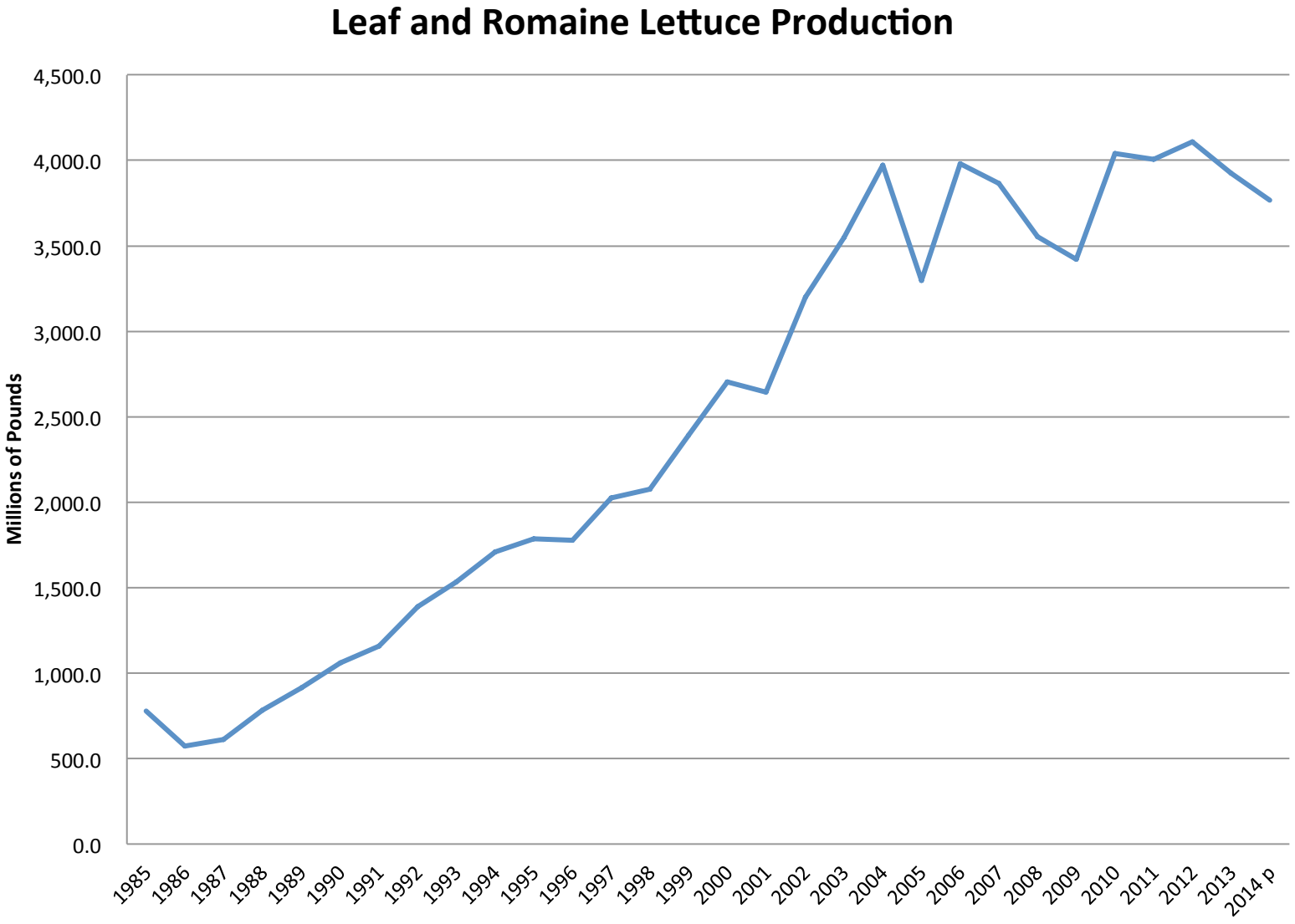
* Unlike other commodities in this report, strawberries and sweet cherries are on a calendar year.
Source: Economic Research Service, USDA, National Agricultural Statistics Service: *Noncitrus Fruits and Nuts Summary, Citrus Fruits Summary* and *Crop Production*.

Source: USDA Fruit-tree-nuts Market-outlook

Grapes



Source: USDA Fruit-tree-nuts Market-outlook


Leaf and Romaine Lettuce Production
Millions of Pounds
4,500.0
4,000.0
3,500.0
3,000.0
2,500.0
2,000.0
1,500.0
1,000.0
500.0
0.0
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
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2004
2005
2006
2007
2008
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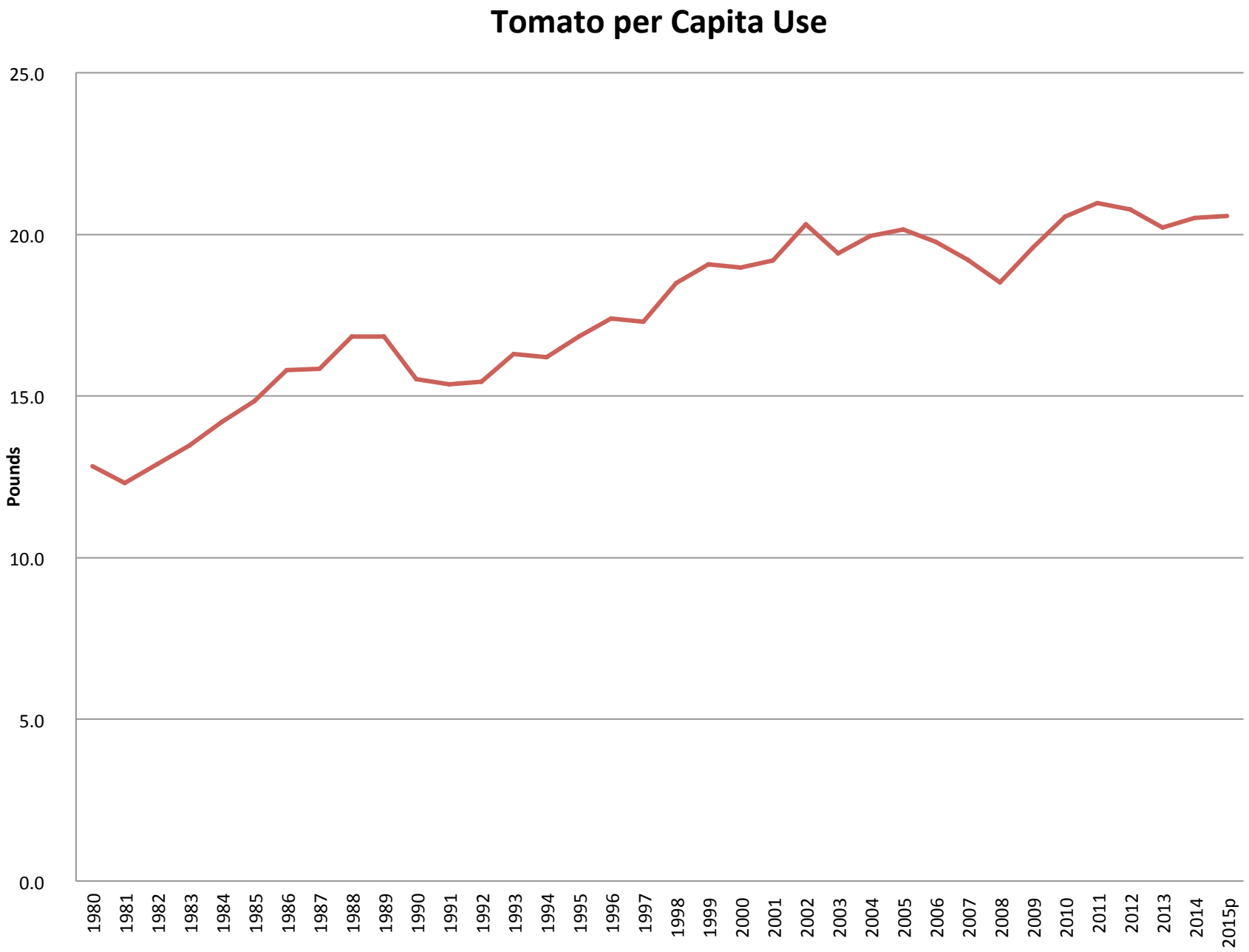
2010
2011
2012
2013
2014 p

Table Commercial Fresh Tomato Production in the US by State.

	Al	AR	CA	FL	GA	IN	MI	NJ	NY	NC	OH	PA	SC	TN	TX	VA	Tot.
Year	(1,000 of Pounds)																
98	192	336	10,320	13,952	910	240	483	741	462	616	735	528	896	850	140	1,151	32,552
99	215	338	12,220	15,820	1,110	240	494	504	357	713	1,028	570	828	828	192	1,558	37,015
00	242	150	12,760	15,760	1,365	248	408	720	540	696	1,125	840	884	1,131	182	1,485	38,536
01	212	299	11,340	14,908	1,716	281	378	714	480	832	1,947	537	1,088	561	180	1,850	37,323
02	351	336	12,600	13,975	1,650	248	420	759	378	891	2,479	731	837	1,462	240	2,120	39,477
03	330	384	10,200	14,190	1,530	233	484	682	322	896	1,155	242	1,023	1,610	169	1,824	35,274
04	342	137	13,020	15,120	986	224	546	690	360	775	1,106	330	1,050	900	116	2,090	37,792
05	341	414	11,200	15,540	2,142	180	440	600	360	960	2,145	311	390	936	150	1,924	38,033
06	402	306	11,480	13,475	2,016	110	460	522	400	1,088	1,980	368	480	1,190	110	1,887	36,274
07	501	149	11,100	13,321	1,800	150	506	595	432	957	630	420	238	1,159	143	1,526	33,627
08	475	279	11,655	10,458	840	144	546	624	513	1,088	723	352	488	1,120	130	1,316	30,751
09	403	64	11,310	12,298	1,260	120	600	638	350	1,122	1,002	289	385	1,360	140	1,440	32,781
10	410	187	11,780	8,555	NA	108	440	624	392	704	783	198	425	1,426	NA	945	26,977
11	438	230	13,135	9,120	NA	84	528	609	432	1,408	635	173	566	1,045	NA	1,012	29,415
12	416	285	11,340	9,600	NA	112	520	567	546	1,073	425	192	825	950	NA	1,302	28,153
13	297	150	10,200	9,010	440	153	576	588	446	1,040	595	310	630	1,122	90	744	26,391
14	420	153	10,175	9,240	575	152	466	624	312	850	954	415	896	1,326	78	644	27,280
15	385	152	9,424	9,499	918	50	780	653	299	1,023	886	389	864	1,003	81	620	27,026


Tomato per Capita Use
25.0
20.0
15.0
10.0
5.0
0.0
Pounds
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
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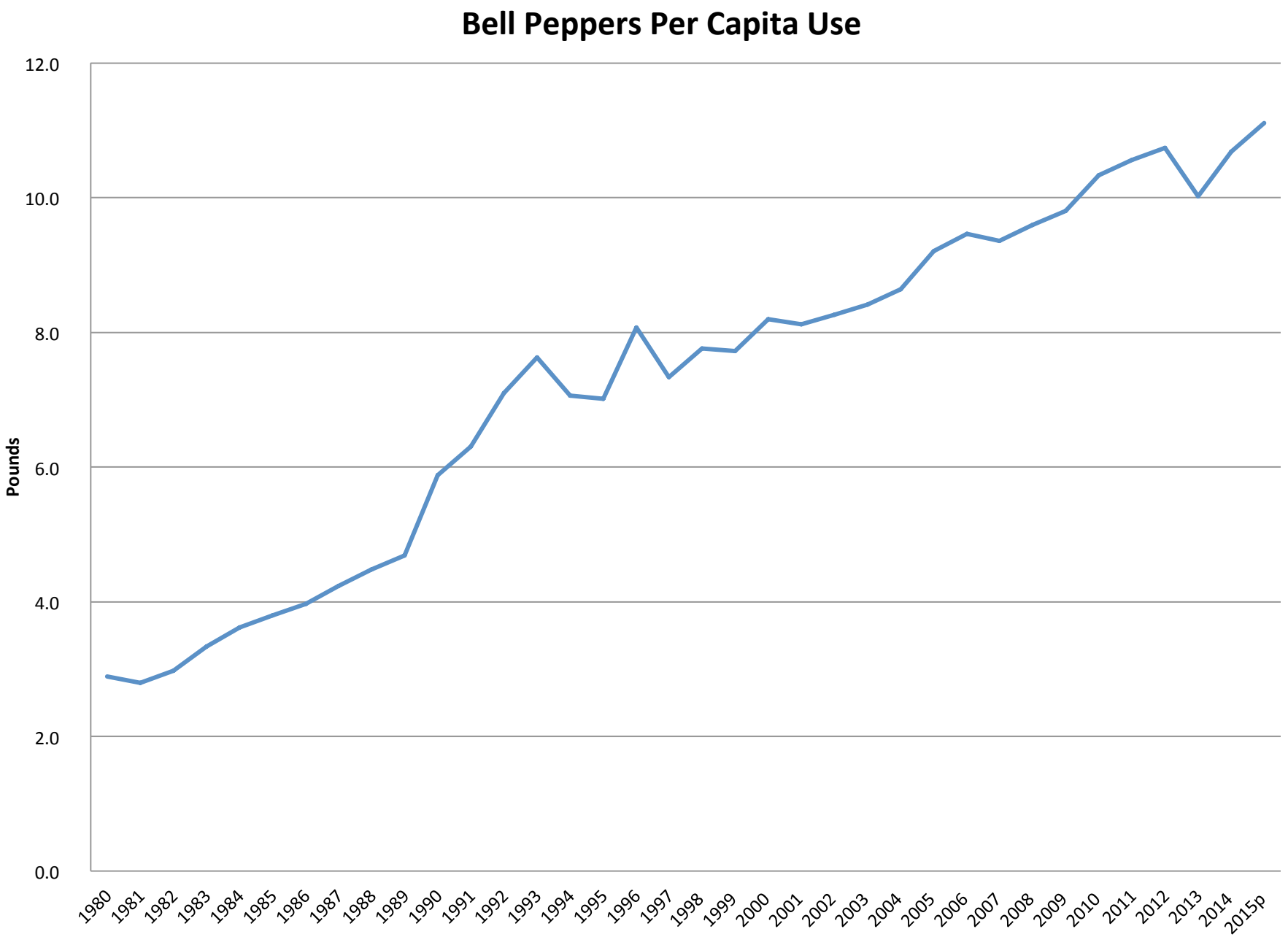
Bell Peppers Per Capita Use
Pounds
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
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1994
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2012
2013
2014
2015p

