

**CHICKEN 2035: Anticipating TRENDS, Adapting STRATEGIES**

# CHICKEN MARKETING

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# Healthy Broilers, Healthy People 2035

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Poultry Business Solutions  
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**CHICKEN  
MARKETING  
SUMMIT**

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# Healthy Broilers Healthy People 2035

- Antibiotic Use
- Food Safety: Salmonella
- Zoonotic Disease Risk: HPAI



# One Health: What does this mean?

- **WHO:** One Health is an integrated, unifying approach to balance and optimize the health of people, animals and the environment.
- **CDC:** One Health is a collaborative, multisectoral, and transdisciplinary approach — working at the local, regional, national, and global levels — with the goal of achieving optimal health outcomes recognizing the interconnection between people, animals, plants, and their shared environment.

# One Health: What does this mean?

- One Health recognizes that the health of people, animals and the environment are all interconnected
- What happens in one sector affects other sectors
- A **balanced approach** is necessary to optimize outcomes for all



# Antibiotics

# Antibiotics: Definitions

- **FDA:** U.S. Food and Drug Administration
- **WHO:** World Health Organization
- **Antibiotic classification or family:** Group of related antibiotics (Penicillin, Ampicillin)
- **Shared class drugs:** Same drug or drug family used in both humans and animals
- **Animal only drugs:** Drug or drug family only approved for animals with no human counterpart
- **Judicious use:** Use antibiotics sparingly to achieve health goals



# Antibiotics: Definitions

- **Non-medically important to humans drug:** Animal only drugs or drugs deemed not important to human health by FDA or WHO list
- **Medically important to humans drugs:** Drug or drug family deemed important to human health by FDA or WHO list
- **Antibiotic residues:** Trace amounts of antibiotics remaining in meat after an animal is treated with antibiotics
- **AMR = Antimicrobial resistance:** A bacteria that is resistant to antibiotics. Can be single or multi drug resistant organism.
- Concern that an acquired foodborne illness in humans will not respond to antibiotics from a physician because the chickens were treated with the same or a related antibiotic during their life

# Why the concern about antibiotic use?

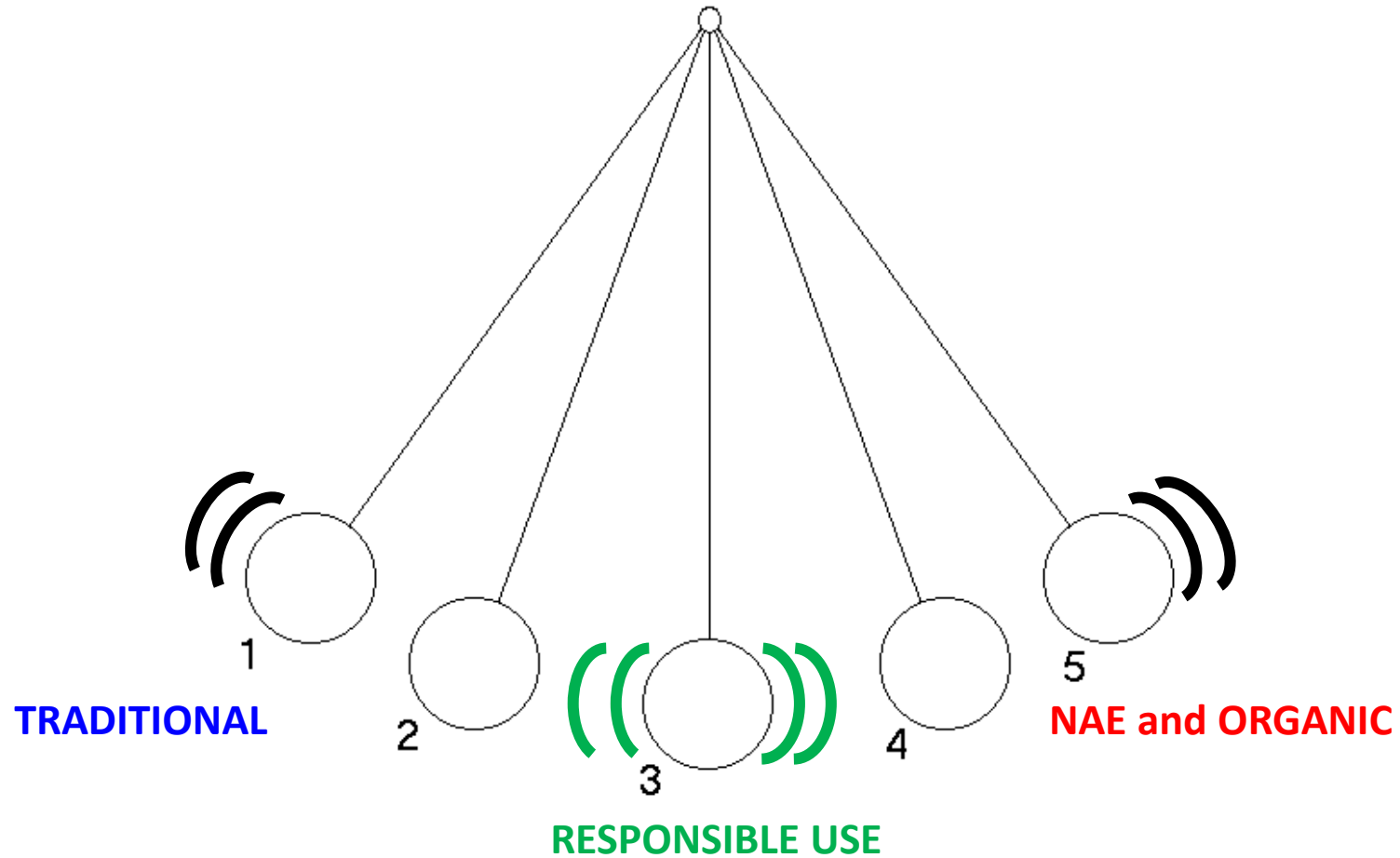
- Antibiotic residues?
  - **NO**
  - FDA mandated withdrawal periods after antibiotic treatment prevent violative antibiotic residues in meat
- Antimicrobial resistance (AMR)?
  - **YES**
  - Concern is that drug use in food animals contributes to formation of “super bugs” or multi-drug resistant bacteria
  - **ALL antibiotic use contributes to this important problem**

