

# 2014 USAHA US Layer Health Report



Eric Gingerich DVM dACPV

Diamond V

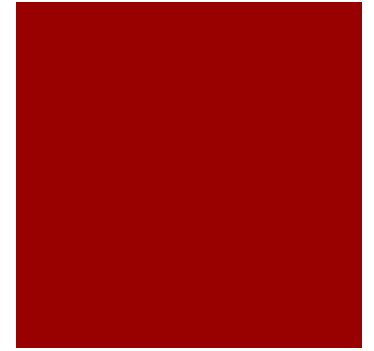
Kansas City MO

20 October 2014

# Outline

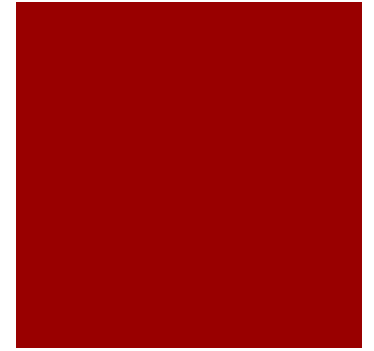
- AVEP Pullet and Layer Health Survey
- AVEP Survey on Veterinary Related Issues
- AVEP Survey on Research Needs
- Layer Industry Economics
- Summary

# AVEP 2013 Layer Health Survey



- Conducted September/October 2014
- Veterinarians from 13 states returned survey
- 16 members of the total of 100

# AVEP Survey Questions



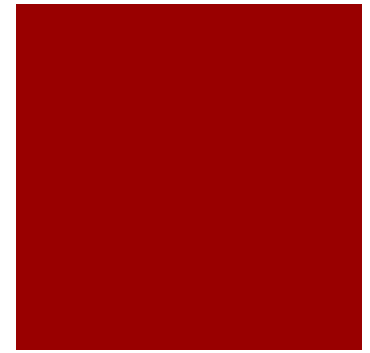
## ■ Prevalence

- 0 = not seen
- 1 = seen in a few flocks
- 2 = commonly observed
- 3 = seen in a majority of flocks

## ■ Importance

- 0 = no importance to flock health or profitability
- 1 = some importance
- 2 = moderate importance
- 3 = very high importance

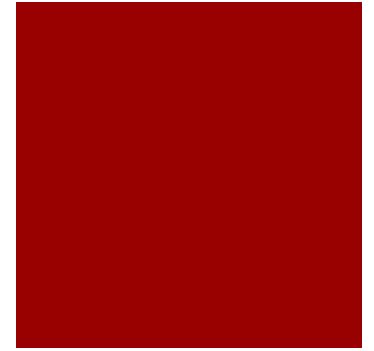
# Chick Issues



	Caged Pullets		Cagefree Pullets	
	Prevalence	Importance	Prevalence	Importance
2012 Yolk Infection	1.43	N/A	1.47	N/A
2013 Yolk Infection	1.32	1.26	1.47	1.50
2014 Yolk Infection	1.19	1.13	1.14	1.15
2012 Starveouts	1.33	N/A	1.47	N/A
2013 Starveouts	1.14	1.05	1.21	1.19
2014 Starveouts	1.25	0.93	1.14	1.08

# Yolk Infections

1. Hatch egg cleanliness
2. Hatcher tray contamination
3. Hatcher C&D



# Starveouts

- Egg holding time
- Incubation conditions
- Chick holding conditions
- Time between hatch and chick placement
- Brooding conditions; Temp and RH%



# Top 5 Caged Pullet Diseases - Prevalence



	2012	2013	2014
1	Marek's – 1.00	Cocci – 1.18	Cocci – 1.50
2	E. Coli – 0.86	E. coli – 0.86	E. coli – 1.00
3	Cocci – 0.81	Necrotic enteritis – 0.86	Necrotic enteritis – 1.00
4	IB – 0.62	Marek's – 0.82	ILT – 0.88
5	ILT – 0.60	SE bacterin hepatitis – 0.80	SE bacterin hepatitis – 0.81



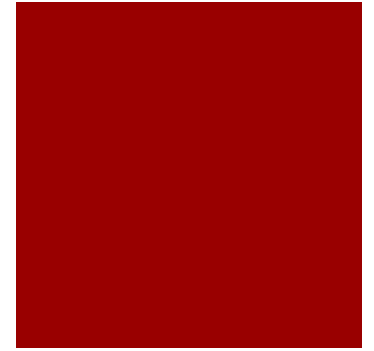
# Top 5 Caged Pullet Diseases - Importance



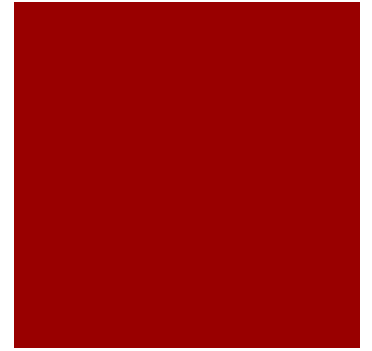
Rank	2013	2014
1	Cocci – 1.68	Coccidiosis – 2.00
2	Marek's – 1.63	IBD – 1.47
3	E. coli, IBD, ILT, Necrotic enteritis, SE Bac Induced Hepatitis – 1.37	ILT – 1.40
4		Marek's – 1.27
5		Post SE Bacterin Hepatitis – 1.20

# Caged Pullet Diseases

- Cocci/necrotic enteritis
  - Medication programs
  - Vaccination
- E. coli - ?? Yolk sac infection?
- ILT
  - Problems in enzootic areas
  - Recombinant vaccines not administered properly
- SE Bacterin Induced Hepatitis



# Coccidiosis Vaccination



# Caged Pullet Coccidiosis Vaccination

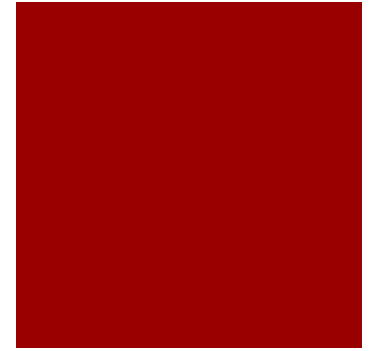
## Keys to Success

- Extra lighting post application to promote preening
- Fecal exposure to at least 21 days
- Proper relative humidity to promote sporulation

## Paper remaining at 14 days



# SE Bacterin Induced Hepatitis



# SE Bacterin Induced Hepatitis



- Seen in some flocks 14 to 21 days post SE bacterin application
- Up to 7 % mortality
- Unknown cause at this time
  - Extraneous sources of endotoxins?
- Definite strain relationship

# Top 5 Cagefree Pullet Diseases - Prevalence



Rank	2012	2013	2014
1	Cocci – 1.47	Cocci – 1.37	Cocci – 1.86
2	Marek's – 1.27	E. Coli – 1.00	Piling – 1.36
3	Roundworms – 0.93	Piling – 0.94	Worms – 1.21
4	E. Coli – 0.80	Marek's – 0.89	Necrotic enteritis – 1.00
5	NE – 0.80	Ms – 0.84	IBD – 0.93

# Top 5 Cagefree Pullet Diseases - Importance



Rank	2013	2014
1	Cocci – 1.81	Cocci – 2.00
2	Marek's – 1.38	Marek's – 1.77
3	E. coli – 1.38	Piling – 1.54
4	SE bacterin hepatitis – 1.25	ILT – 1.38
5	ILT – 1.18	Necrotic enteritis – 1.31



# Cage-free Pullet Diseases



- Coccidiosis/necrotic enteritis
  - Sufficient litter moisture is key to develop immunity
  - Excess litter moisture = breaks
  - Manage vaccine or medication programs
- Marek's
  - C&D of houses difficult to rid of Marek's
- Piling – microclimates control
- ILT
  - Need to work on improving vaccination programming and application

# Top 5 Caged Layer Diseases - Prevalence



Rank	2012	2013	2014
1	Cannibalism – 1.52	Ms – 1.81	E. coli – 1.69
2	E. Coli – 1.52	E. Coli – 1.62	FDN – 1.63
3	Ms – 1.48	Calcium depletion – 1.57	Mg – 1.63
4	Calcium depletion – 1.43	Mg – 1.48	Calcium depletion – 1.56
5	Mites – 1.29	Mites – 1.33	Cannibalism – 1.56
			Mites – 1.56