2017 Georgia Ag Forecast

Summary of 2017 Georgia Agricultural & Agribusiness Outlook

Kent Wolfe,

Director, UGA Center for Agribusiness & Economic Development

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

Economic Outlook and Meat Complex

Dairy

Timber

Honey

Economic Outlook

US and Georgia Economies

World Economy

Trade Environment

Renegotiating existing and pending trade deals

2017 Georgia Ag Forecast

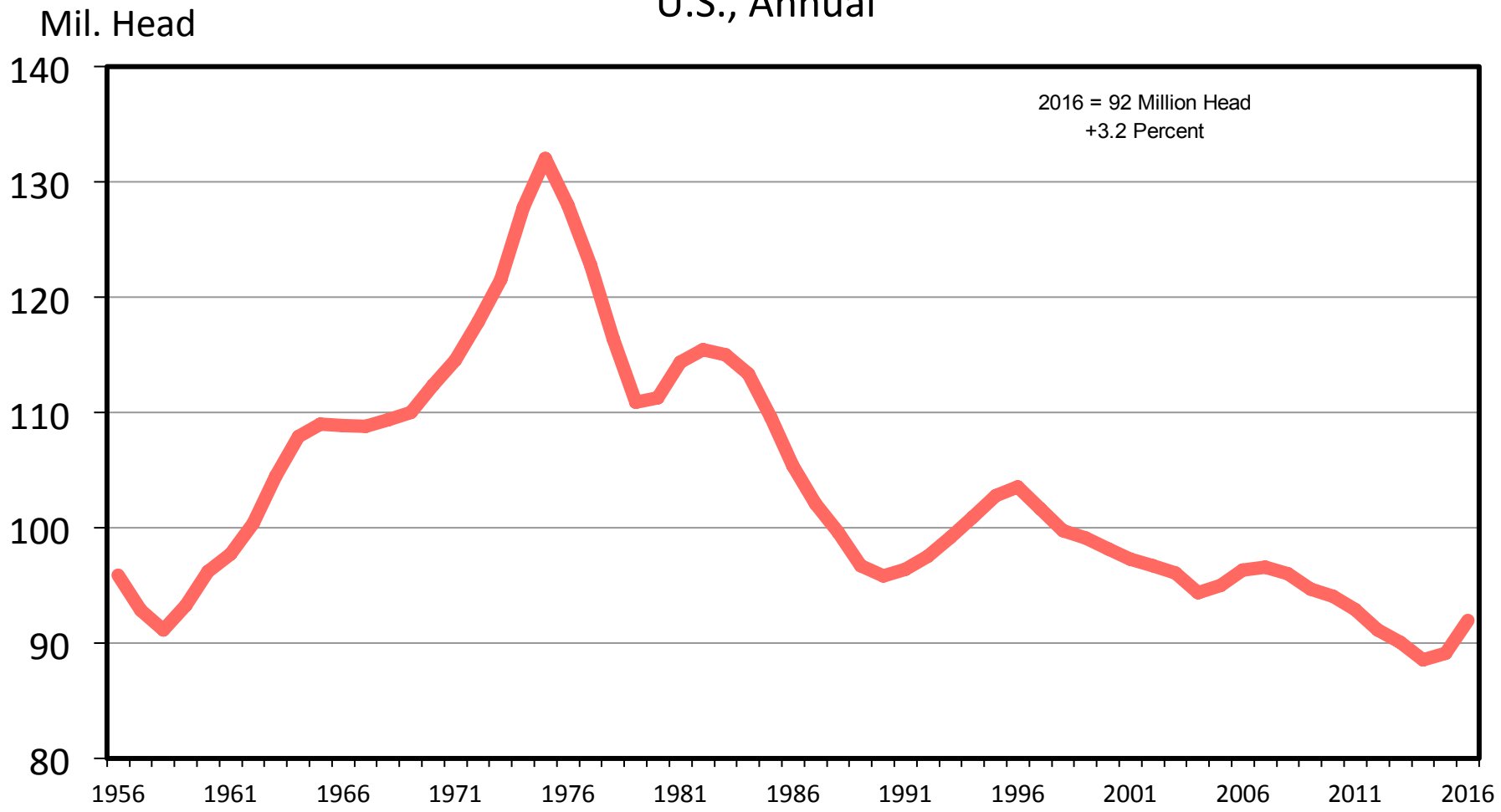
Beef Cattle

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

JANUARY 1 TOTAL CATTLE INVENTORY

C-N-01
08/04/16

U.S., Annual

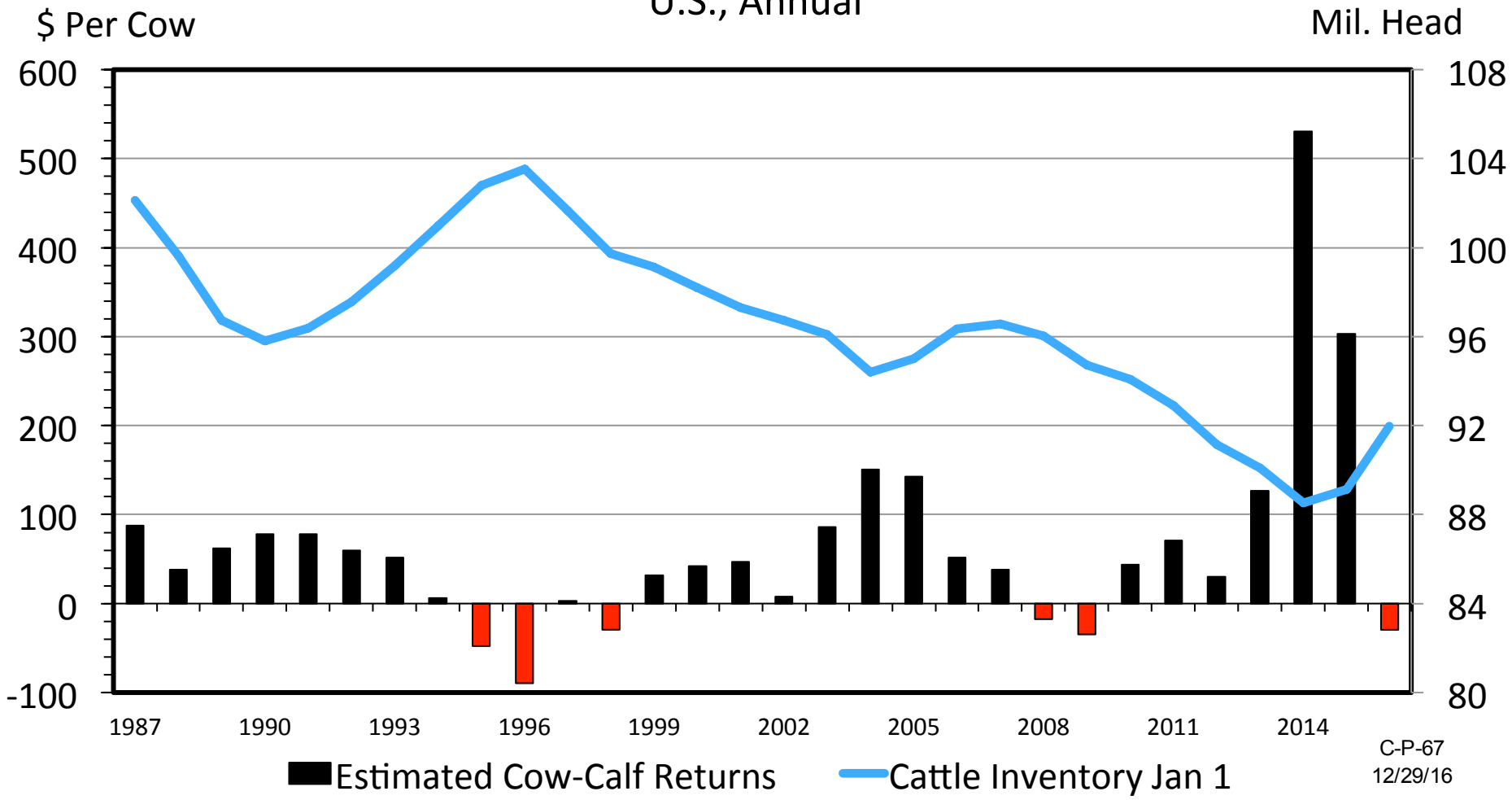


Data Source: USDA-NASS

Livestock Marketing Information Center

COW-CALF RETURNS AND CATTLE INVENTORY

U.S., Annual



C-P-67
12/29/16

Data Source: USDA-AMS & USDA-NASS, Compiled and Analysis by LMIC

Livestock Marketing Information Center

Beef Outlook Summary

Continue to see a return to “normal” supply, demand, and trade fundamentals

Expect a seasonal price pattern consistent with current prices

Negative profits on average nationwide -> end of expansion

Expect to turn the corner on the cattle cycle which will help prices going into 2018