# Antibiotic Use Programs in Broilers

Choice is **GOOD**

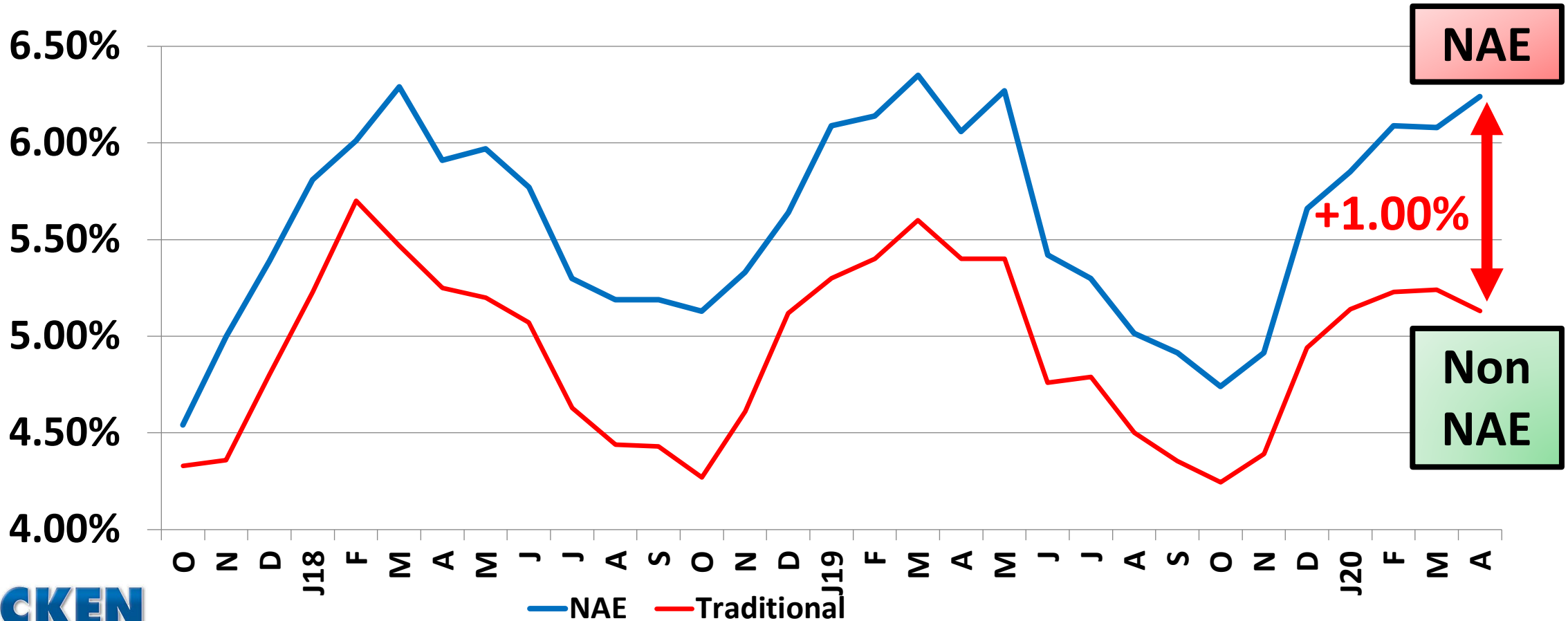
Judgment is **BAD**