# Top 5 Caged Layer Diseases - Importance



Rank	2013	2014
1	E. Coli – 1.89	E. coli – 2.07
2	Calcium depletion – 1.78	Calcium depletion and FDN – 1.93
3	IB – 1.78	
4	Mg – 1.78	Mg and ILT – 1.80
5	FDN – 1.56	

# Caged Layers



- E. coli still important – vaccine effective for early problems
  - Late E. coli mostly due to reproductive origin problems
- Calcium depletion
  - Calcium feeding transition from grow to lay
  - Calcium, phosphorus, and vitamin D levels esp. early

# Focal Duodenal Necrosis

- Must necropsy freshly euthanized birds
- Subtle clinical syndrome
  - 1 to 10% loss in production
  - 0.5 to 1 lb. case weight loss
- Bacitracin effective
- Task Force formed to stimulate research
  - 3 labs working on isolation of causative agent



# Caged Layers



- Mg an issue where mild vaccines cannot protect anymore
  - Need to manage immunity program
- ILT – use of too weak of a vaccination program results in breaks
  - Improper administration of recombinants an issue

# Top 5 Cagefree Layer Diseases - Prevalence



Rank	2012	2013	2014
1	Cannibalism – 2.06	Cannibalism – 1.81	Cannibalism – 2.00
2	E. Coli – 1.63	Ms – 1.48	E. coli – 1.75
3	Roundworms – 1.50	E. Coli – 1.43	Mites – 1.56
4	Mites – 1.44	Cocci – 1.24	Cocci, FDN, and Mg – 1.38
5	Cocci – 1.19	Mites – 1.14	

# Top 5 Cagefree Layer Diseases - Importance



Rank	2013	2014
1	Cannibalism – 2.00	Cannibalism – 2.00
2	E. Coli – 1.89	Cocci and E. coli – 1.87
3	Calcium depletion and Mg – 1.61	
4		FDN – 1.80
5	FDN and IB – 1.44	IB – 1.47

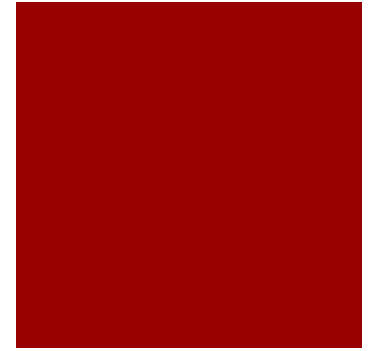


# Cage-Free Layers



- Cannibalism – large groups, poor beak trimming, high light intensity
- Coccidiosis - Growing and laying on litter can be a challenge
- E. coli – increased use of vaccine should decrease this
- IB – Variant strains being spread on egg pickup materials, people, or racks
  - Lack of killed vaccine usage
  - Poor biosecurity
  - No booster program with live vaccines

# Diseases and Issues of Concern



## ■ Rating system

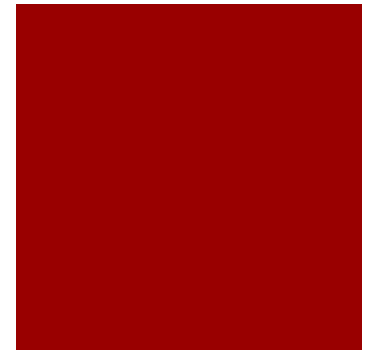
- 0 = little continued importance, concern, or effort to prevent
- 1 = some importance
- 2 = moderate importance
- 3 = very high importance

# Diseases or Issues of Concern



Disease or Issue	2012	2013	2014
Avian Influenza	1.55	2.00	2.19
Lack of approved, effective treatments/antibiotics	2.15	2.43	2.56
Lack of effective vaccines	1.20	1.05	1.56
Salmonella enteritidis (SE) FDA Egg Safety Rule	2.55	2.29	2.31
Salmonella heidelberg (SH) incorporation into FDA Egg Rule	2.45	1.90	2.13

# Diseases or Issues of Concern



- AI
  - Mexico HPAI H7N3 a concern as virus positive flocks likely present even with vaccination
- Lack of Treatments
  - Ascarids in layers
  - E. coli
  - Cholera
  - Coccidiosis
  - Blackhead
  - Spirochetes

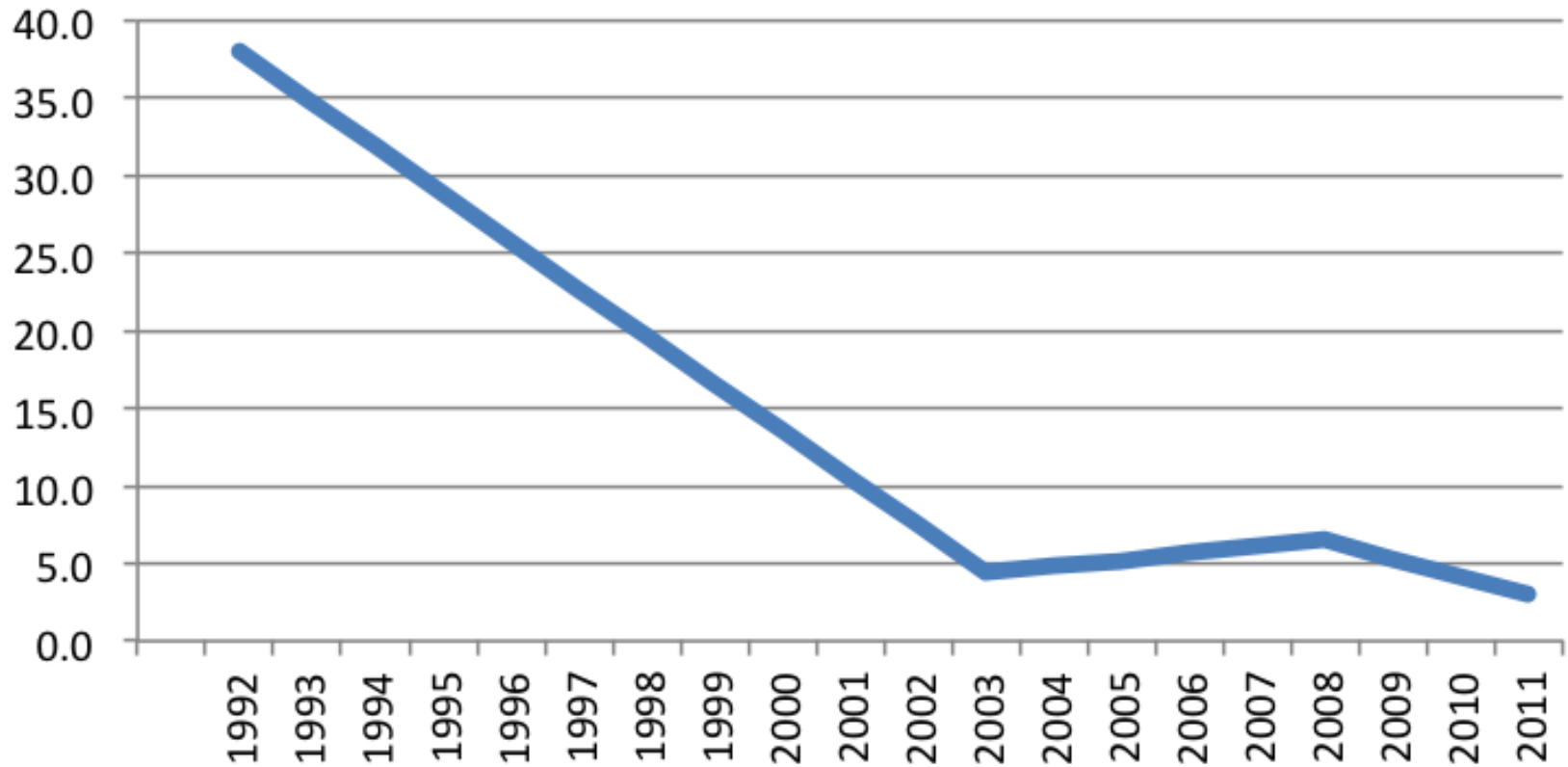
# Diseases or Issues of Concern



- Vaccine availability and effectiveness
  - Overall satisfactory
- FDA SE Egg Plan
  - Very few problems being found
- S. heidelberg incorporation into Plan
  - Chicken meat problems drawing attention
  - No egg associated problems