Recovery in pasture conditions will dictate profitability in much of Georgia

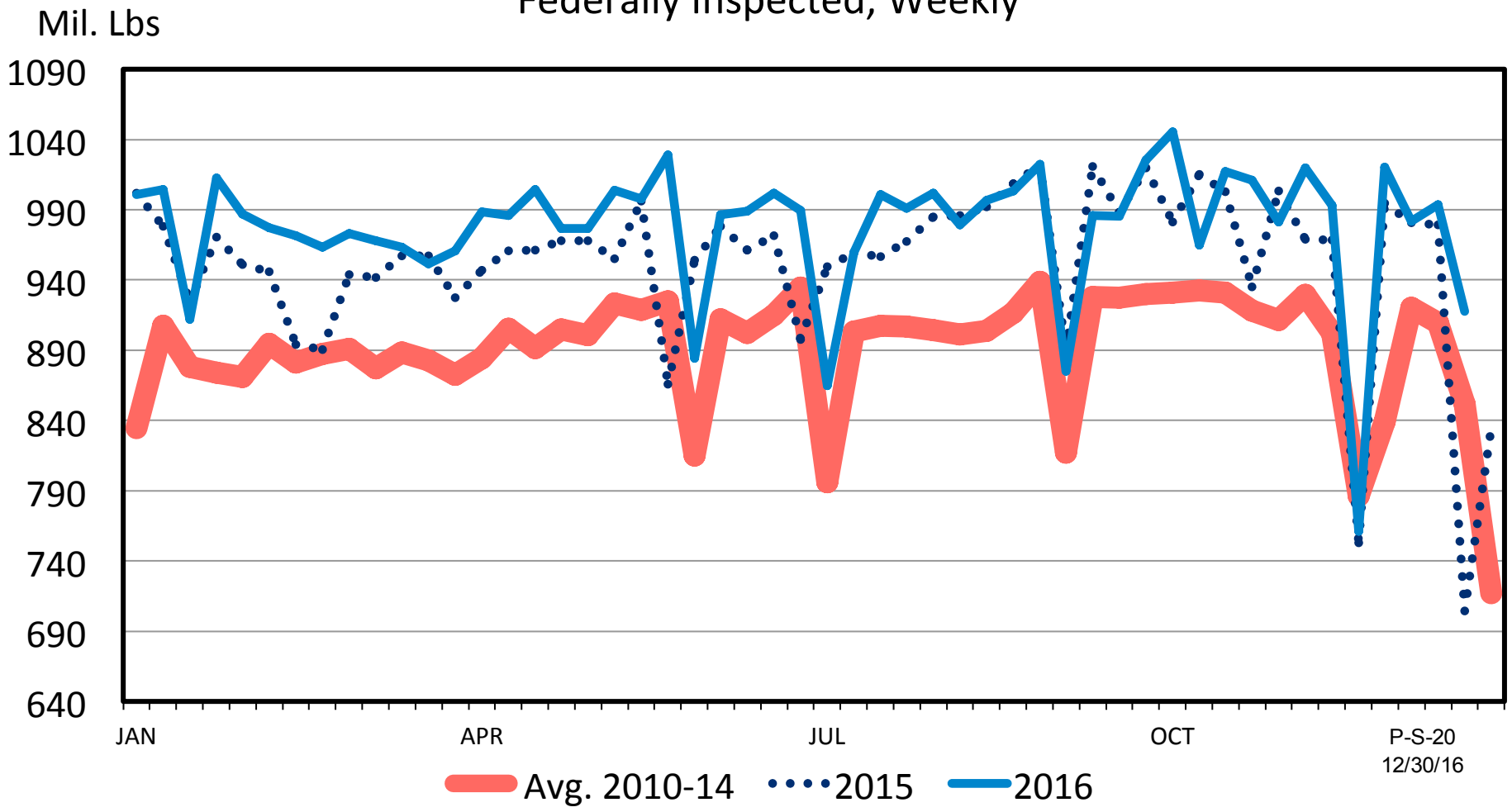
2017 Georgia Ag Forecast

Poultry

College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

BROILER PRODUCTION

Federally Inspected, Weekly

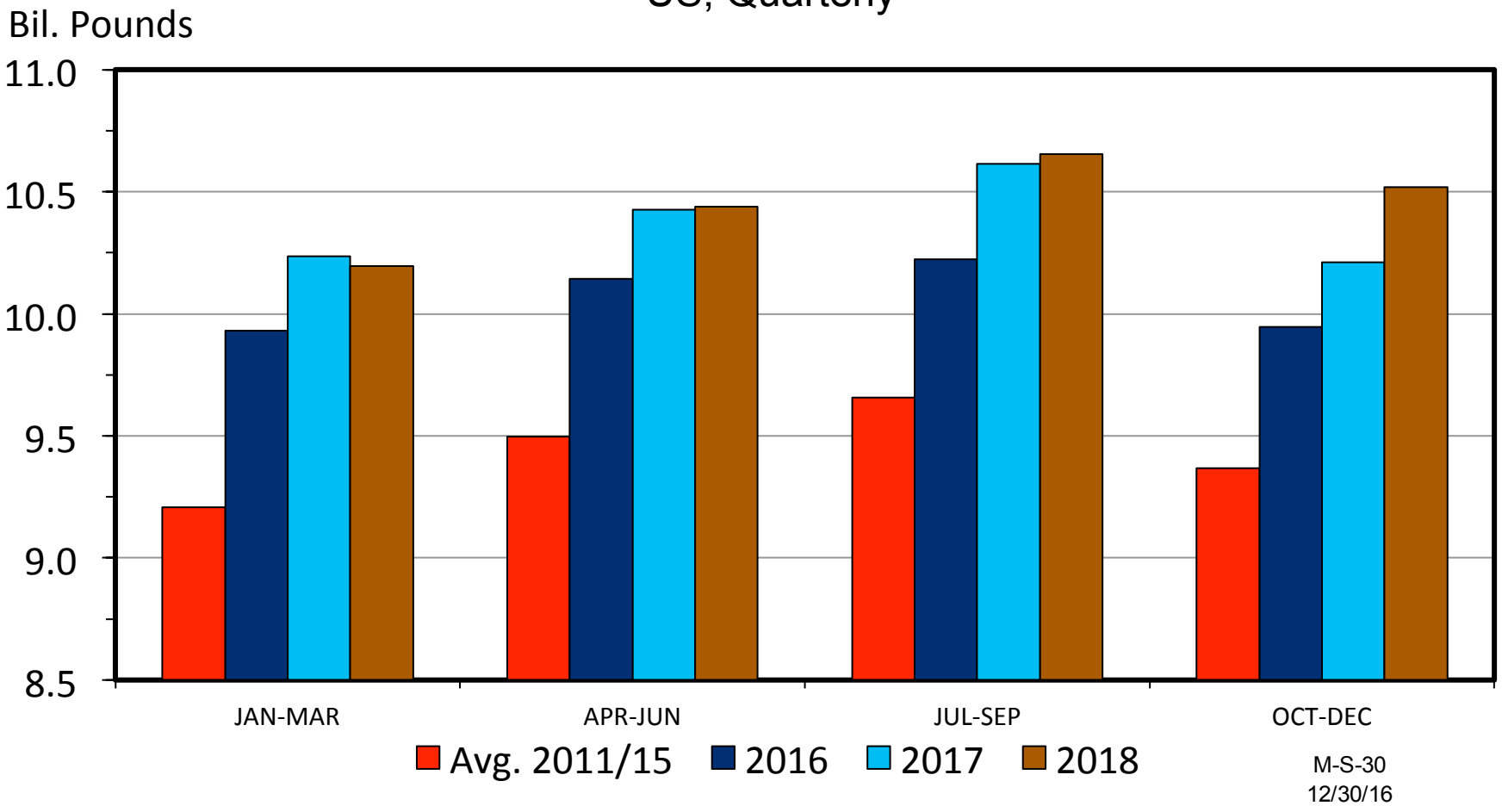


Data Source: USDA-AMS & USDA-NASS

Livestock Marketing Information Center

RTC BROILER PRODUCTION

US, Quarterly



M-S-30
12/30/16

Data Source: USDA-NASS, Forecasts by LMIC

Livestock Marketing Information Center

Poultry Outlook Summary

Expect continued increases in production, but slower growth than previous year

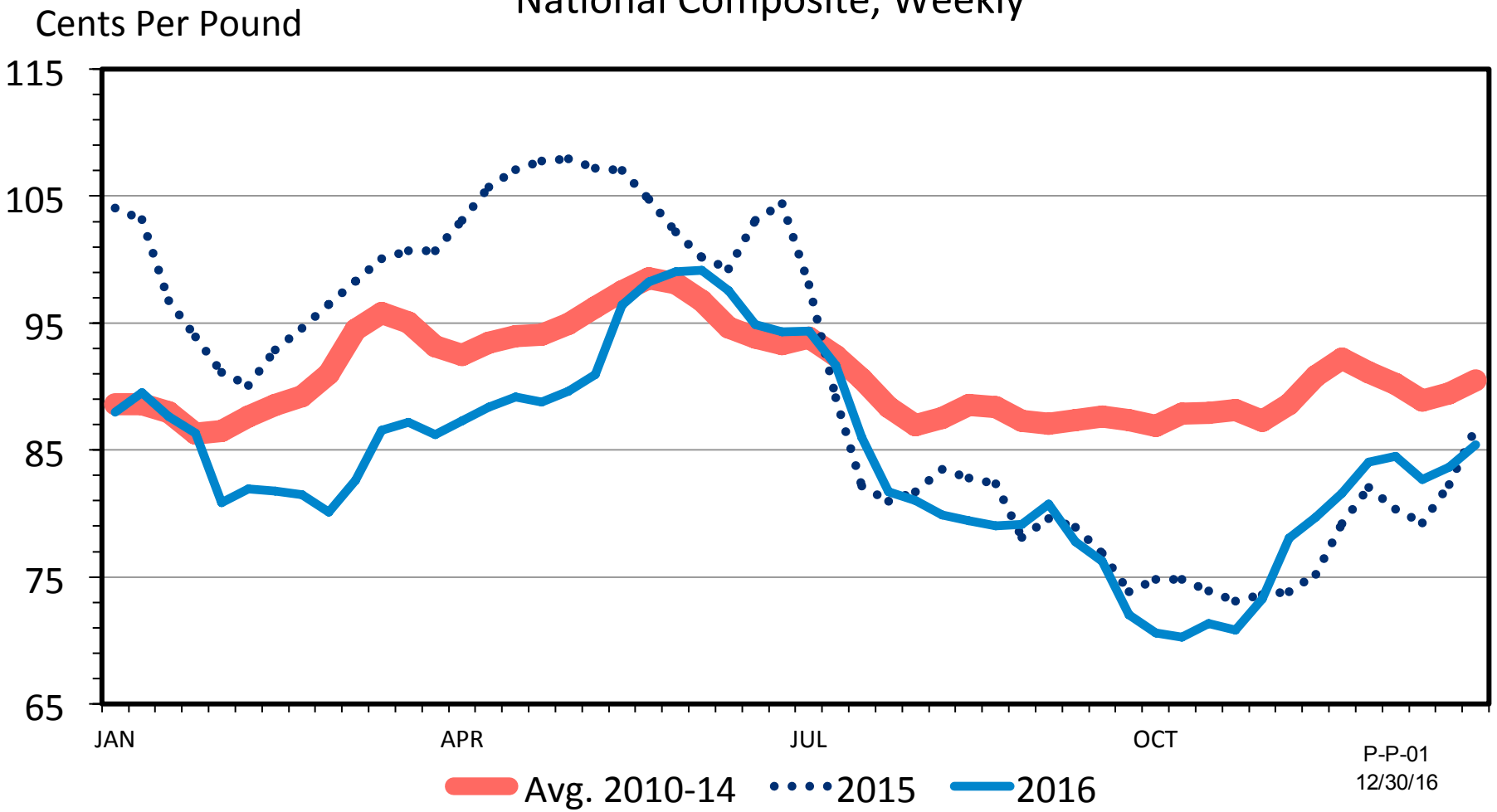
Exports will be even more important in 2017 due to higher production, but expect higher domestic supplies

Competing meats will add downward pressure to prices

Continued low feed costs will ultimately determine profitability in 2017

BROILER PRICES

National Composite, Weekly



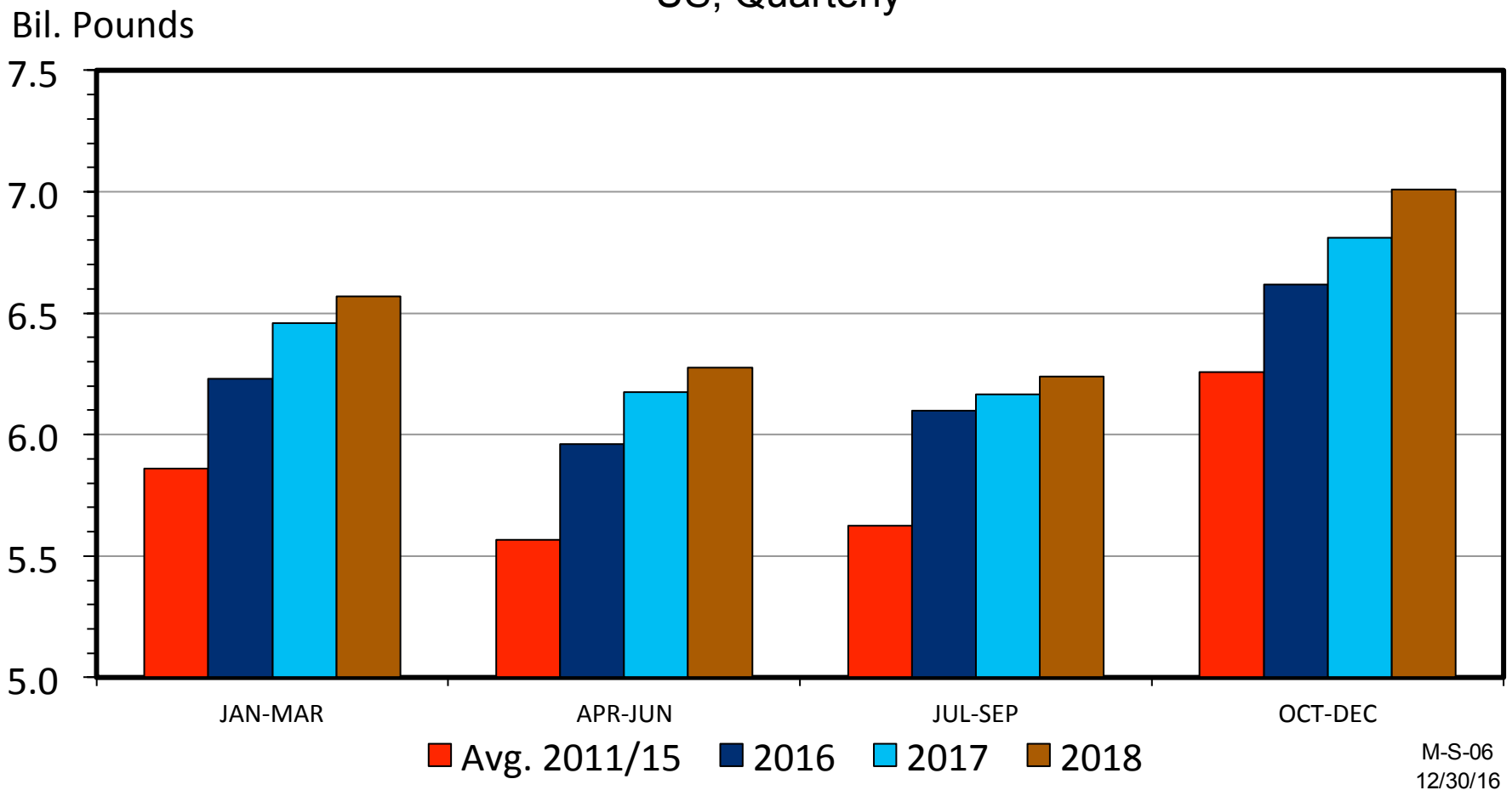
Data Source: USDA-AMS

Livestock Marketing Information Center

Hogs

COMMERCIAL PORK PRODUCTION

US, Quarterly



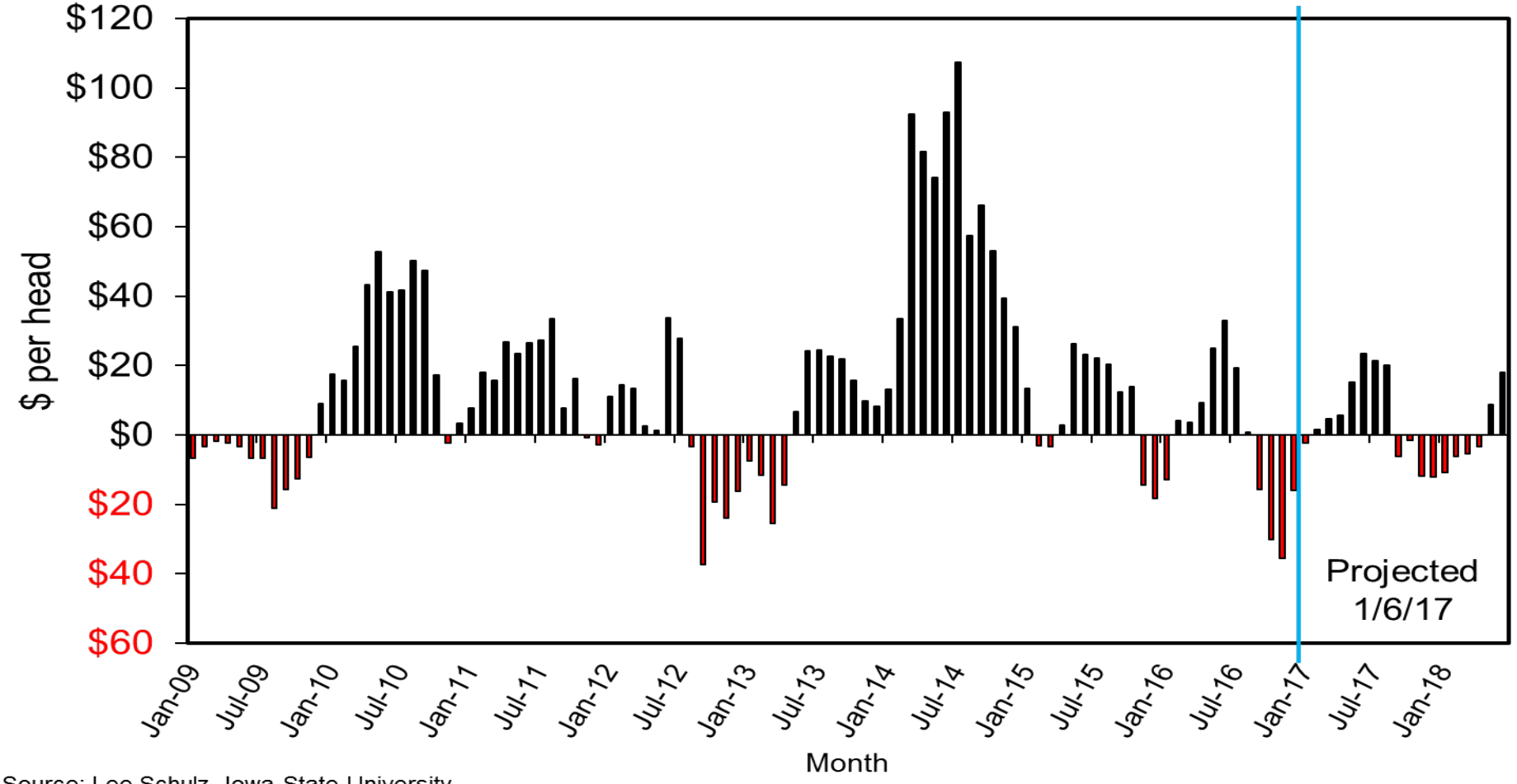
M-S-06
12/30/16

Data Source: USDA-NASS, Forecasts by LMIC

Livestock Marketing Information Center

Estimated Returns to Farrow to Finish, Iowa

Past and Projected with Basis Adjusted Futures



Source: Lee Schulz, Iowa State University

Hog Outlook Summary

Slower growth in production assisted in part by increases in packing capacity

As with other meats, increasing production of competing product will put negative pressure on prices

Exports will be a key factor in buoying prices, in addition to a willingness of domestic consumers to absorb increasing supplies

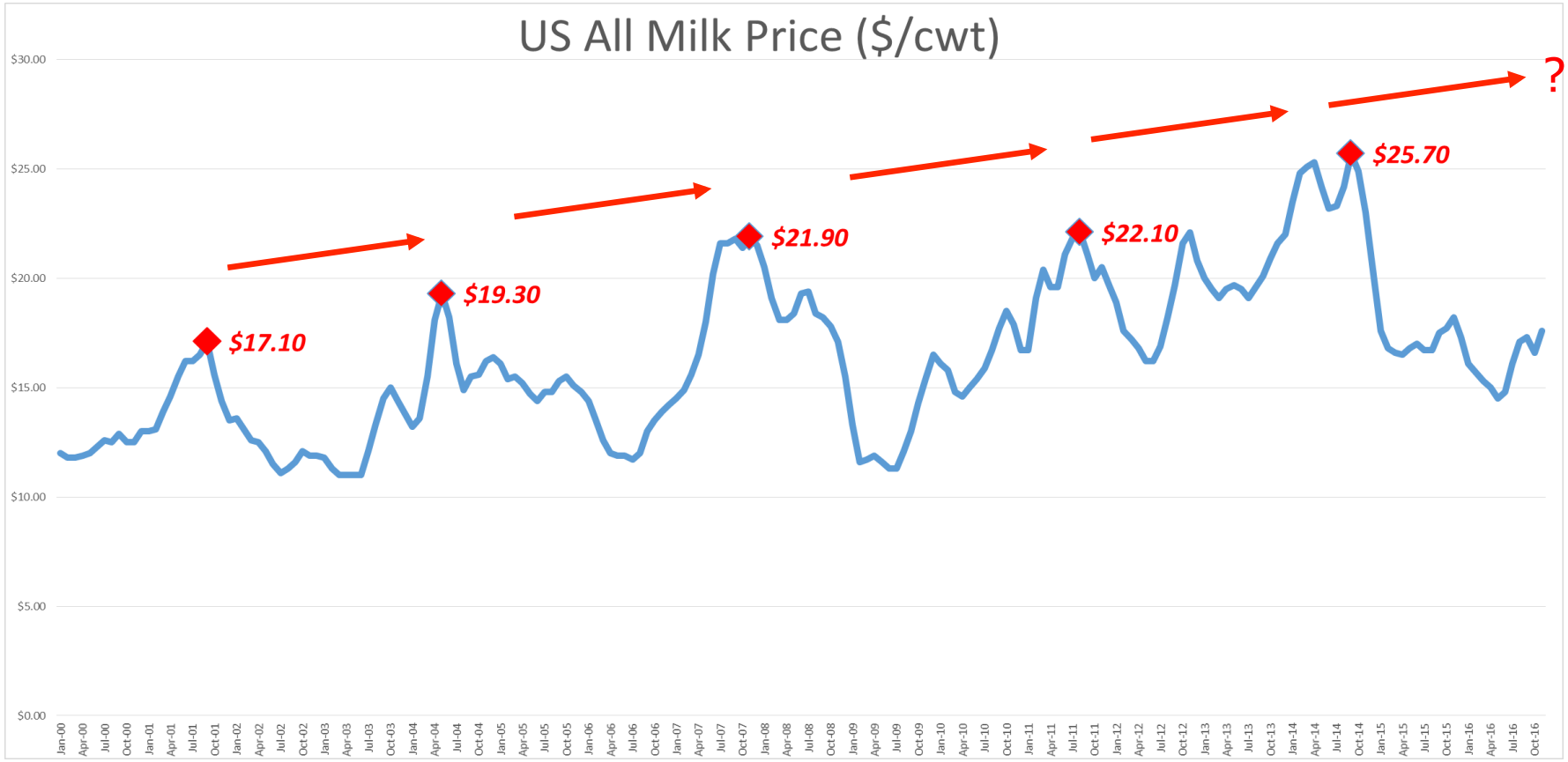
Likely to see a recovery in profits early in the year with feed costs expected to catch up later in the year