# Antibiotic Use Programs in Broilers: A Pendulum of Choice



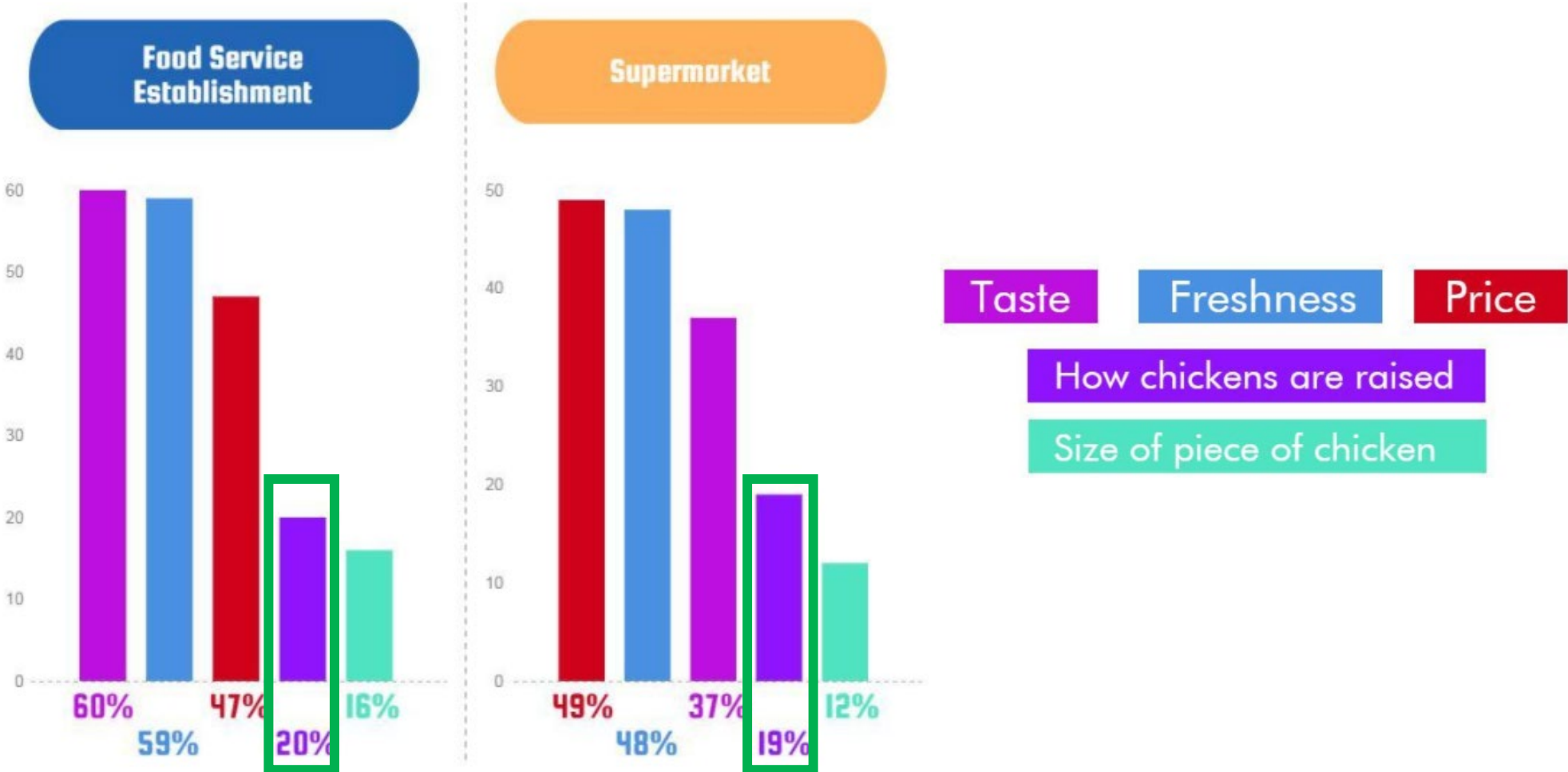
# Antibiotic Use: What do the Chickens want?