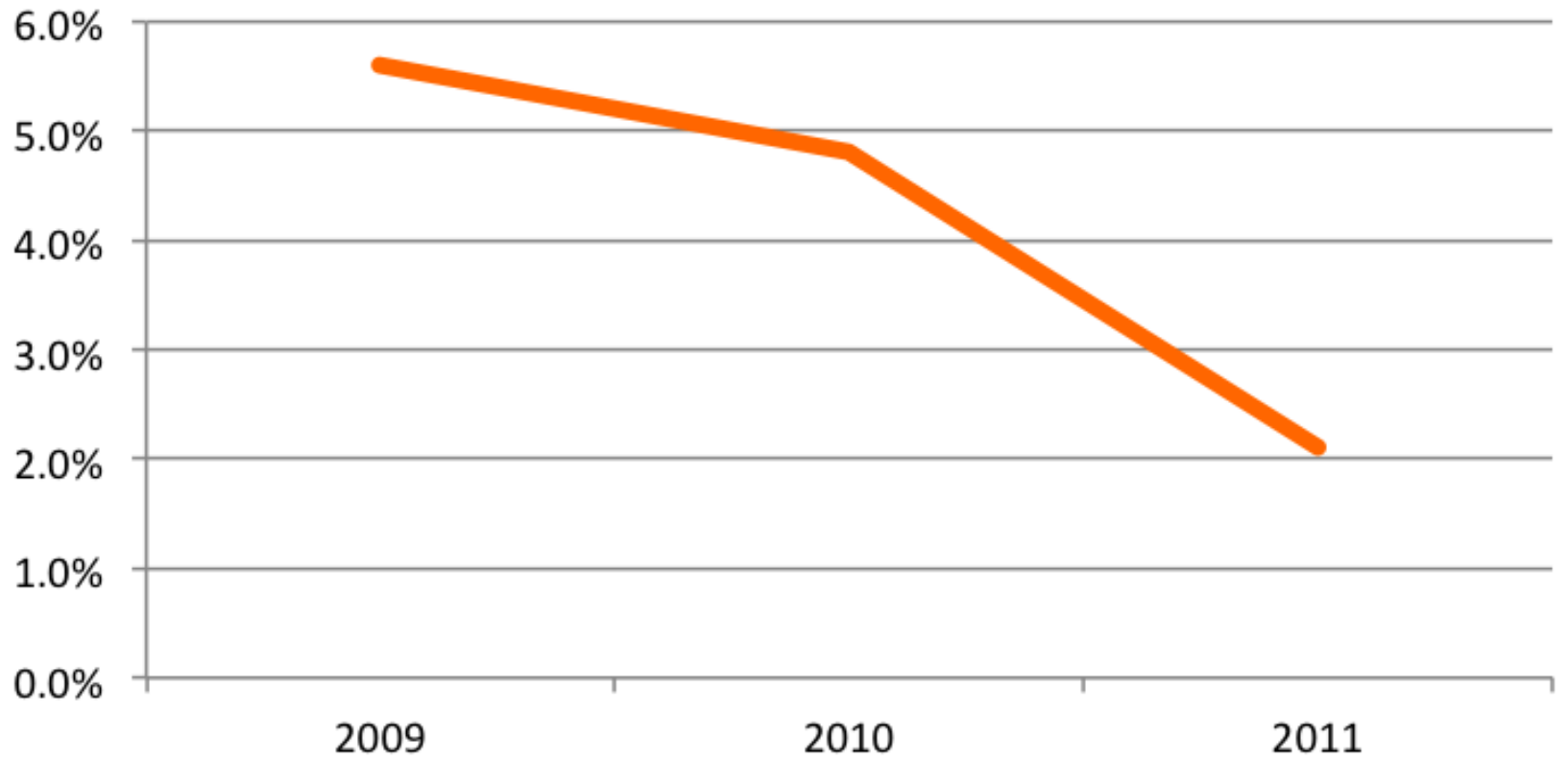
## PA SE Manure Positive Flocks



PEQAP Data



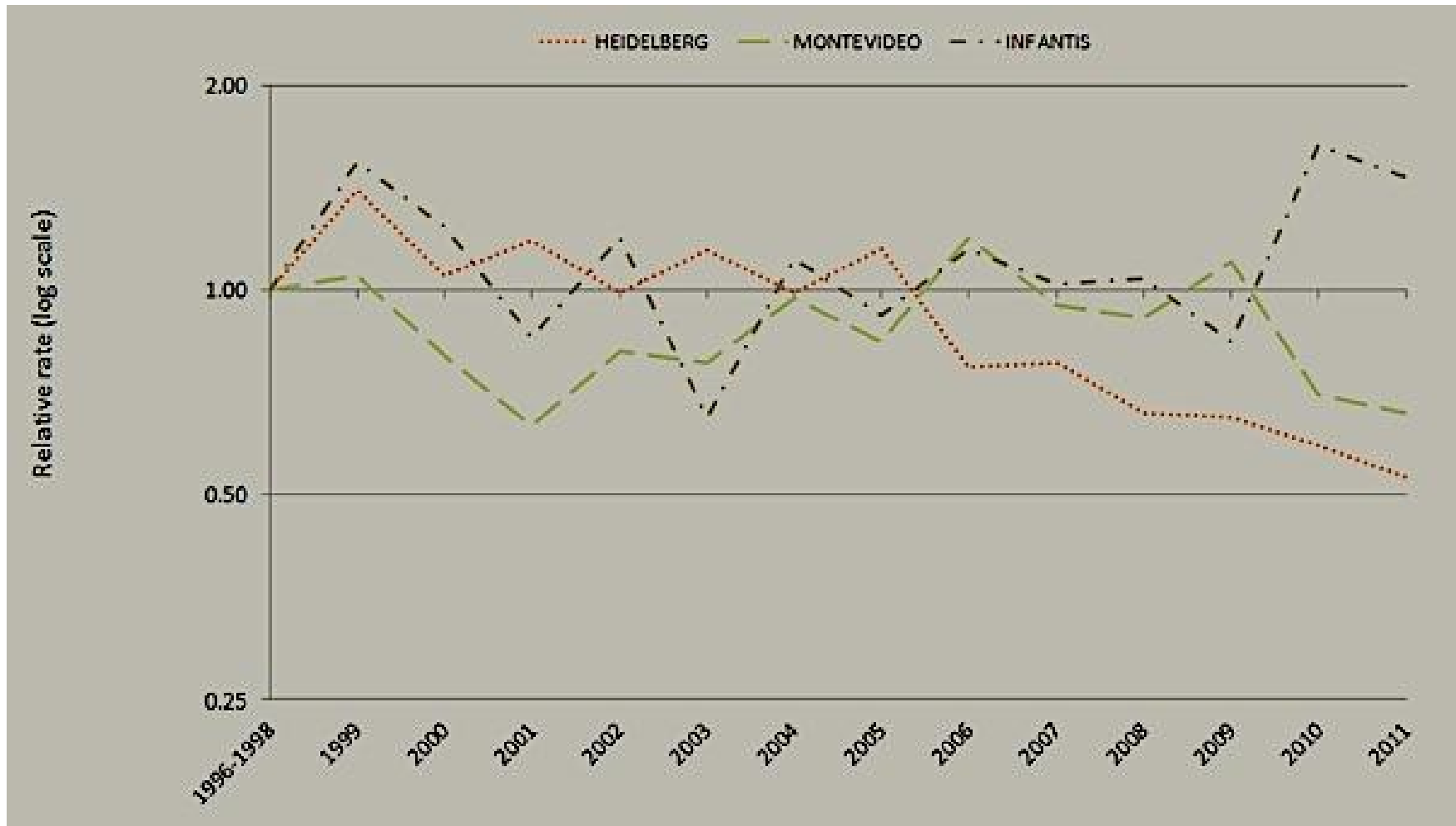
# Ohio SE Manure Positive Flocks



Egg-Cite Data

# S. Heidelberg Reduction in Human Cases

CDC Foodnet Data





# S. Heidelberg (SH)



- SH in human cases not attributed to eggs since late 1990's
- Prevalence in humans
  - 1996 – 1.0 per 100,000
  - 2011 – 0.35 per 100,000
- No breeder program for SH
- Estimated 30 to 40% flock positivity
  - Breeder and commercial
- Egg testing costs for 35% SH manure positive flocks = approximately \$3.5 million or \$1250 per flock

# Diseases or Issues of Concern

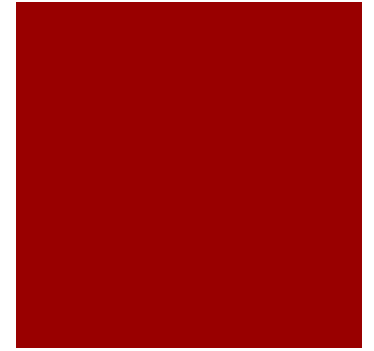


Disease or Issue	2012	2013	2014
Welfare issues overall	2.33	2.15	2.31
Beak Trimming	1.70	1.50	1.88
Disposal of male chicks	1.40	1.25	2.00
On-farm euthanasia of spent fowl	1.95	1.80	1.88
Molting of layers	1.60	1.35	1.31
Banning cages in some states	2.60	2.35	2.69
Adoption of enriched cages for all layers	N/A	2.11	2.44

# Welfare Issues

- UEP – HSUS Agreement
  - Bill died due to opposition from other meat groups
  - OR and WA ballot initiatives now open for voting. Other states may follow.