2016 Georgia Ag Forecast

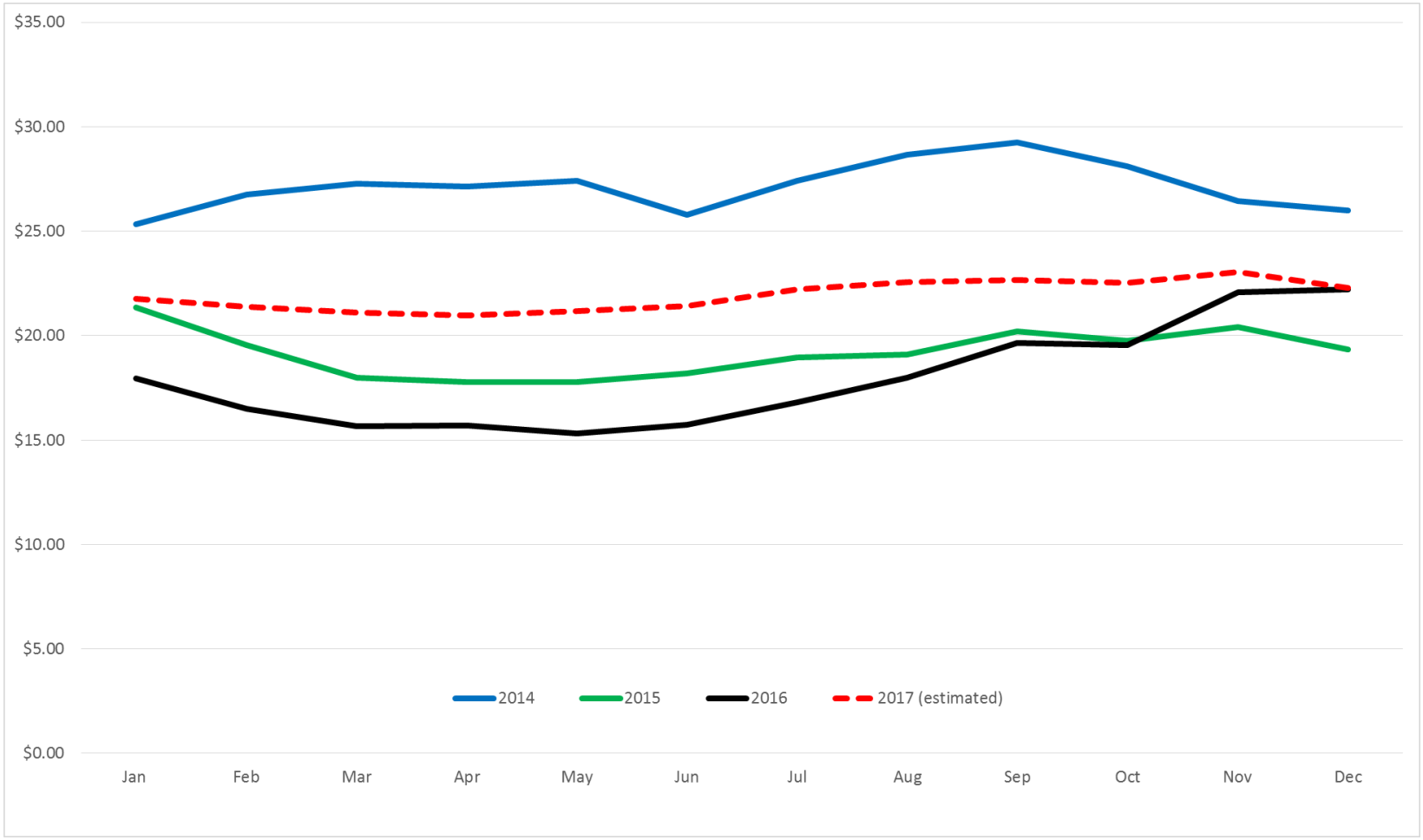
DAIRY

THE UNIVERSITY OF GEORGIA
COLLEGE OF AGRICULTURAL & ENVIRONMENTAL SCIENCES

All Milk Price: 2000 - 2016



Georgia Mailbox Prices



Dairy Summary

- Feed Prices Remain Favorable
- Commodity Stocks (Cheese and butter) are still high but not alarmingly so.
- Export demand shows signs of improvement
- Global dairy prices show signs of strengthening

2017 Georgia Ag Forecast

College of Agricultural & Environmental Sciences
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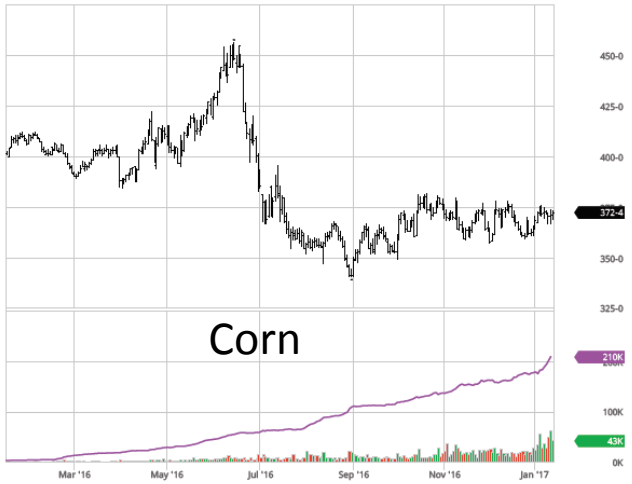
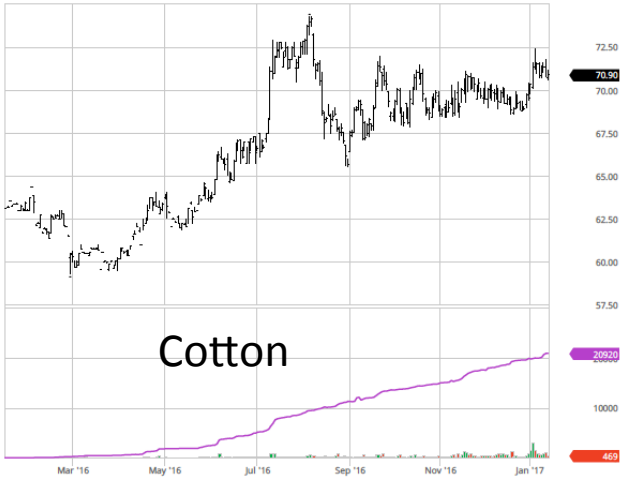
Row Crop Outlook

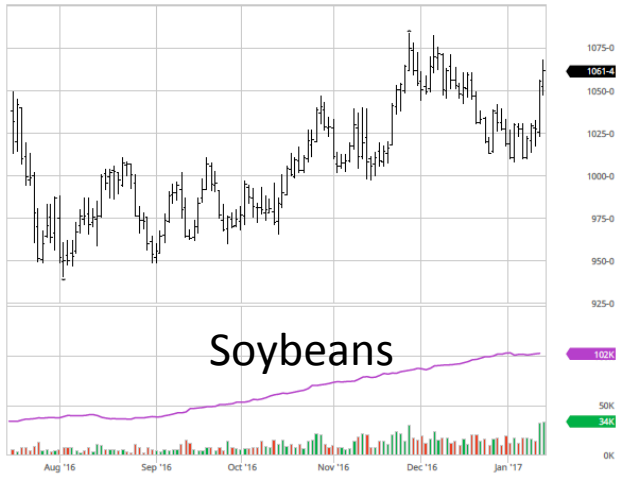
- Corn
- Soybeans
- Wheat
- Cotton

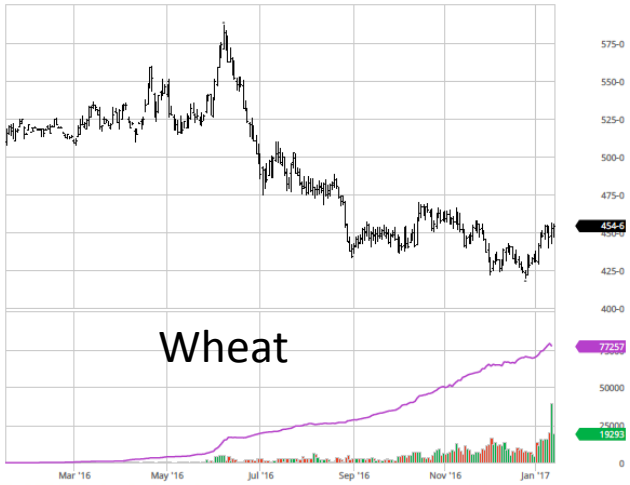
2017 Inputs Outlook

- Seed prices: minor changes, estimate 1% increase
- All fertilizers down from year ago, likely hit bottom in 2016 (budgets: N = $0.42, P = $0.39, K = $0.28)
- Diesel fuel down from year ago, hit bottom in 2016 and expected to increase through 2017
- Chemicals mixed (some up, some down)
- Machinery, up 1.5% from last year
- Labor rates are about same as last year

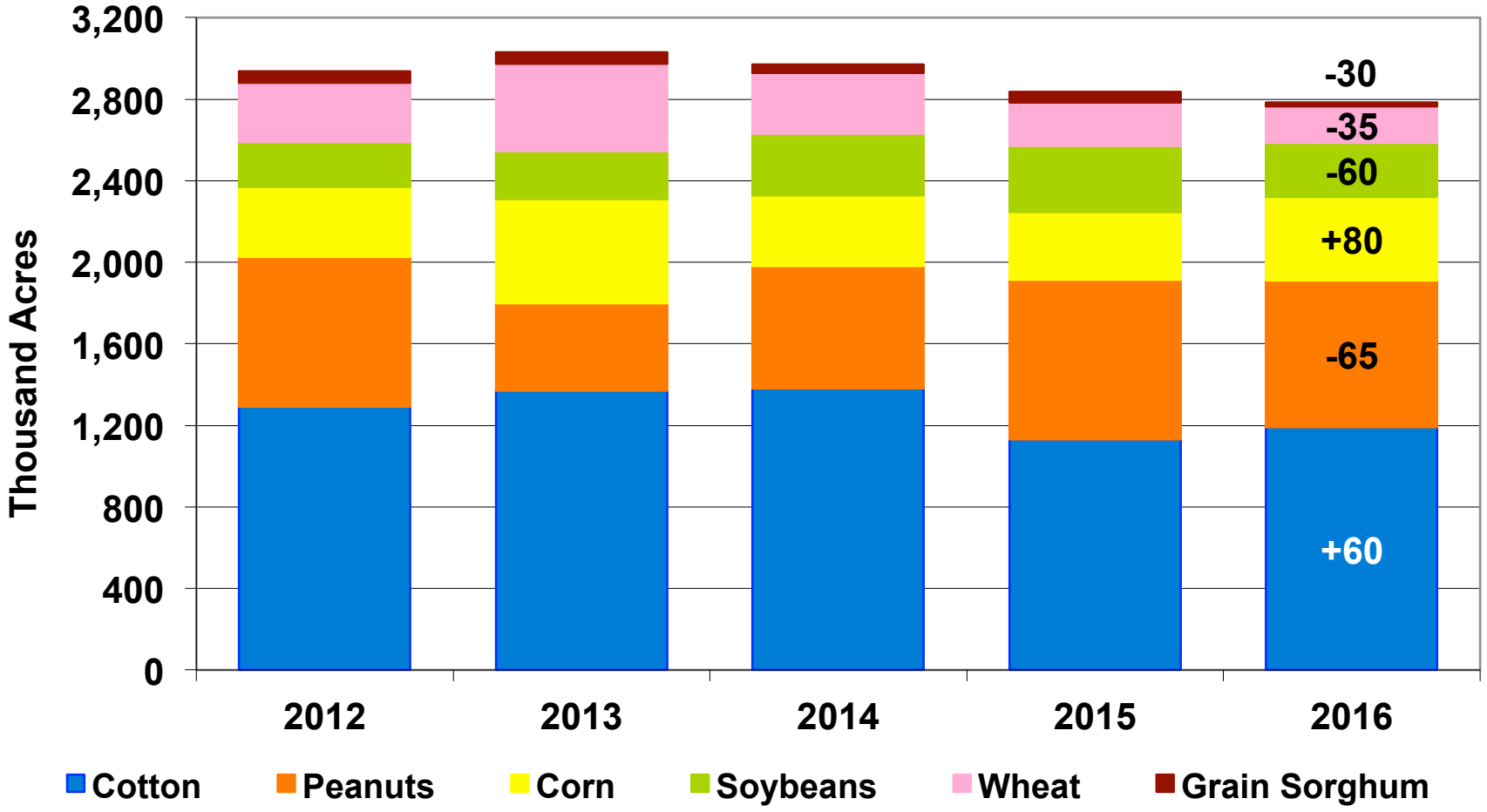

Corn
450-0
425-0
400-0
372-4
350-0
325-0
210K
100K
43K
0K
Mar '16
May '16
Jul '16
Sep '16
Nov '16
Jan '17


Cotton
72.50
70.90
70.00
67.50
65.00
62.50
60.00
57.50
20920
10000
469
Mar '16
May '16
Jul '16
Sep '16
Nov '16
Jan '17


Soybeans
1075-0
1061-4
1050-0
1025-0
1000-0
975-0
950-0
925-0
102K
50K
34K
0K
Aug '16
Sep '16
Oct '16
Nov '16
Dec '16
Jan '17