# Antibiotic Use Programs: Chicken Mortality\* NAE vs Traditional Programs



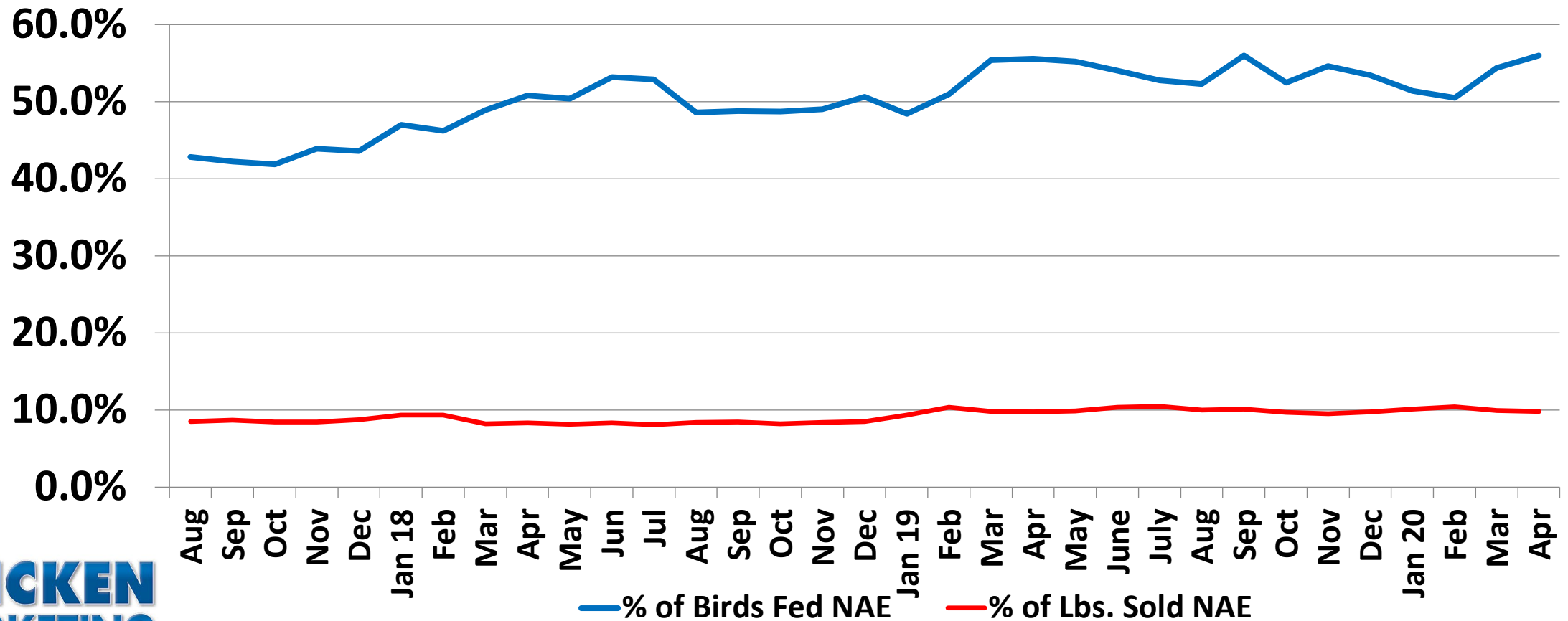
# Antibiotic Use: What do Consumers want?