# Welfare Issues



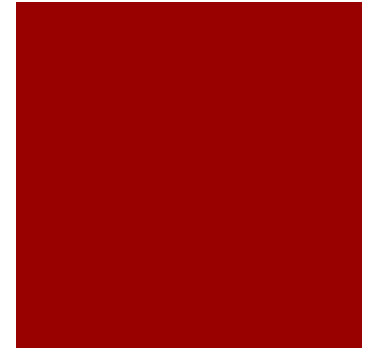
- Male chick euthanasia
  - Attention brought about by a major company threatening to not use eggs from producers obtaining chicks from hatcheries that use male euthanasia.

# Top 5 Research Needs

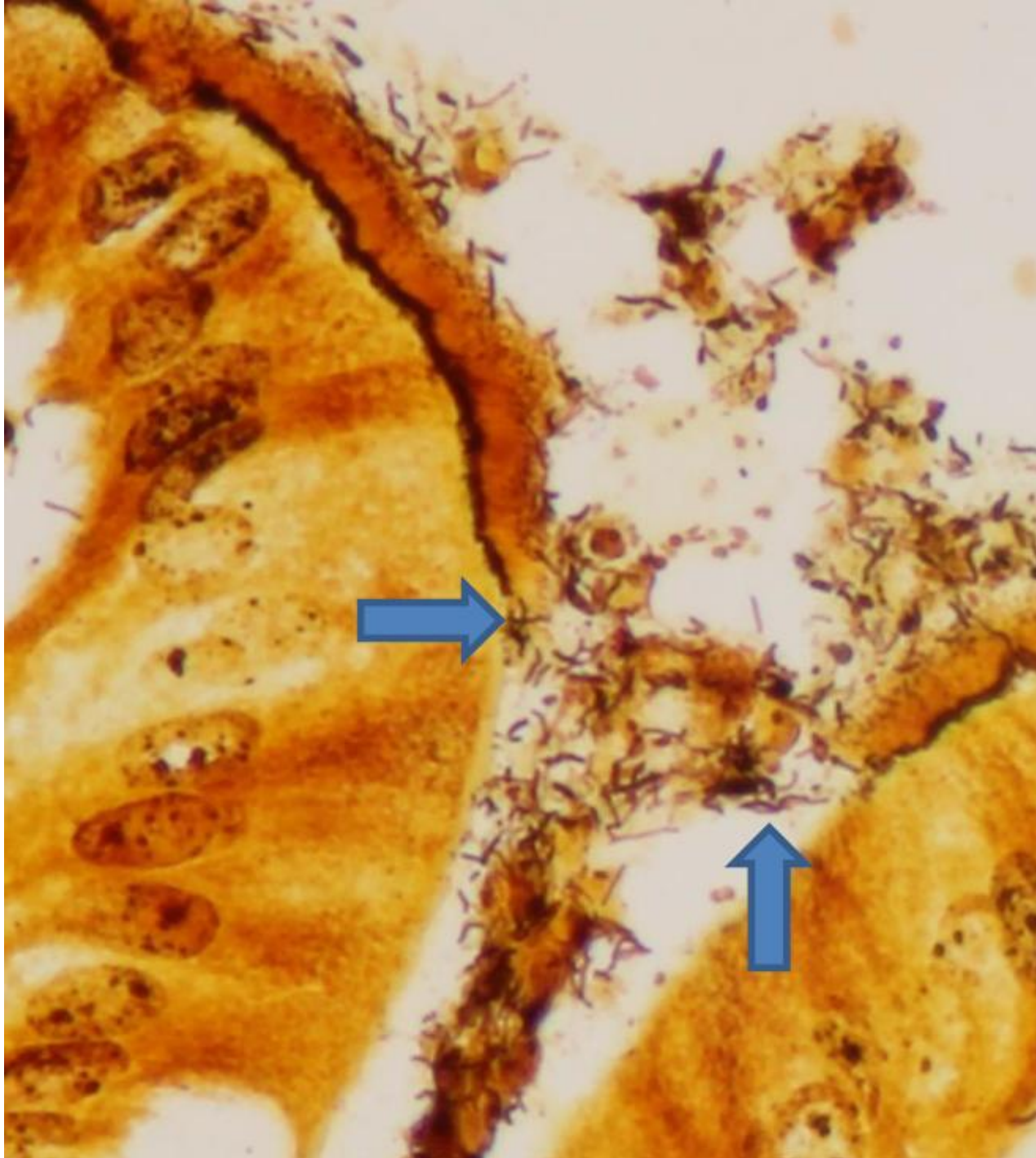


Need	Number of Respondents
1 - FDN	8
2 - Salmonella control	7
3 - ILT	4
4 - Avian Intestinal Spirochetosis	3
5 - Mycotoxicoses and Cocci/NE	2

# Avian Intestinal Spirochetosis



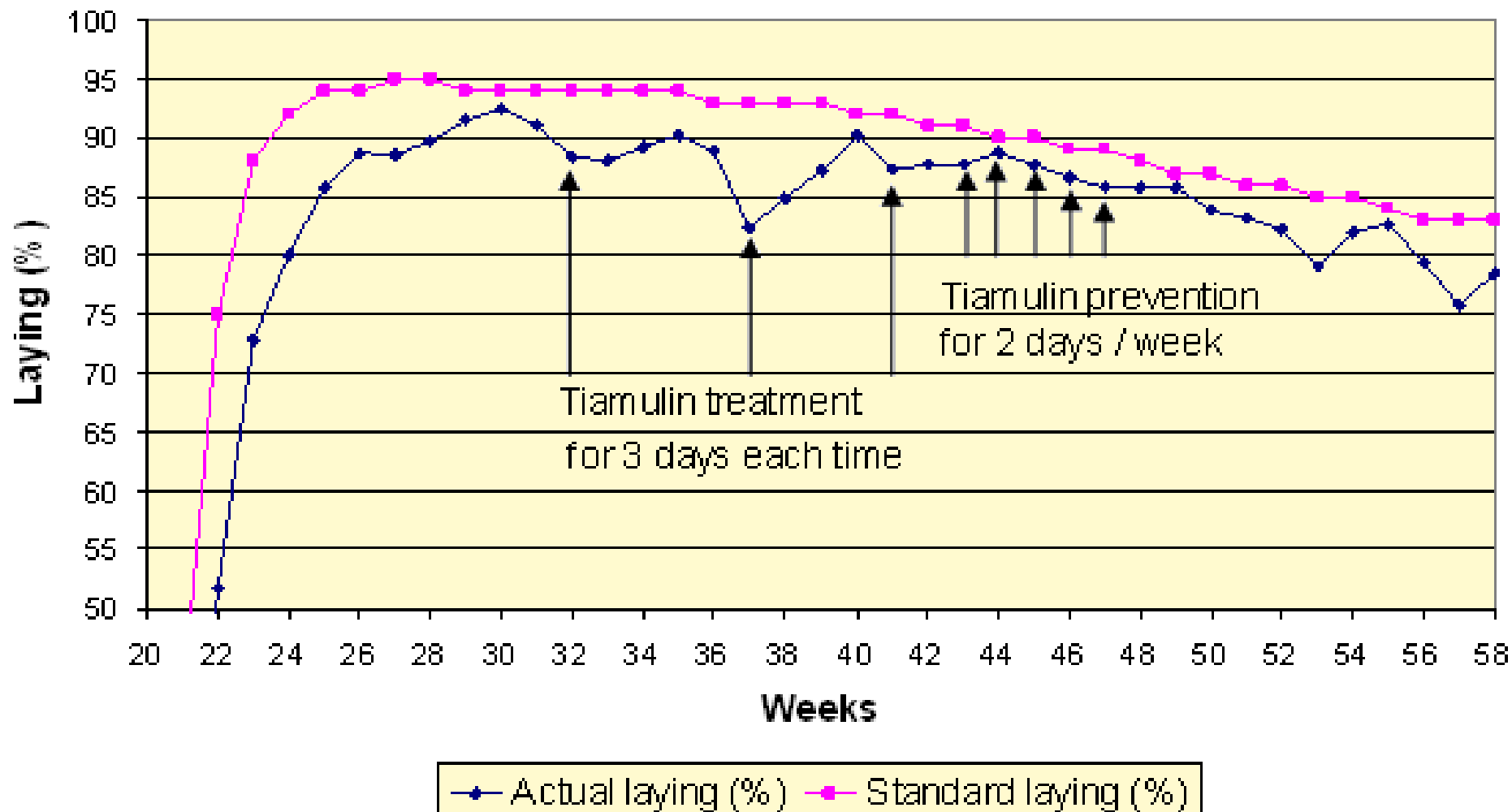
- Associated with significant production losses in Europe
- Not felt to be a problem in the US but some flocks suspect
- *Brachyspira pilosicoli* or *B. intermedia*
- Medications used in Europe, lincomycin or tiamulin, not available.