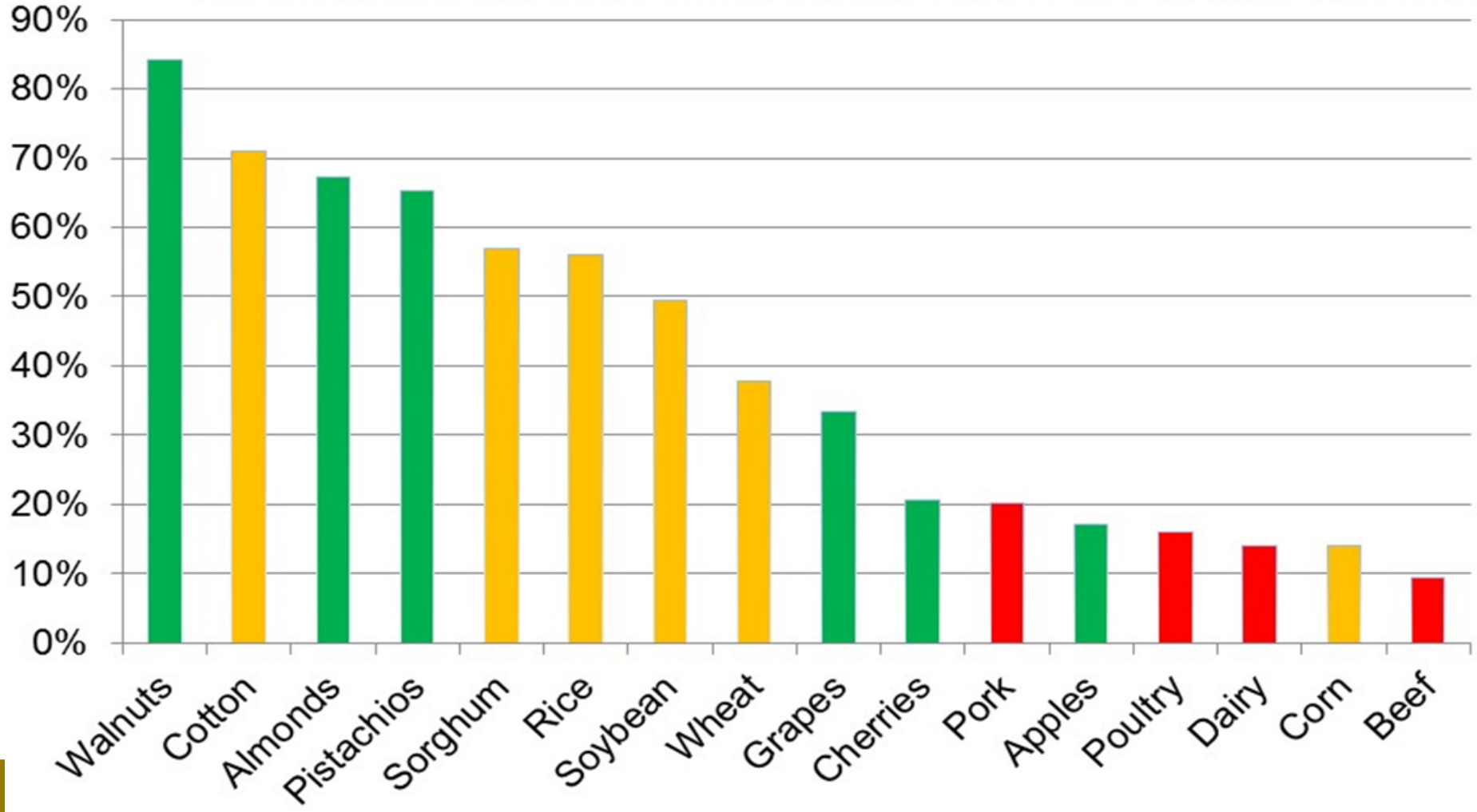

Wheat
575-0
550-0
525-0
500-0
475-0
454-6
425-0
400-0
77257
50000
19293
0
Mar '16
May '16
Jul '16
Sep '16
Nov '16
Jan '17

Planted Acres of Select Row Crops in Georgia and Change from 2015



Data Source: USDA-NASS

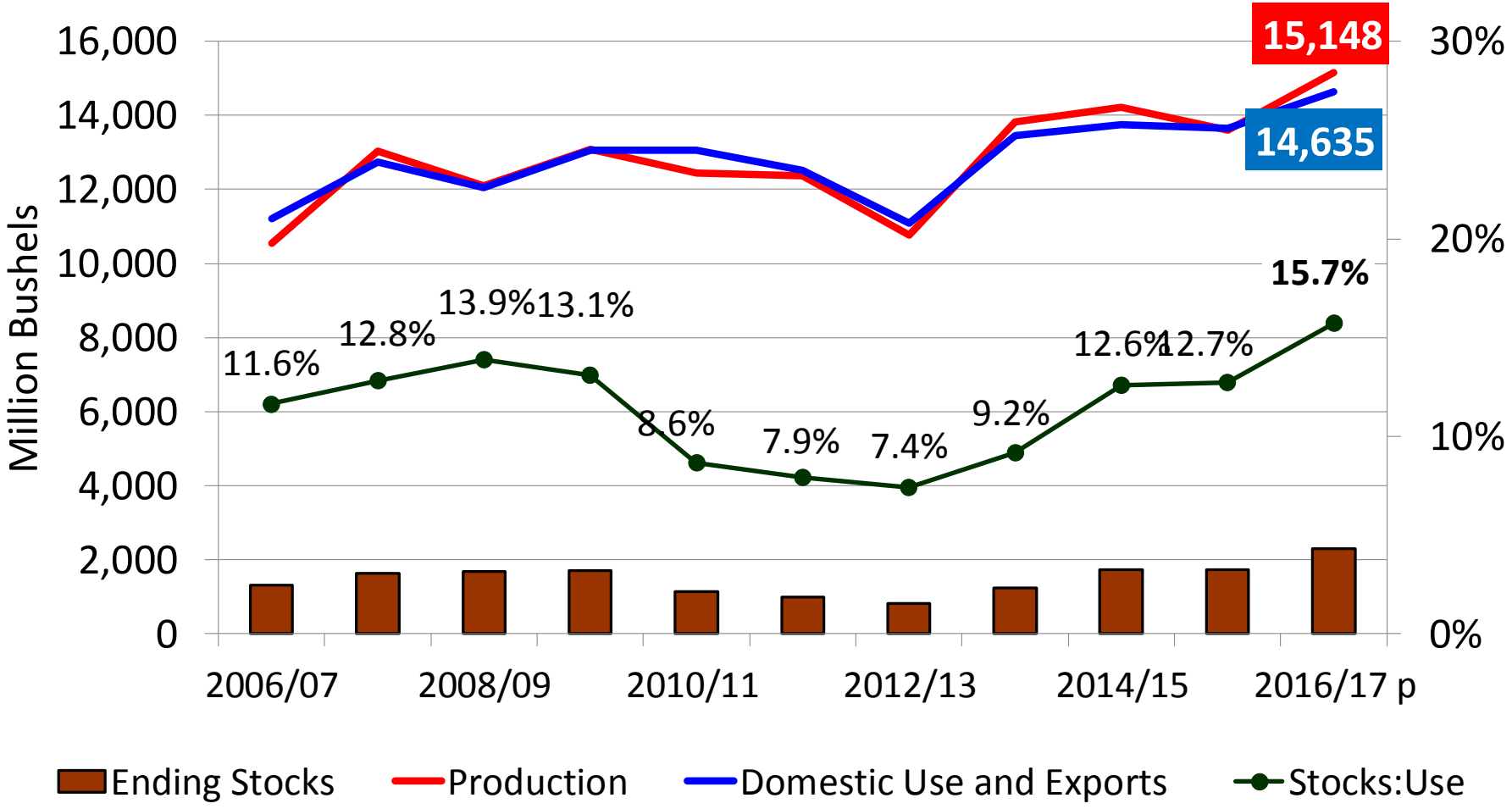
% of U.S. Ag Production Going to Exports



Source: USDA/FAS/PSD database, marketing year dat

Corn

U.S. Corn Supply and Demand



Data Source: USDA-NASS

Corn Outlook Summary

US corn acres to decrease in 2017 due to lower corn prices relative to soybeans

Ethanol levels increasing due to Renewable Fuel Standard increases

Whether strong exports continue is going to be a big question

GA price likely to be in the range of $4.07 and $4.22

2017 Georgia Ag Forecast

Soybeans

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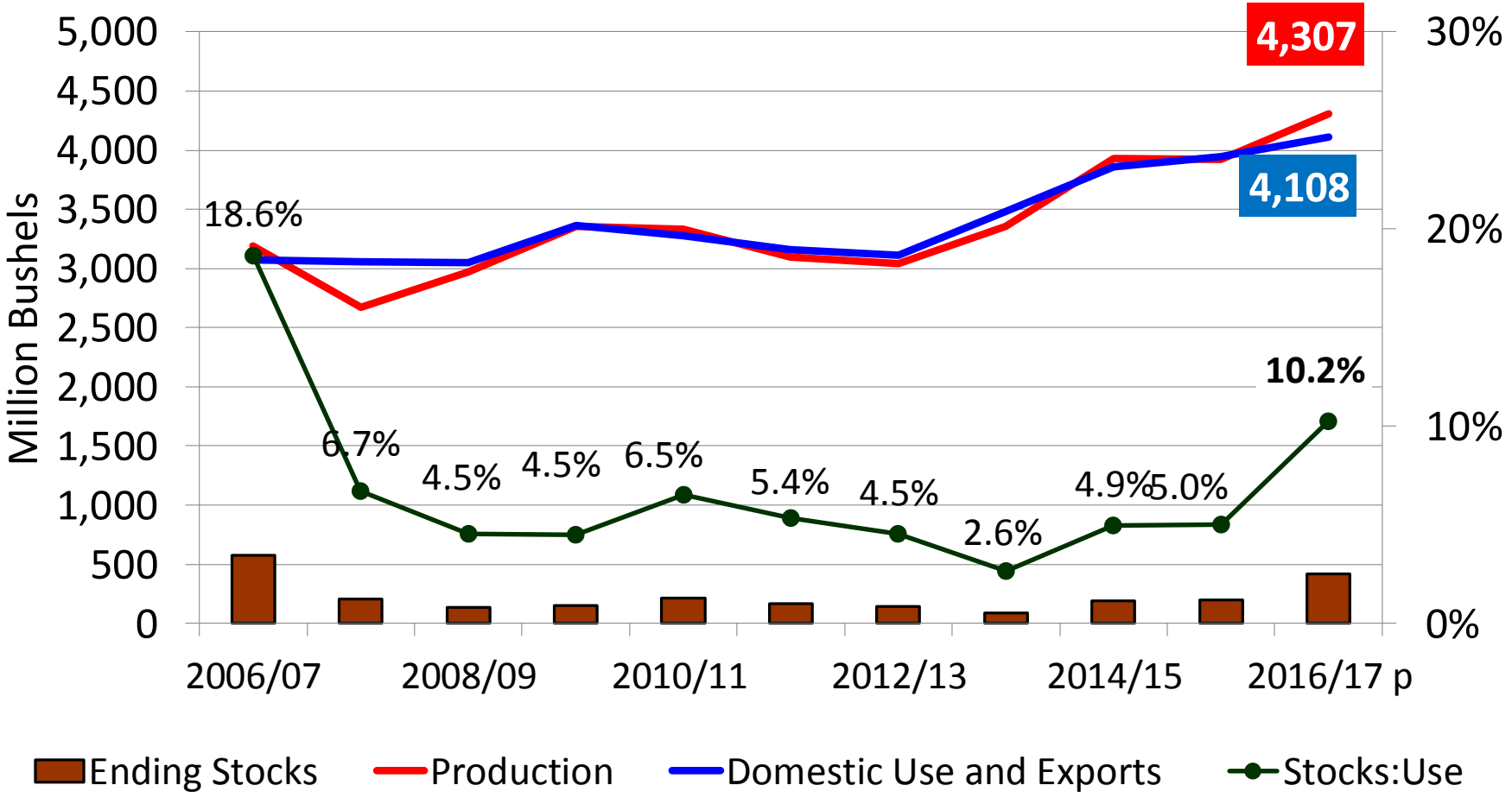
U.S. Soybean Supply and Demand



Data Source: USDA-NASS

Soybean Outlook Summary

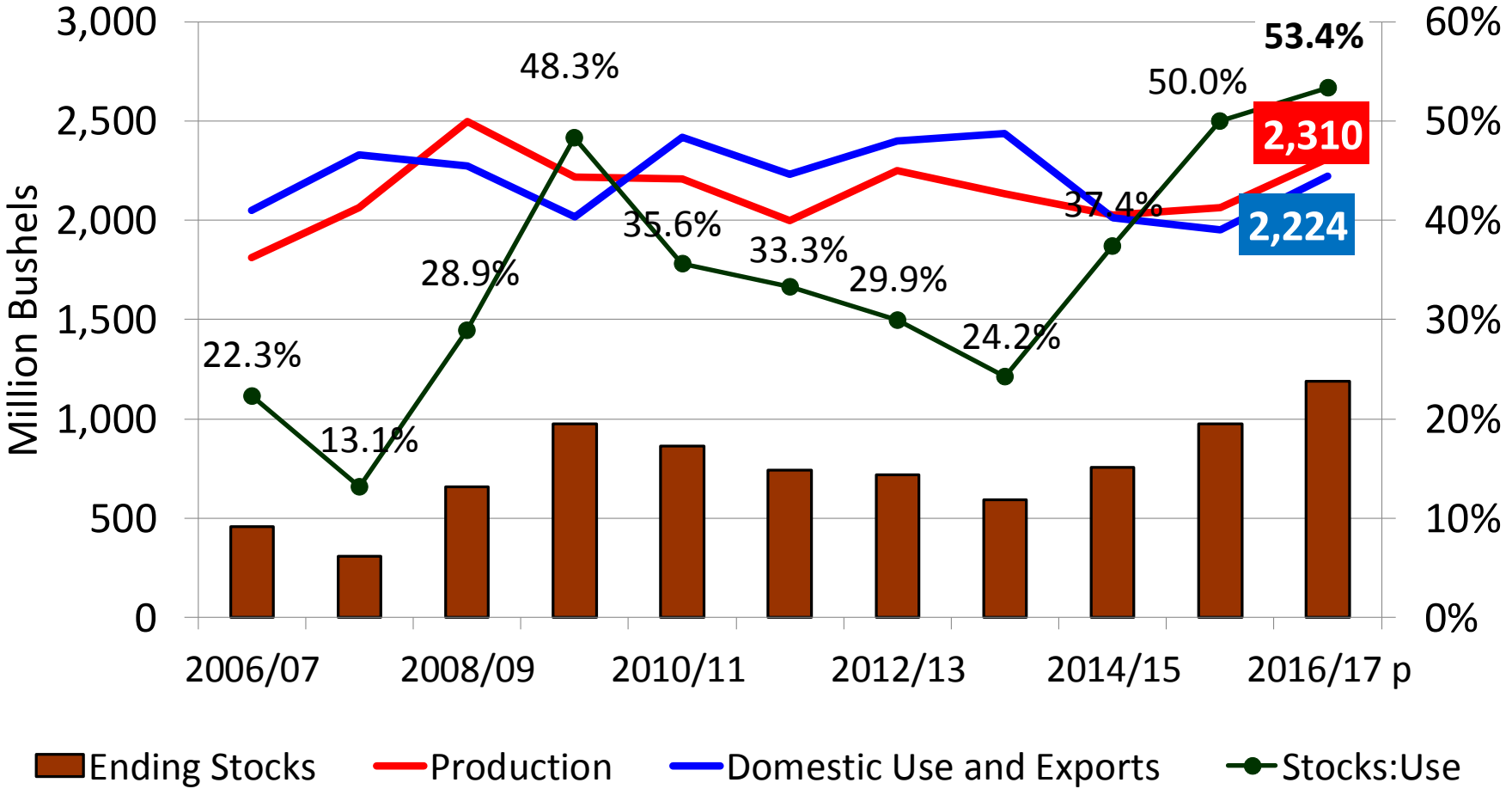
US soybean acres are projected to increase in 2017 due to the higher soybean prices relative to corn.

Whether strong exports continue is going to be a big question and will depend on the South American crop and the new presidential administration.

GA price likely to be in the range of $9.40 and $9.62

Wheat

U.S. Wheat Supply and Demand



Data Source: USDA-NASS

Wheat Outlook Summary

The price of wheat is going to continue to stay low with high ending stocks due to record yields in 2016, but we might have already seen the bottom.

A large over supply in the world will continue to keep prices down.

Projections are for wheat plantings to drop in 2017 helping the over supply situation but it is still very large.

GA price likely to be in the range of $4.00 and $4.27

Net Returns Comparisons

Comparison of 2017 Estimated Net Returns, Georgia, Irrigated					
	Corn	Cotton	Grn Sorgh	Peanuts	Soybeans
Expected Yield	200	1,200	100	4,700	60
Expected Average Price[1]	$4.15	$0.70	$3.75	$430	$9.50
Crop Income	$830	$840	$375	$1,011	$570
Variable Costs[2]	$640	$505	$310	$640	$250
Net Return Per Acre Above VC	$190	$335	$65	$371	$320
Net Return per Acre Above VC & $189 Land Rent	$1	$146	($124)	$182	$131
1/ Expected average price. Cotton includes LDP and quality premium.					
2/ Assumes Jan 2017 costs, Crop Comparison Tool, Department of Agricultural and Applied Economics, UGA					

Comparison of 2017 Estimated Net Returns, Georgia, Non-Irrigated					
	Corn	Cotton	Grn Sorgh	Peanuts	Soybeans
Expected Yield	85	750	65	3,400	30
Expected Average Price[1]	$4.15	$0.70	$3.75	$430	$9.50
Crop Income	$353	$525	$244	$731	$285
Variable Costs[2]	$288	$405	$209	$538	$191
Net Return Per Acre Above VC	$65	$120	$35	$193	$94
Net Return Per Acre Above VC + $63 Land Rent	$2	$57	($28)	$130	$31

1/ Expected average price. Cotton includes LDP and quality premium.

2/ Assumes Jan 2017 costs, Crop Comparison Tool, Department of Agricultural and Applied Economics, University of Georgia

Keynote Address

Brent Credille,

Assistant Professor, UGA College of Veterinary Medicine Food Animal Health and Management Program

ANTIMICROBIAL USE IN LIVESTOCK

IMPLICATIONS OF NEW FDA REGULATIONS

BRENT CREDILLE, DVM, PHD, DACVIM

ASSISTANT PROFESSOR

FOOD ANIMAL HEALTH AND MANAGEMENT PROGRAM

COLLEGE OF VETERINARY MEDICINE

UNIVERSITY OF GEORGIA

OVERVIEW

Background

- **Antimicrobial Resistance**
  - Human medicine
  - Animal agriculture

FDA Guidances 209 and 213

- **What They Say**
- **What They Mean**

Implications for Livestock Production

OVERVIEW

U.S. Beef Industry

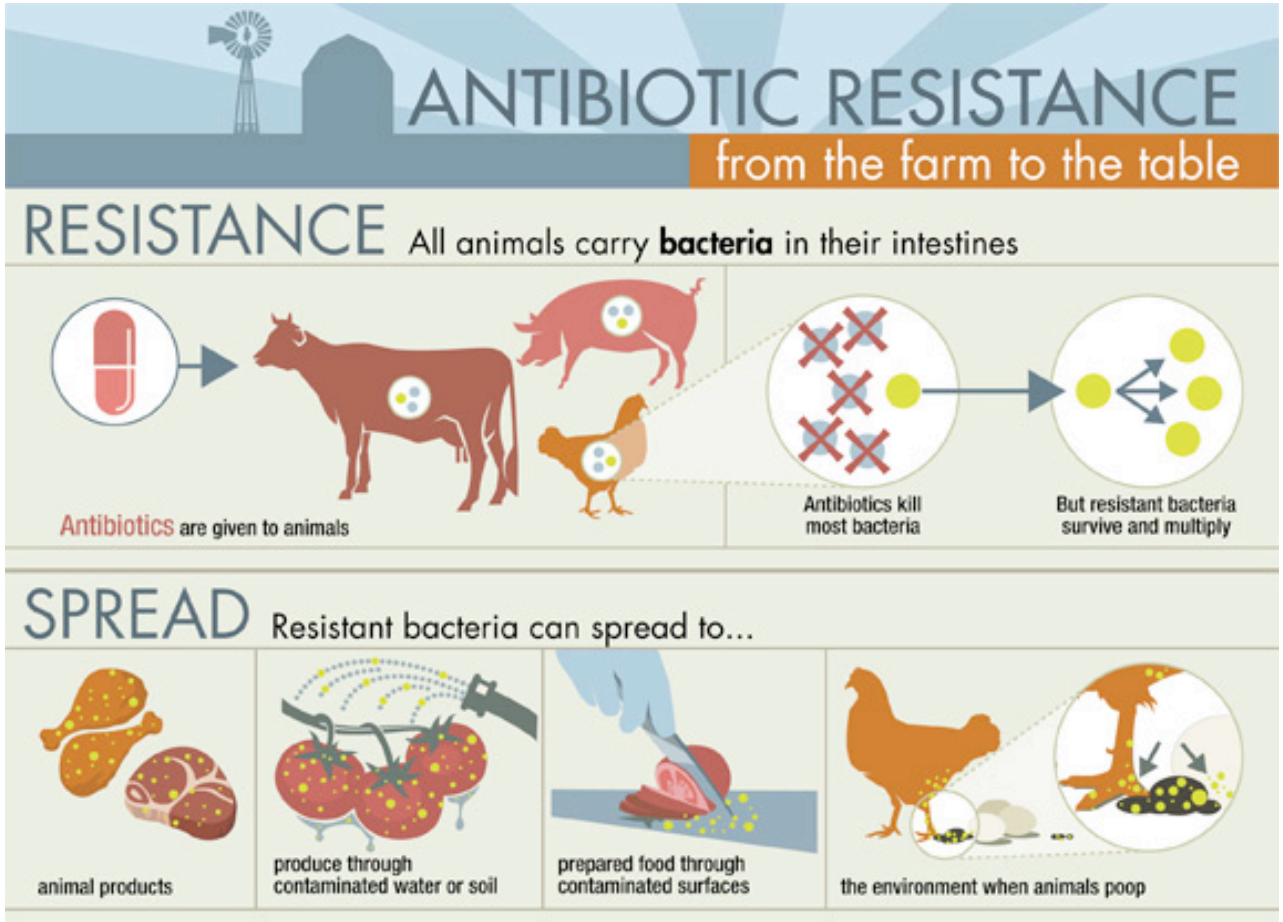
- **915,000 cattle and calf operations (including dairy)**
  - 89.8 million cattle
  - 9.3 million milk cows
- **619,000 farms specializing in beef cattle**
  - 29.7 million beef cows
  - 5.8 million beef replacement heifers
  - 33.3 million head calf crop
  - Average herd size = 40 head

OVERVIEW

Georgia Beef Indusry

- **15,000 beef cattle operations in Georgia**
  - 489,000 beef cows
    - < 30 head/farm
  - ~500,000 calves born
  - ~ $1 billion farm gate value
    - $750 million for cow-calf
    - $200 million for stockers

BACKGROUND


ANTIBIOTIC RESISTANCE
from the farm to the table
RESISTANCE All animals carry bacteria in their intestines
Antibiotics are given to animals
Antibiotics kill most bacteria
But resistant bacteria survive and multiply
SPREAD Resistant bacteria can spread to...
animal products
produce through contaminated water or soil
prepared food through contaminated surfaces
the environment when animals poop

BACKGROUND

Antimicrobial resistance (Humans)

- **Significant public health threat**
  - 2 million infections yearly
  - 23,000 deaths

- **Tremendous economic burden on healthcare industry**
  - $20 billion in direct costs
  - $35 billion in indirect costs

- **Driven by overuse of antimicrobials**
  - 50% of all anitmicrobial presciptions unnecessary (humans)

BACKGROUND

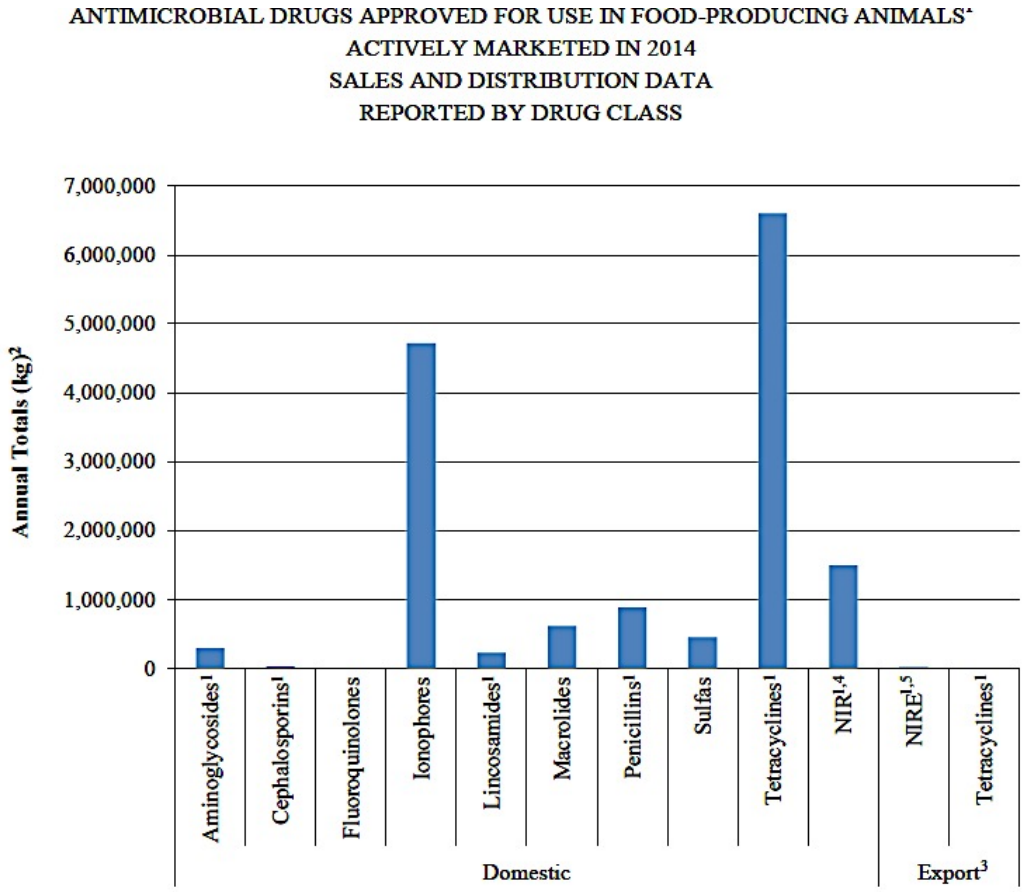
Antimicrobial Resistance (Livestock)

- **Antimicrobials used for promotion of growth, improvement in feed efficiency, and treatment and control of various diseases**

- **Current estimates:**
  - Livestock responsible for 80% of all antimicrobial sales
    - 95% of all medically important antimicrobials sold on a per kg basis for administration in food or water
      - 74% in feed
      - 21% in water
    - 98% of medically important antimicrobials available over the counter

BACKGROUND

Antimicrobials Sold in U.S.



FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

Why Are We Using Antimicrobials (Cow-Calf)

Percentage of cow/calf operations that used antibiotics, by cattle class and primary purpose of use, 2007-2008

Primary purpose	Percentage of operations
Any purpose	15.8
Preweaned calves	
Prevent respiratory disease	8.0
Other	1.1
Any	8.5
Replacement heifers weaned but not yet calved	
Prevent respiratory disease	9.6
Promote growth	2.6
Other	0.3
Any	9.9
Other calves weaned but not yet shipped for feeding or sold as breeding stock	
Prevent respiratory disease	11.6
Promote growth	3.4
Other	0.3
Any	11.8

BACKGROUND

Why Are We Using Antimicrobials (Feedlot)

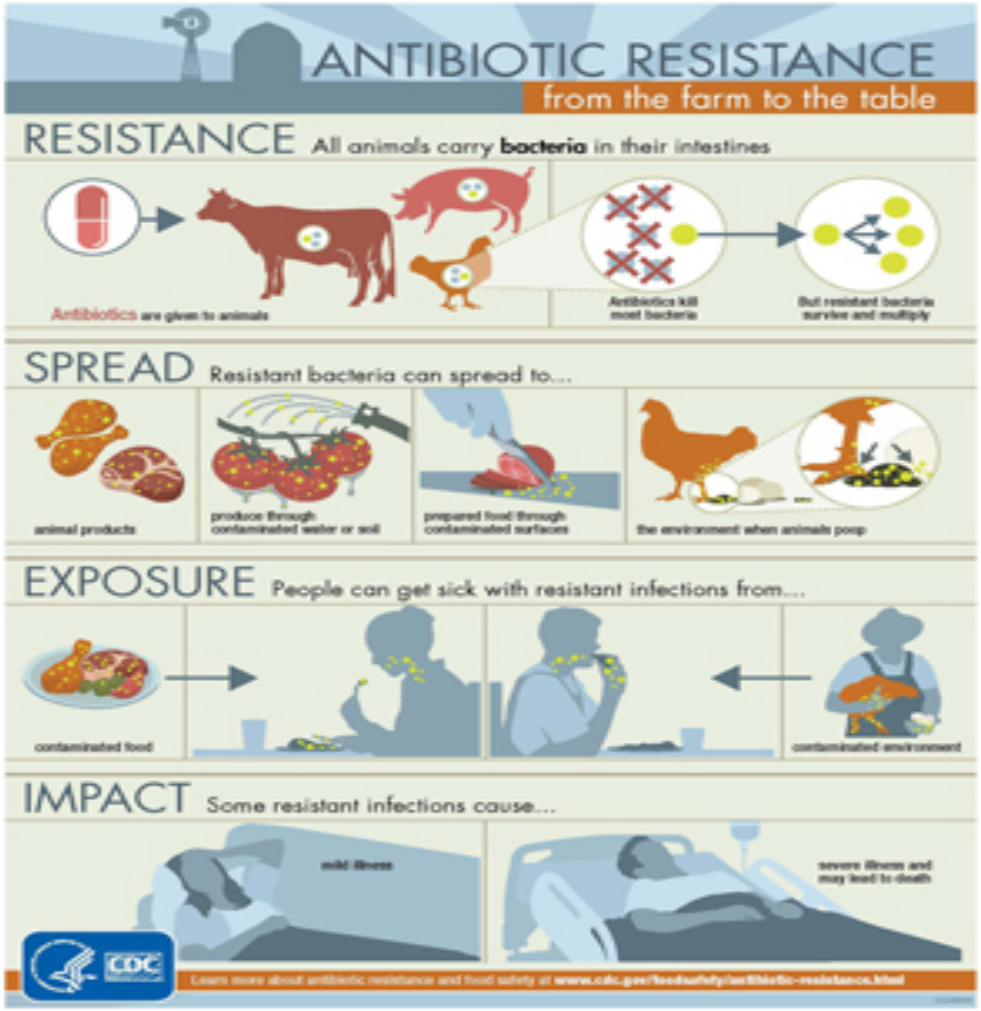
	Disease prevention		Disease treatment		Growth promotion		
Antibiotic	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
Ionophores (e.g., Rumensin, Cattlyst)	16.2	(3.4)	0.6	(0.5)	83.3	(3.4)	100.0
Coccidiostats (e.g., Corid, Deccox)	61.4	(8.1)	35.6	(8.0)	3.0	(2.8)	100.0
Bacitracin (BMD, Fortracin, Albac)	NA						
Chlortetracycline (Aureomycin100, CTC)	74.1	(4.9)	23.7	(4.8)	2.2	(1.5)	100.0
Chlortetracycline/ sulfamethazine (Aureo S 700, MoorMan's, Beef Cattle Boost)	82.0	(9.3)	18.0	(9.3)	0.0	(—)	100.0
Neomycin (Biosol, Neomix325)*							
Oxytetracycline (OTC, Terramycin, TM50)*							
Sulfamethazine/ sulfadimethoxine (Albon, Sulmet)*							
Tetracycline (Tetrasure, T-Vet)	NA						
Tylosin (Tylan)	68.0	(6.8)	3.7	(2.4)	28.3	(6.8)	100.0