# Avian Intestinal Spirochetosis

Photo source: Dr.  
Fred Hoerr

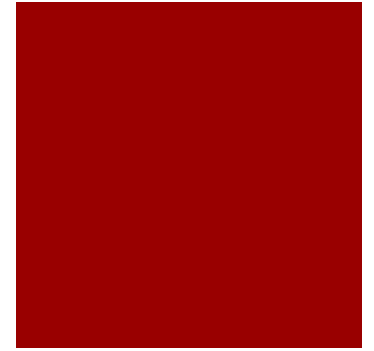
# European Experience - AIS





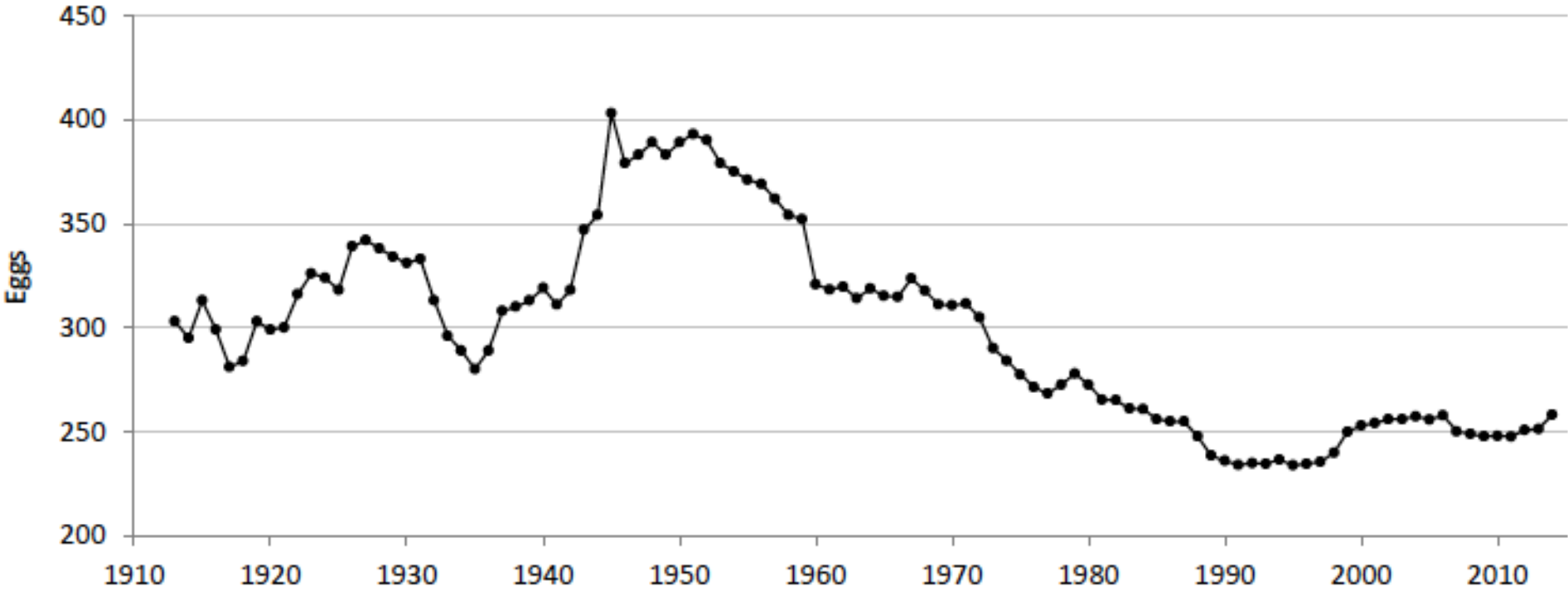
# US Egg Industry

- 295.9 million layers (Aug14)
- Extremely Profitable 2014
  - Egg prices up
  - Feed costs down



# US Egg Consumption

Figure 15: U.S. Per Capita Egg Consumption by Year (1913-2014)

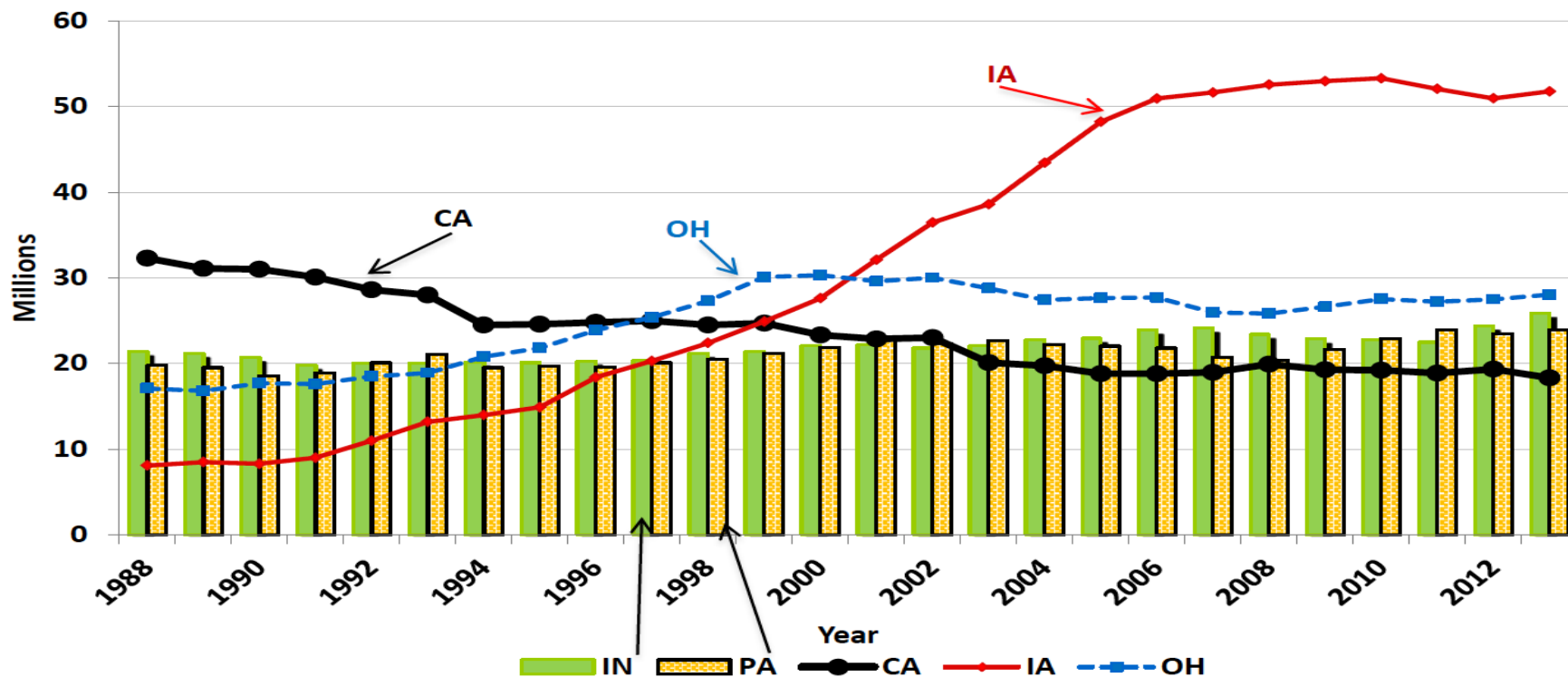


Source: USDA ERS

Source: Egg Industry Center

# Top Egg Layer States

Figure 10: Leading States' Table Egg Layers in Flocks of 30,000 and Above (1988-2013)



Source: USDA NASS Chickens and Eggs

IA – 57.7 million

OH – 29.9

IN – 26.5

PA – 23.9

CA – 15.4

TX – 14.7

August 2014

Extracted from the Egg Industry  
Center Newsletter

# Cost of Production

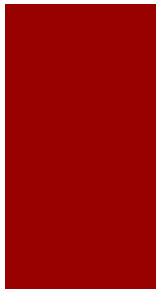
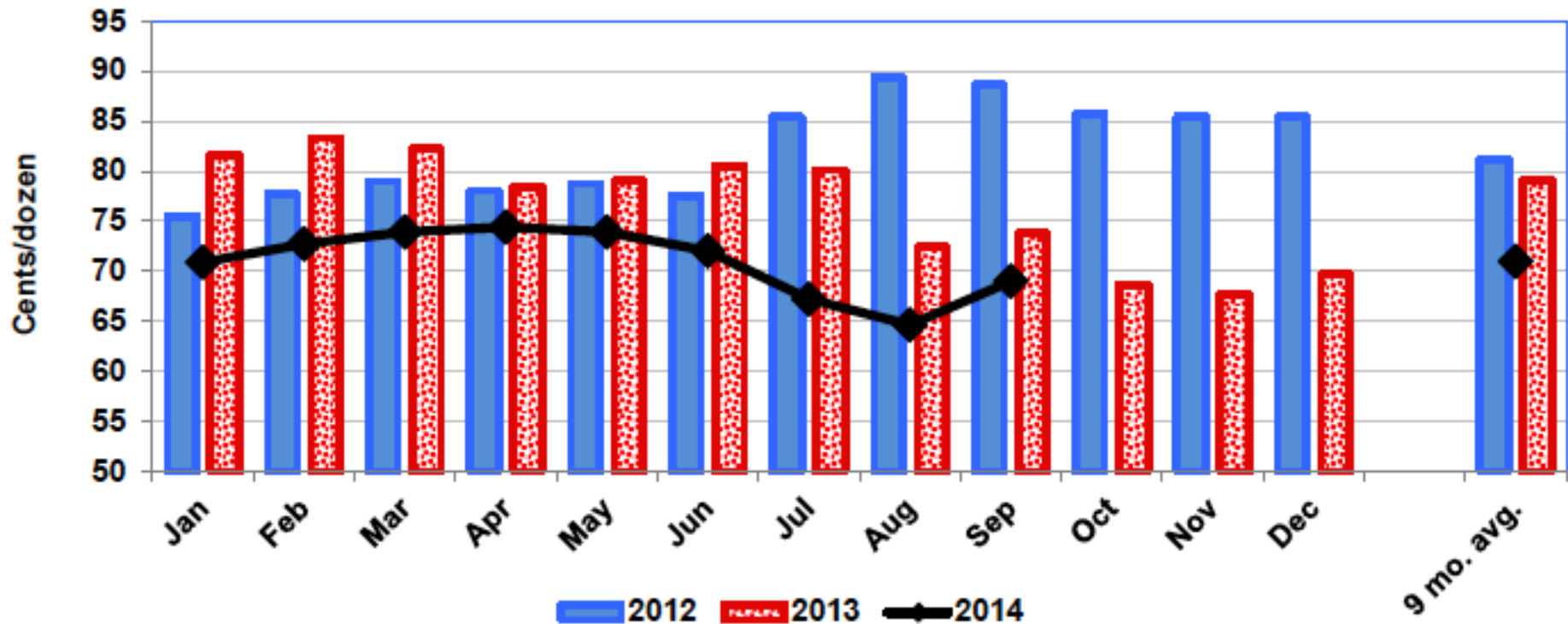
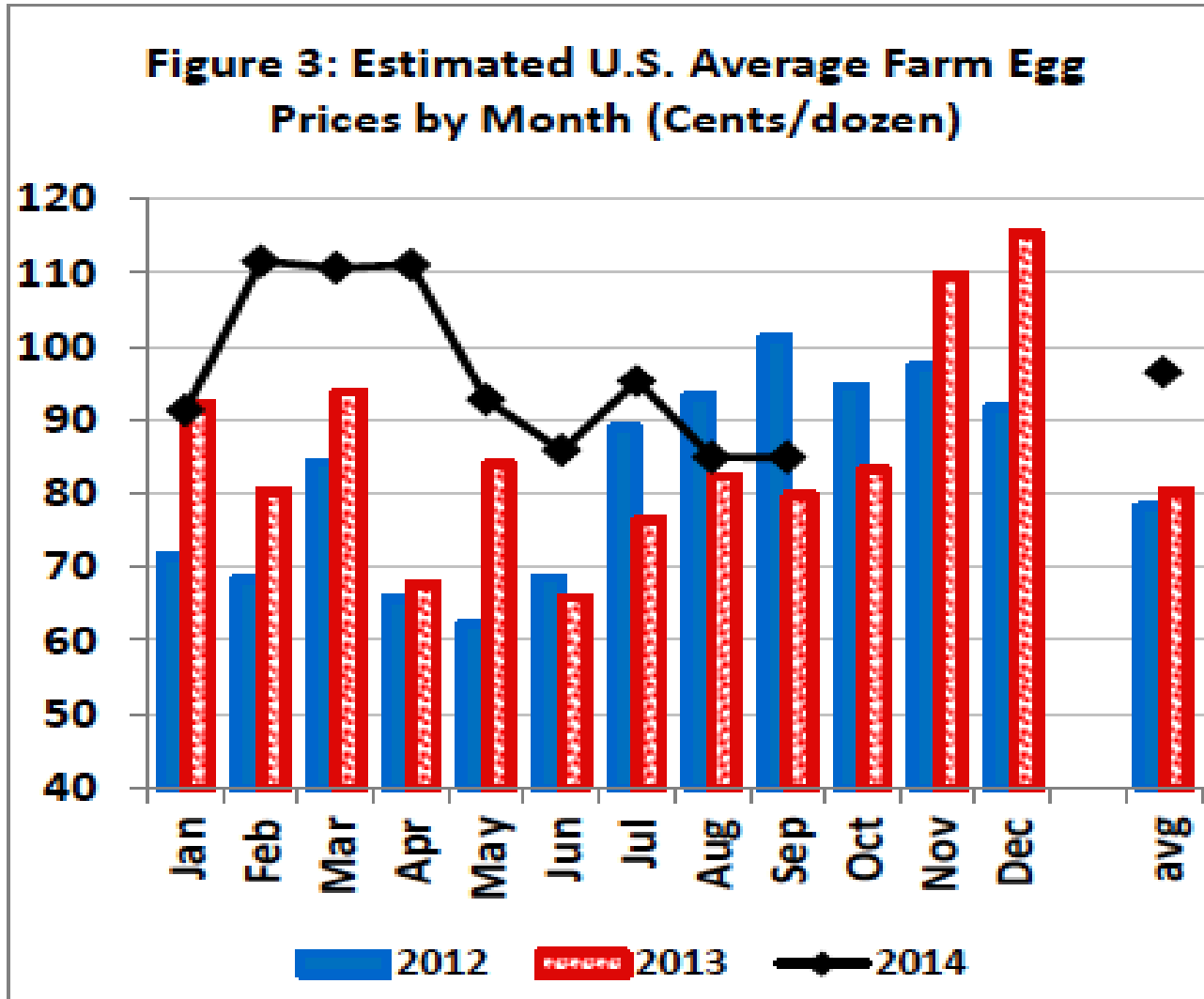