BACKGROUND

Antimicrobial Resistance

- **Public perception**
  - Use of antimicrobials for growth promotion is not justified
  - Antimicrobial use (or overuse) in livestock is driving the increase in prevalence of resistant bacteria
- **Current concern**
  - Resistant bacteria are being transmitted from animals to people through the food supply
  - Infections untreatable because of misuse of medically important drugs in livestock

BACKGROUND


ANTIBIOTIC RESISTANCE
from the farm to the table
RESISTANCE All animals carry bacteria in their intestines
Antibiotics are given to animals
Antibiotics kill most bacteria
But resistant bacteria survive and multiply
SPREAD Resistant bacteria can spread to...
animal products
produce through contaminated water or soil
prepared food through contaminated surfaces
the environment when animals poop
EXPOSURE People can get sick with resistant infections from...
contaminated food
contaminated environment
IMPACT Some resistant infections cause...
mild illness
severe illness and may lead to death
CDC

BACKGROUND

Why The Concern?

- **Resistance to important antimicrobials develops due to their use in animal agriculture**
  - Sub-therapeutic uses (growth promotion)

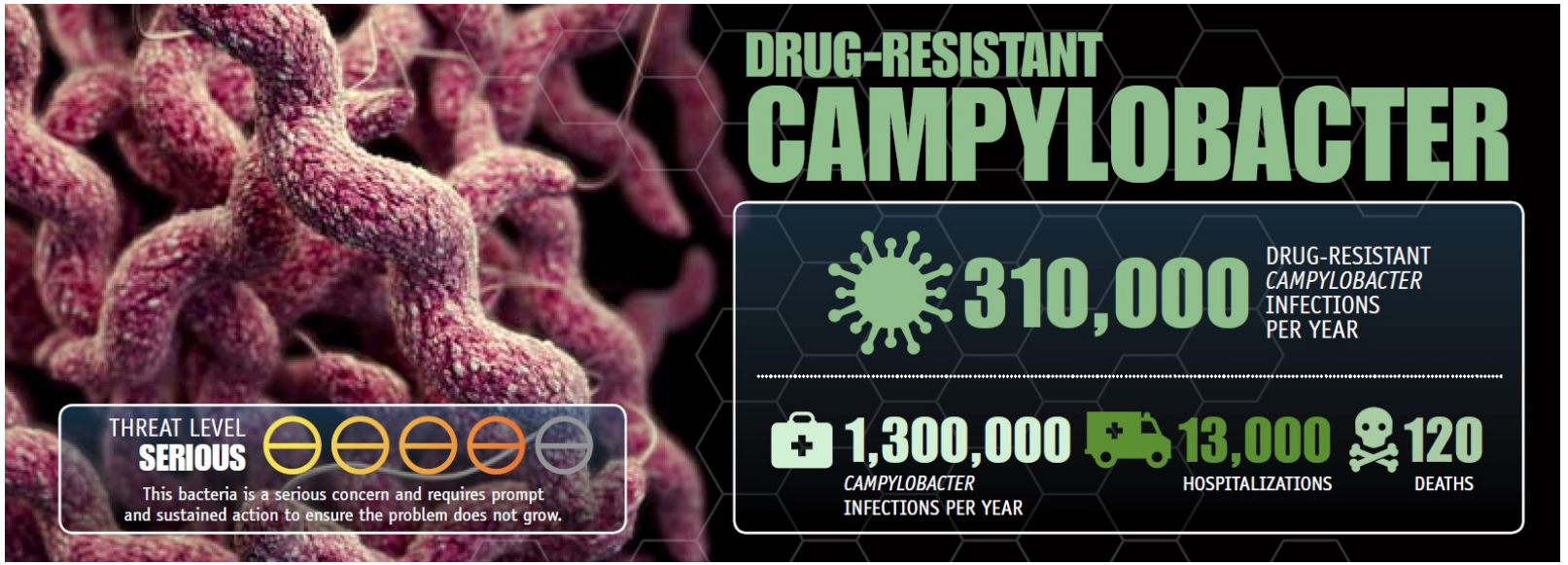
- **Rise in prevalence of untreatable infections in people**
  - Increased risk of death in people with these diseases
  - Greater costs transferred to healthcare system

BACKGROUND

Antimicrobial resistance

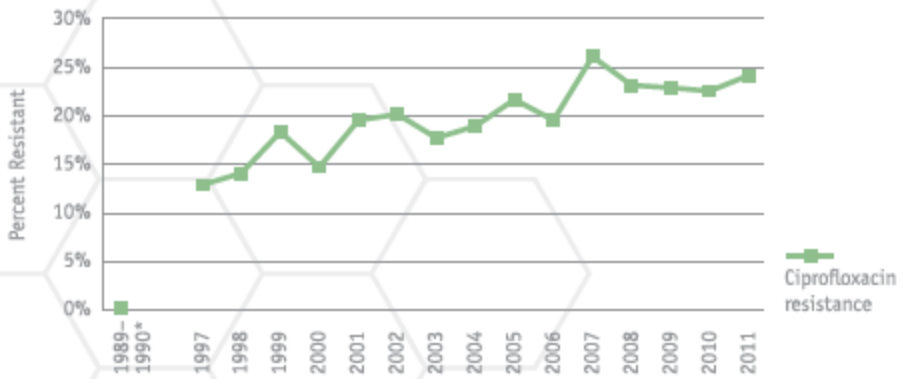
- **CDC (Antibiotic resistance threats in the Unites States, 2013)**
  - Ranked resistant bacteria by threat level
    - Urgent
    - Serious
    - Concerning
  - 4 organisms ranked as serious threat level seem to originate from food supply, 2 have origin in animals
    - *Campylobacter*
    - *Salmonella*

BACKGROUND

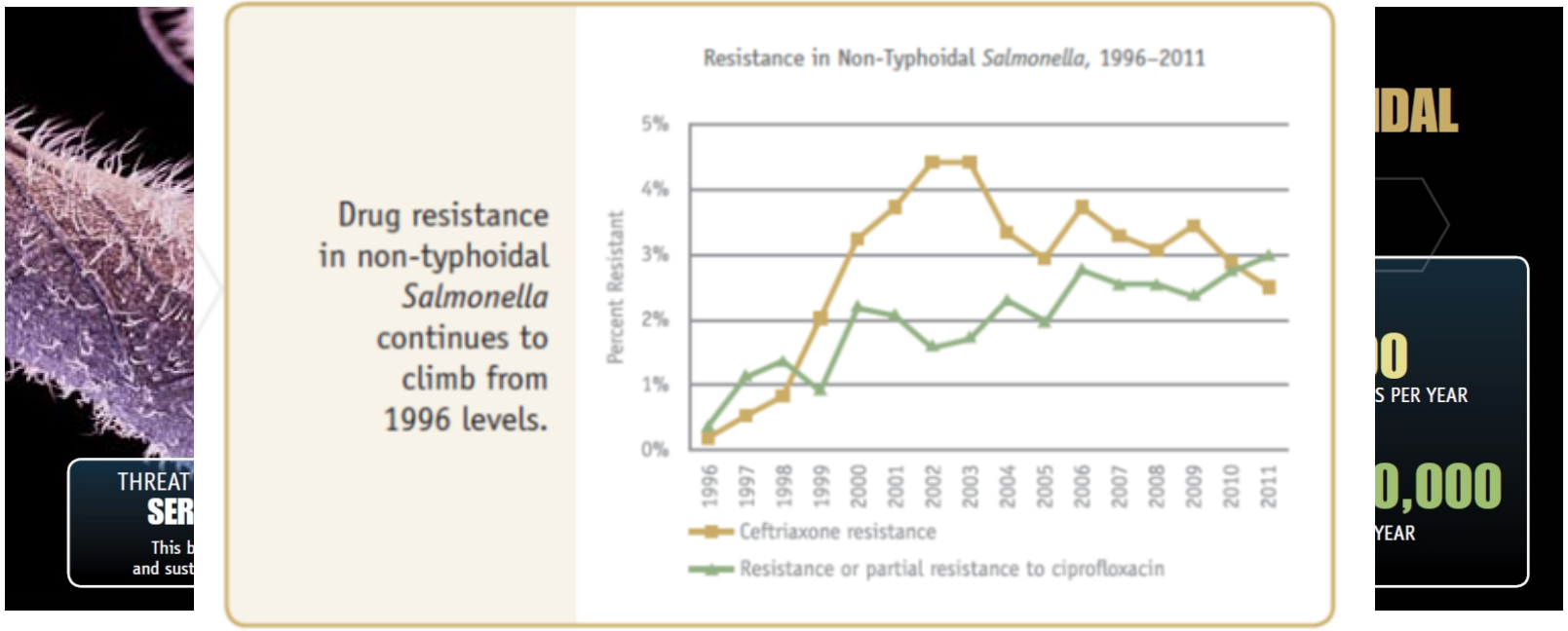


Campylobacter drug resistance increased from 13% in 1997 to almost 25% in 2011.

Increasing Resistance to Ciprofloxacin in *Campylobacter*, 1989–2011



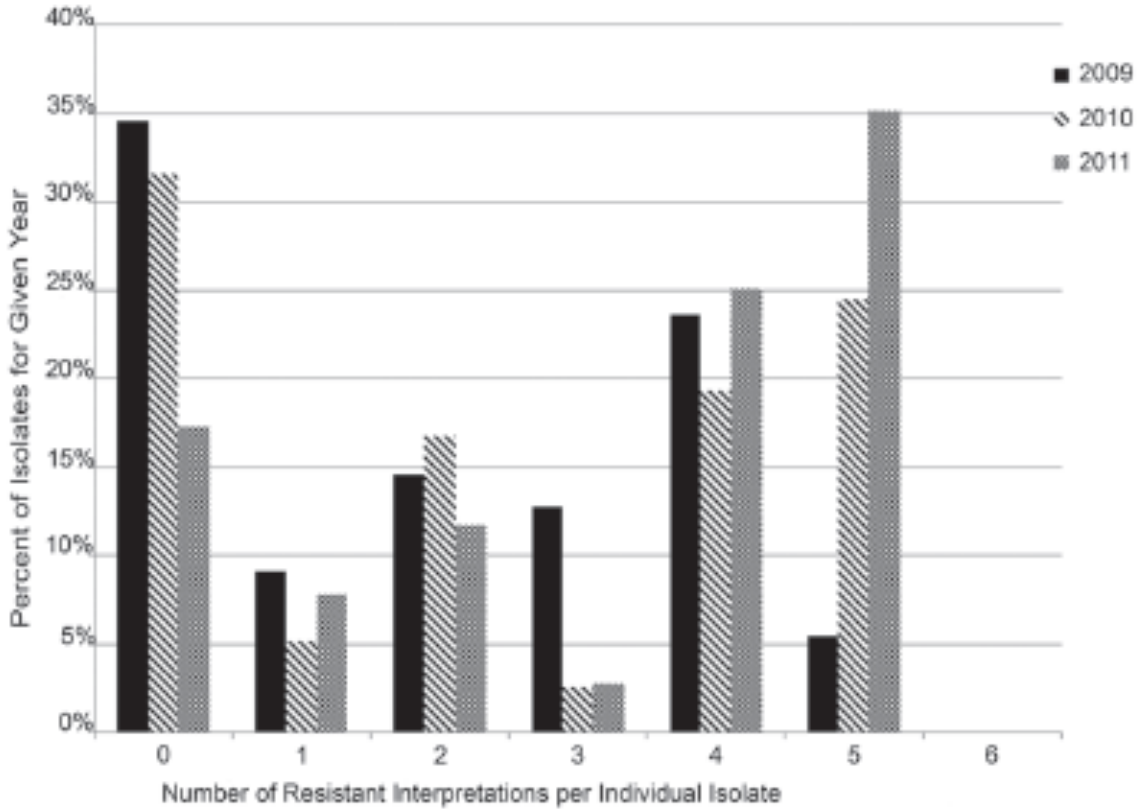
BACKGROUND


Drug resistance in non-typhoidal *Salmonella* continues to climb from 1996 levels.
Resistance in Non-Typhoidal *Salmonella*, 1996–2011
Percent Resistant
5%
4%
3%
2%
1%
0%
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
Ceftriaxone resistance
Resistance or partial resistance to ciprofloxacin

BACKGROUND

Antimicrobial Resistance (Livestock)

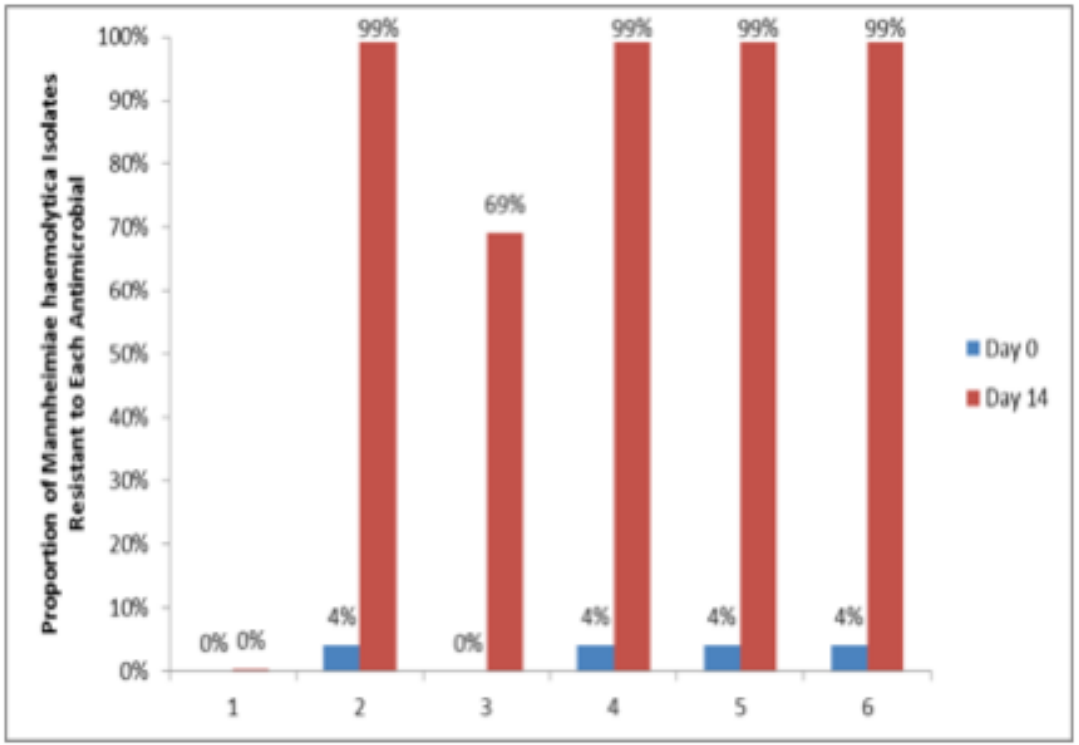
- **Resistance in *Mannheimia haemolytica* an emerging threat**