Figure 2: Cost of Production by Month



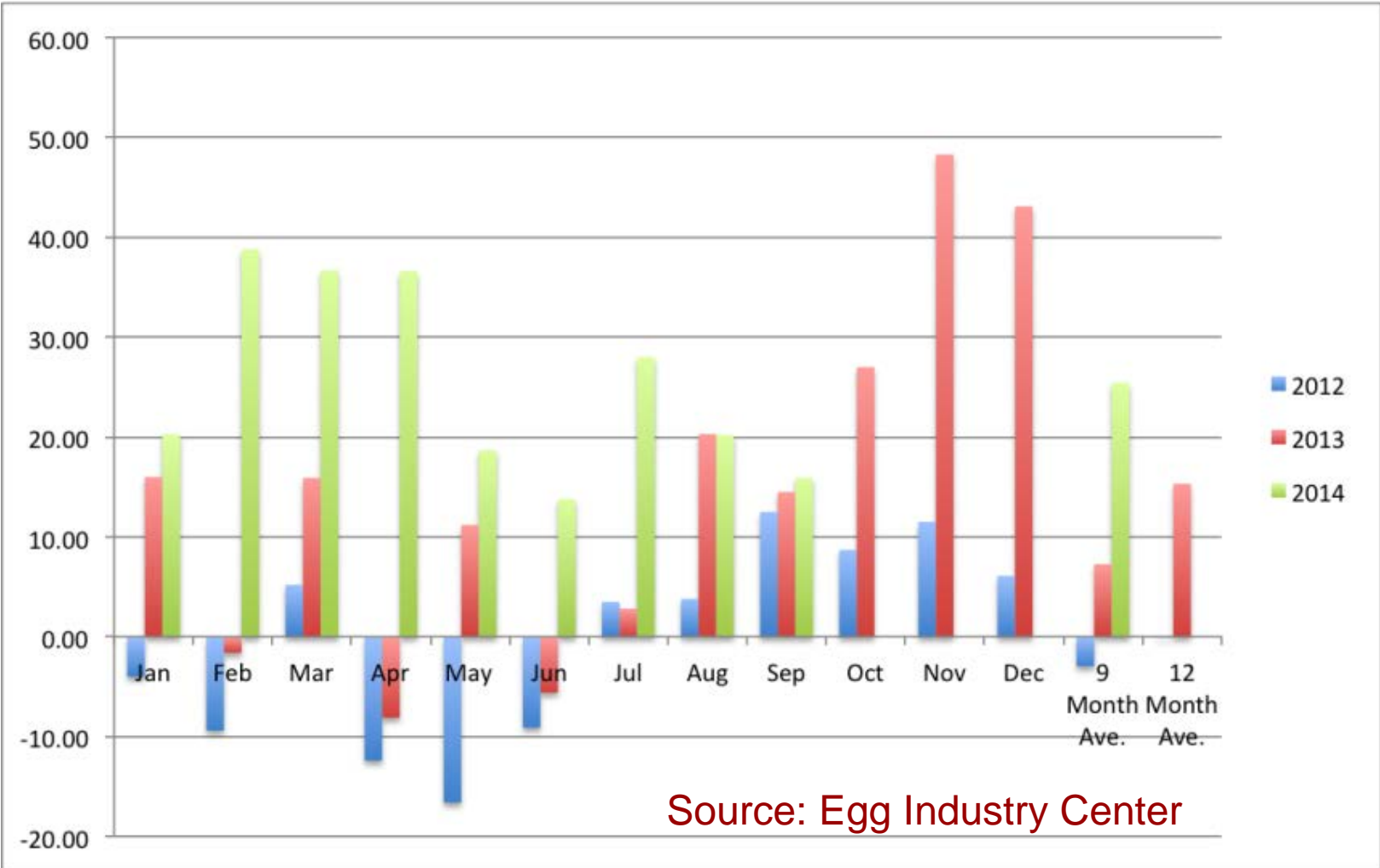
Source: Egg Industry Center

# Egg Prices



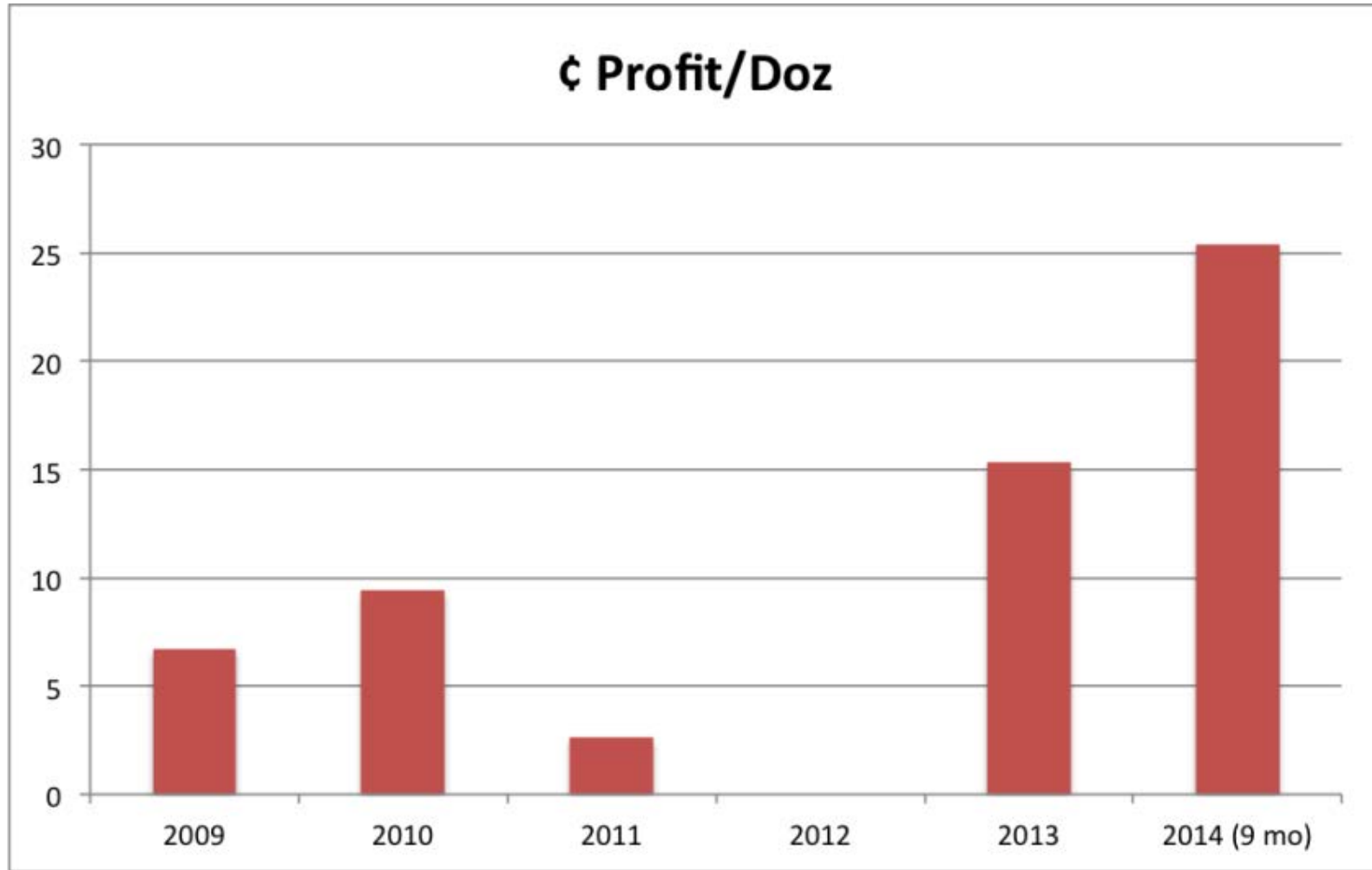
Source: Egg Industry Center

# Profits per Dozen by Month



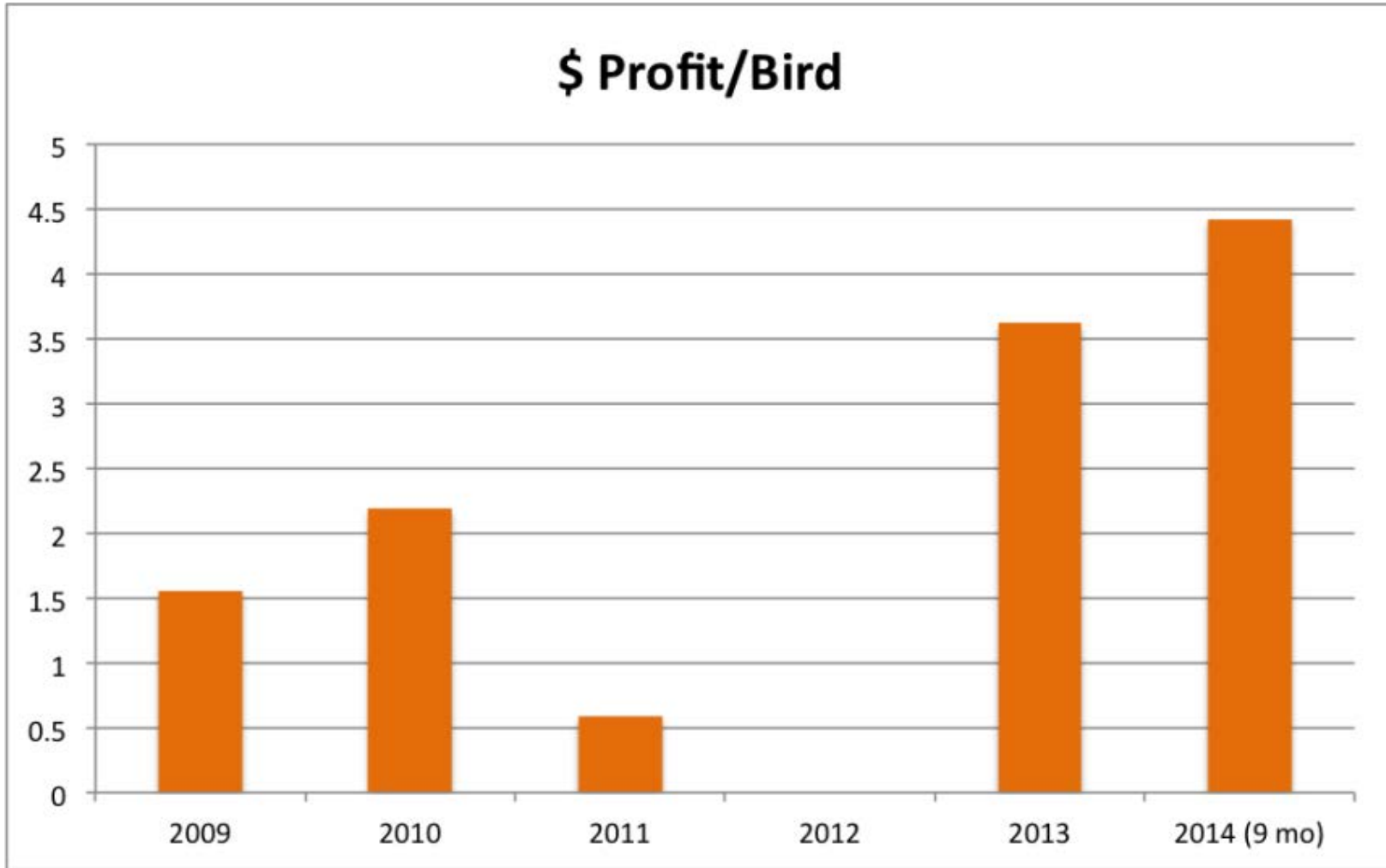
Source: Egg Industry Center

# Egg Profits per Dozen



Source: Egg Industry Center

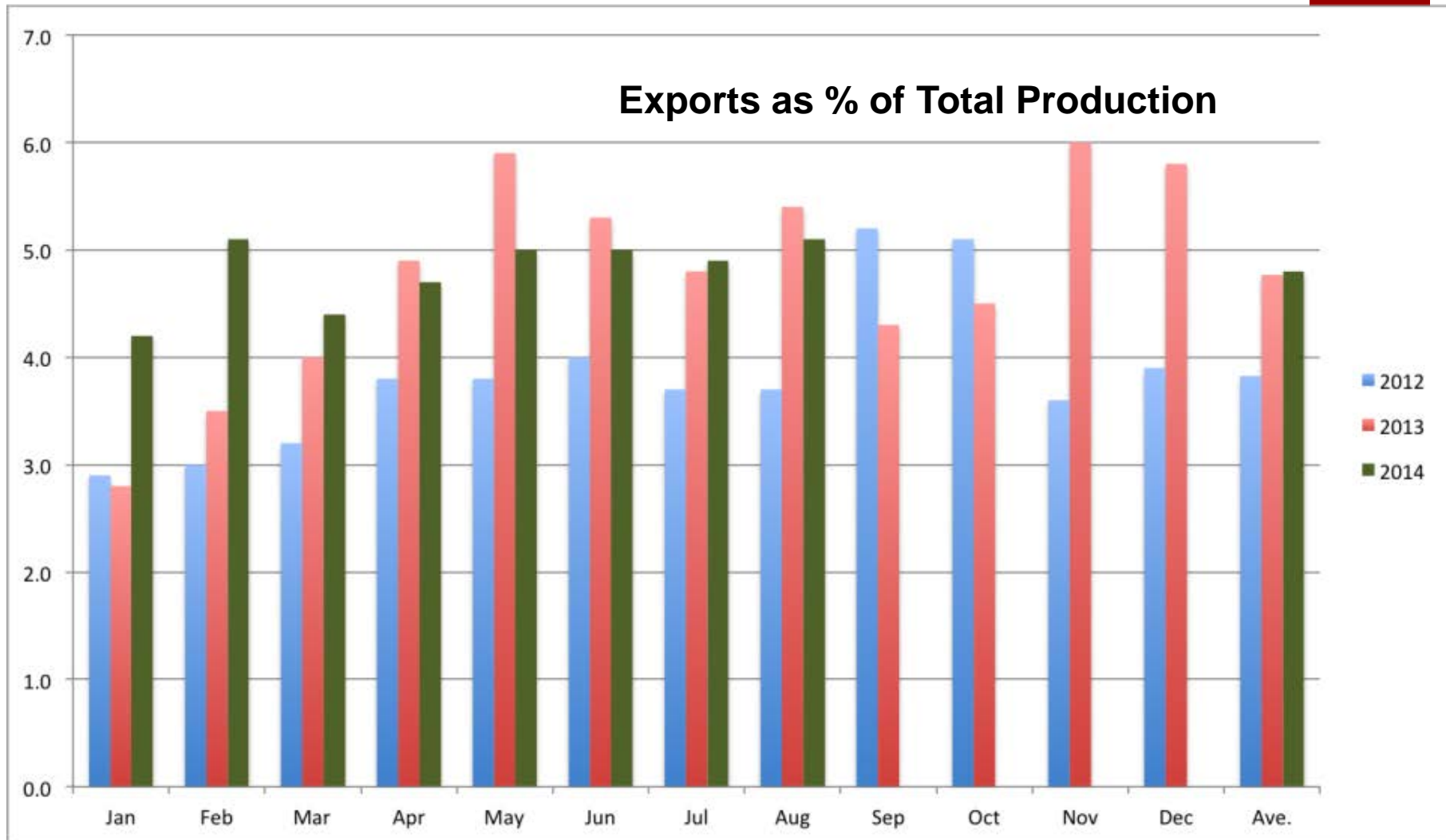
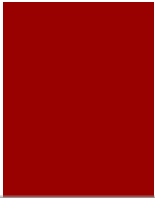
# Egg Profit per Bird



Source: Egg Industry Center

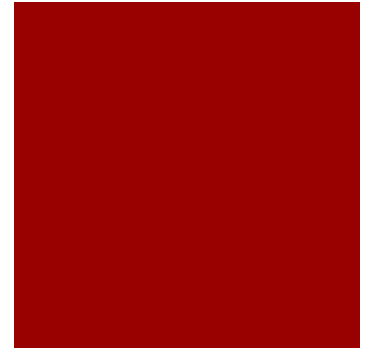


# Exports of Eggs



Source: Egg Industry Center

# Summary



- Layer health of the US flock is quite good
  - Oversight by veterinarians from industry, diagnostic labs, consultants, academia, government
  - Flock supervision by professional service technicians
  - Continued high quality supply of vaccines
  - High quality nutrition provided by professional nutritionists
  - Use of good biosecurity plans
  - Housing a majority of layers in cages
  - Continued surveillance programs for ND and AI

Questions???