BACKGROUND

Antimicrobial Resistance (Livestock)

- **Proportion of *M. haemolytica* isolates resistant to selected antimicrobials (AM) before (Day 0) and 10 to 14 days after metaphylaxis with tulathromycin (Day 14)**



BACKGROUND

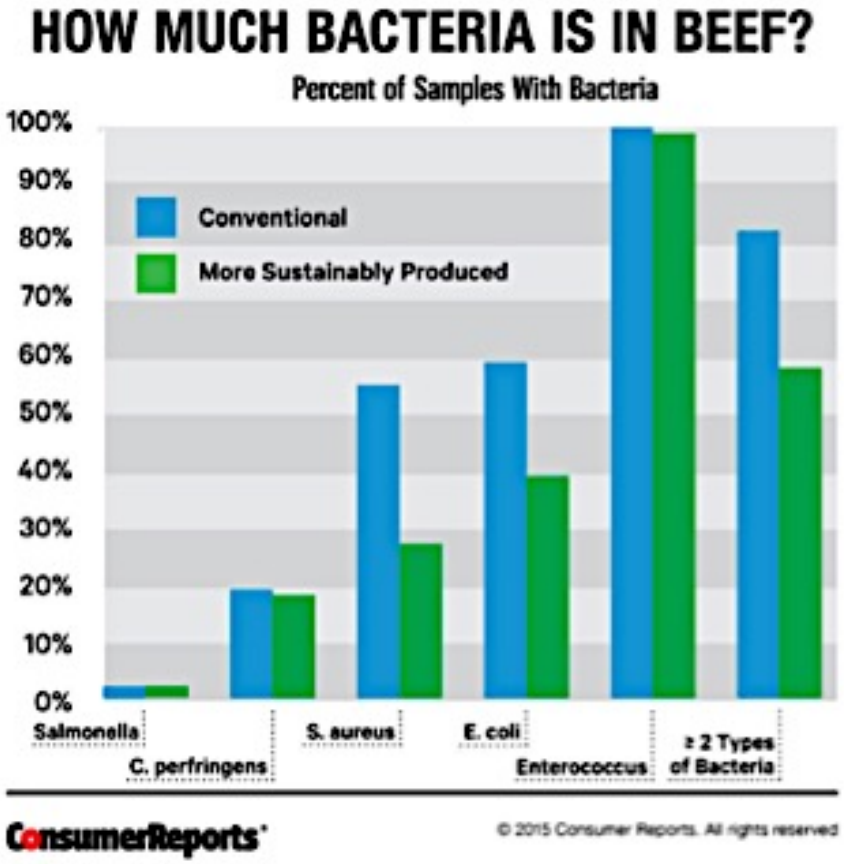
Antibiotic susceptibility Pattern

	Mannheimia haemolytica			Mannheimia haemolytica			Mannheimia haemolytica		
	Interpretation	MIC	Test Range	Interpretation	MIC	Test Range	Interpretation	MIC	Test Range
Ampicillin	S			S			S		
Ceftiofur(3rd gen.)	S			S			S		
Enrofloxacin	S			S			S		
Florfenicol	S			S			S		
Gamithromycin	S			S			S		
Penicillin	S			S			S		
Tetracycline	S			S			S		
Tulathromycin	S			S			S		

Antibiotic susceptibility Pattern

	Mannheimia haemolytica			Mannheimia haemolytica			Mannheimia haemolytica		
	Interpretation	MIC	Test Range	Interpretation	MIC	Test Range	Interpretation	MIC	Test Range
Ampicillin	S			S			S		
Ceftiofur(3rd gen.)	S			S			S		
Enrofloxacin	R			R			R		
Florfenicol	R			R			R		
Gamithromycin	R			R			R		
Penicillin	S			S			S		
Tetracycline	R			R			R		
Tulathromycin	R			R			R		

BACKGROUND


HOW MUCH BACTERIA IS IN BEEF?
Percent of Samples With Bacteria
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Conventional
More Sustainably Produced
Salmonella
C. perfringens
S. aureus
E. coli
Enterococcus
≥ 2 Types of Bacteria
ConsumerReports
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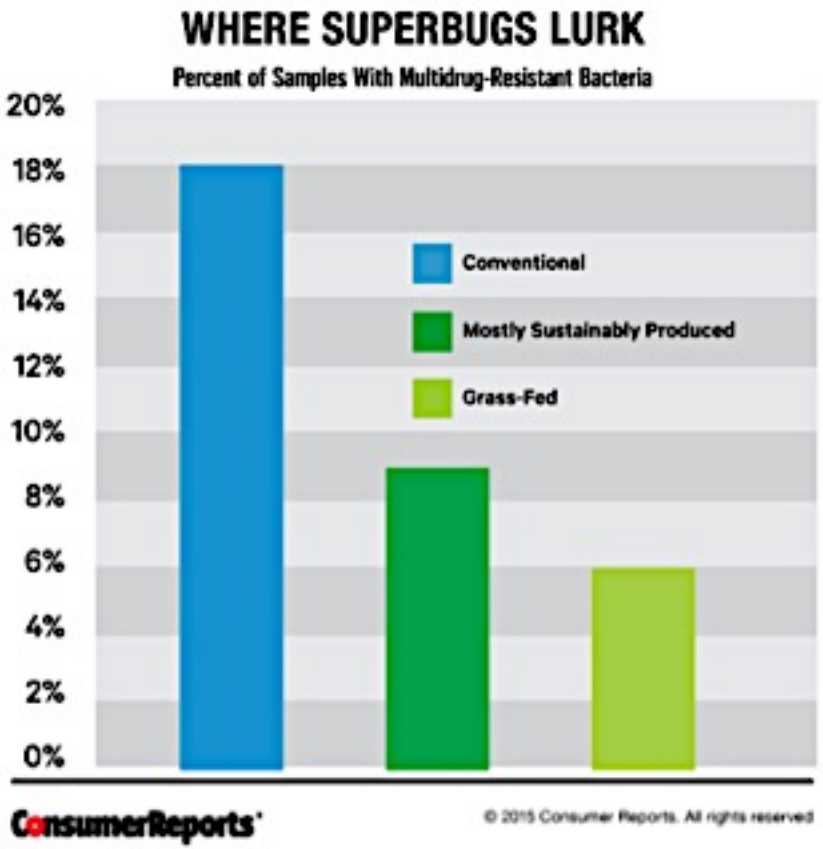
WHERE SUPERBUGS LURK
Percent of Samples With Multidrug-Resistant Bacteria
20%
18%
16%
14%
12%
10%
8%
6%
4%
2%
0%
Conventional
Mostly Sustainably Produced
Grass-Fed
ConsumerReports
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BACKGROUND

BACKGROUND

Consumer Demands

- **Organic food sales increased significantly since 2004**
  - $11 billion in 2004 vs $32 billion in 2013

- **11 of 13 largest grocery retailers offer organic or "antibiotic free" meet**

- **Multiple food chains (McDonald's) sourcing antibiotic free meat**

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

What Is A Medically Important Antimicrobial?

- **An antimicrobial drug (or drug class) used to treat pathogens that cause food borne disease**
- **An antimicrobial drug that is a sole therapy or one of few alternatives to treat serious human disease**
- **An antimicrobial drug (or drug class) used to treat enteric pathogens in non-food borne illness**
- **No cross resistance within or between drug classes and difficulty transmitting resistance elements between bacterial species**

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

What Is A Medically Important Antimicrobial?

- **Ranking**
  - Critically important – Meet criteria 1 and 2
  - Highly important – Meet either 1 or 2
  - Important – Meet either 3, 4, or 5

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

What Is A Medically Important Antimicrobial?

- **Penicillins – Penicillin, Naxcel, Excenel, Excede**
- **Tetracyclines – Aureomycin, LA 200**
- **Macrolides – Draxxin, Micotil, Zactran, Zuprevo**
- **Fluoroquinolones – Baytril, Advocin**
- **Sulfas – Albon, AS700, Sustain Calf Boluses**
- **Aminoglyocosides – Neomycin, Spectinomycin**

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

Three recent changes in antimicrobial use regulations

- **April 2012**
  - Ban on extra-label use of cephalosporins (Naxcel, Excenel, Excede) in major food producing species (Cattle, Swine, Poultry)
  - Guidance for Industry 209
    - Framework for judicious use of antimicrobials in livestock
- **December 2013**
  - Guidance for Industry 213
    - Framework for implementation of measures proposed on GFI 209

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

Guidance for Industry 209

- **FDAs current thinking on topic of judicious antimicrobial use**
  - Two ways to ensure judicious drug use
    - Limiting the use of medically important antimicrobials to uses that are considered necessary for assuring animal health
      - Growth promotion and feed efficiency not considered necessary for assuring animal health
    - Limiting the use of antimicrobials to uses that require veterinary oversight or consultation.
      - ALL antimicrobial use should require a valid veterinary client patient relationship (VCPR)

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

Guidance for Industry 213

- **Gradual and voluntary phasing out of antimicrobial use for promotion of feed efficiency and weight gain**
  - All in feed or water use of medically important antimicrobials must involve input of a veterinarian
  - All in feed or water use of medically important antimicrobials VFD (feed) or prescription (water) only
    - No more over-the-counter use
- **Established 3 year period for pharmaceutical companies to comply**
  - Quickly adopted by most companies
  - December 2016

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

Implications

- **No further use of ANY medically important antimicrobials to promote feed efficiency and weight gain**
  - Regardless of a valid prescription
  - Use in this manner ILLEGAL
- **ALL in feed and water antimicrobial use requires input of a veterinarian**
  - Valid veterinary-client-patient relationship
  - Veterinarian must be licensed in state in which animals are housed

GFI 209 AND 213

Antimicrobials Affected by VFD Regulations

Generic Name	Trade Names
Chlortetracycline	Aureomycin, CLTC, Pennchlor
Chlortetracycline + Sulfamethazine	Aureo S 700
Neomycin + Oxytetracycline	Neo-Terramycin, Neo-Oxy
Oxytetracycline	Terramycin, Pennox
Tylosin	Tylan
Tilmicosin	Pulmotil
Virginiamycin	V-Max

GFI 209 AND 213

Pharmaceuticals Not Affected by VFD Regulations

Generic Name	Trade Names
Amprolium	Corid
Bacitracin	Albac, BMD
Bambermycin	GainPro
Decoquinate	Deccox
Laidlomycin	Cattlyst
Monensin	Rumensin
Lasalocid	Bovatec

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

Implications

- **Use of ionophores (Rumensin, Bovatec) not affected**
  - Unless combined with a medically important antimicrobial

- **Use of antimicrobials for treatment and prevention of disease still allowed**
  - Stocker operator purchasing high risk cattle and using Draxxin for arrival metaphylaxis
  - For NOW!!

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

Economic Impact

- **Producers currently using antimicrobials for growth promotion**
  - 1 to 3 % increase in cost of production
  - 1% increase in wholesale price
  - 1 to 2 % decrease in total production
- **Producers not using antimicrobials for production purposes**
  - Increased production and higher revenues as a response to higher prices

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

Recent Developments

- **California Bill SB 27 (in effect in 2018)**
  - Most restrictive antimicrobial use guidelines in nation
  - Removal of ALL medically important antimicrobials from OTC status
    - Penicillin
    - LA200
    - Tylan
    - Albon

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

Implications

- **What the future holds is hard to predict**
  - Will more restrictive regulations be placed on animal agriculture?
    - Lose ability to use certain drugs for disease prevention?

- **Management strategies to maximize animal health must become a priority**
  - Biosecurity
  - Vaccination
  - Deworming
  - Preconditioning

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

What's the Take Away for Cattle Producers

- **Develop a relationship with a veterinarian that knows their operation**

- **Focus on antimicrobial stewardship**
  - Decide if a non-antibiotic alternative exists for treating, controlling, and preventing disease
  - Select antibiotics that have been proven safe and effective for a certain purpose

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

What's the Take Away for Cattle Producers

- **Focus on Antimicrobial Stewardship**
  - Focus on disease prevention
  - Diagnose sick animals quickly and accurately
  - Select antimicrobials appropriate for the condition being treated
  - Keep records

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

Implementation of Prudent Use Guidelines

- **Have a veterinary client patient relationship (VCPR)**
- **Establish written treatment protocols**
- **Understand extra-label drug use (ELDU)**
- **Train personnel working on the operation**

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

Preconditioning

Avent, OSU	Preconditioned	Non-Precond
% Sick	9.2	36.4
% Death Loss	1.5	4.3
ADG (lbs/day)	2.9	2.6
Feed conversion	6.3	6.9
% Choice	50.4	35.8
% Outs	2.5	6.9

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

Preconditioning

	Auction Market	Preconditioned
ADG, lb	1.9	2.67
Morbidity,%	67.2	7.7
3 Treats,%	8.0	3.2
Chronics,%	1.1	0.4
Med Costs,$	18.49	2.31

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

Preconditioning

Item	Non-preconditioned	Preconditioned
Performance		
Feedlot in wt, lb	550	640
Feedlot wt gain, lb	616	540
Days on feed	220	180
Daily gain, lb	2.80	3.00
Feed:Gain, DM basis	6.60	6.02
Medicine, $/head	34.00	4.33
Death loss, %	4.44	1.30
Feedlot COG, $/cwt	62.80	54.75
Economics		
Preconditioning costs, $/head	-	40
Feedlot COG, $/head	386.85	295.65
Fed heifer value, $/head	795.33	804.88
Value minus total costs, $/head	408.48	469.23
Difference in net value, $/head	-	60.72

FDA REGULATIONS: WHAT THEY SAY AND WHAT THEY MEAN

Preconditioning

- **More efficient gains**
- **Higher value carcasses**
- **Reduced medication costs**
- **Less death loss**
- **Increased profit potential**

WRAP-UP

Some evidence suggests use of antimicrobials in cattle drives antimicrobial resistance

- **Scapegoats?**

Our patterns of drug use MUST change

- **Not because we want to, because we HAVE to**

Management must become a priority

- **Maintain or open doors for the future**
  - Marketing opportunities

QUESTIONS?

Questions & Answers

Kent Wolfe

Invocation

Stan Kirk

Georgia Farm Bureau,

Cobb County President

Industry Remarks

Roby Murray

1st District Field Representative,

Georgia Farm Bureau

Industry Remarks

Robert Cobb

State Veterinarian,

Georgia Department of Agriculture

Closing Remarks

Kent Wolfe

Thank you for attending!