# How chickens are raised is most important to a minority (20%) of consumers

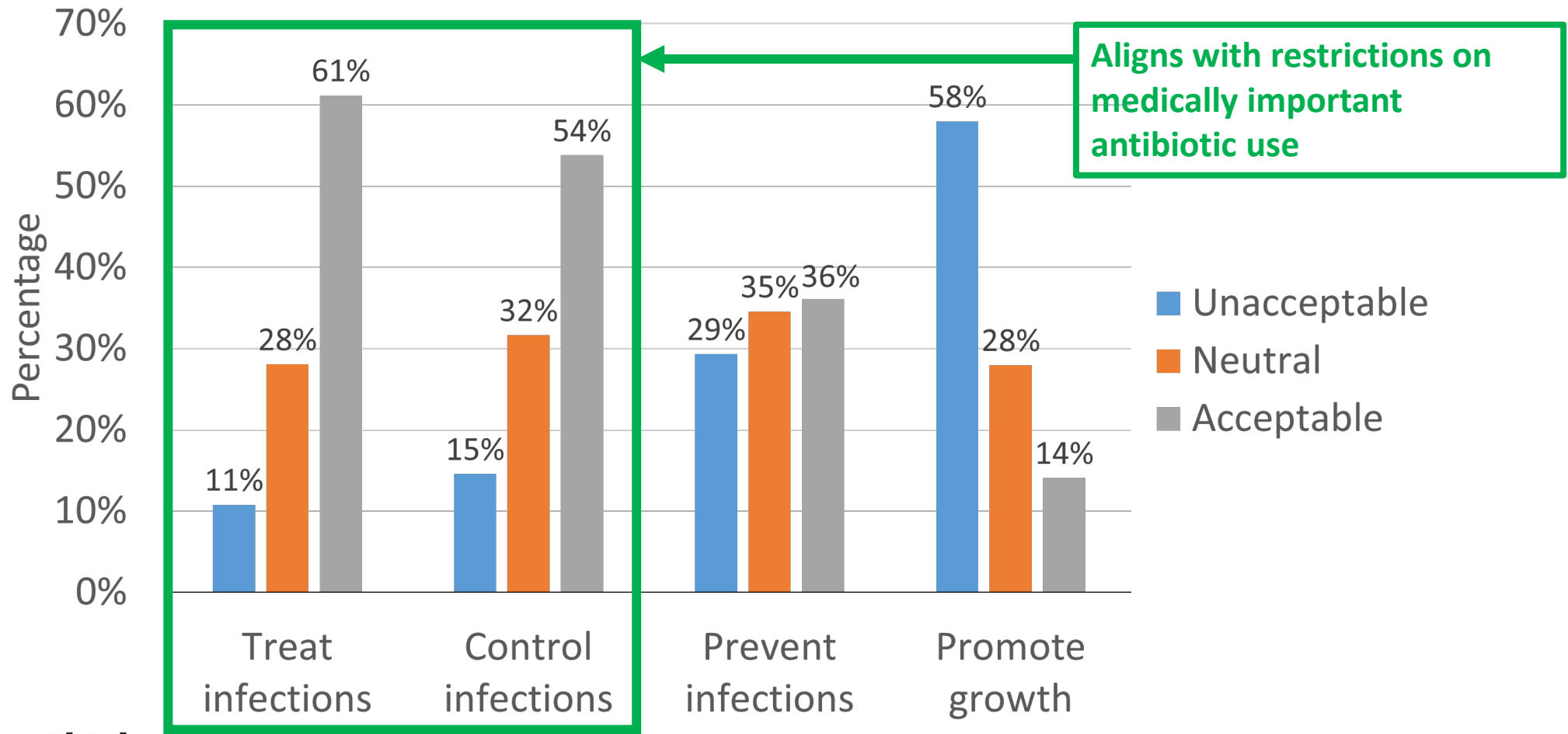




# % of Birds fed 'NAE' vs. % of Lbs. sold 'NAE' August 2021 through April 2023



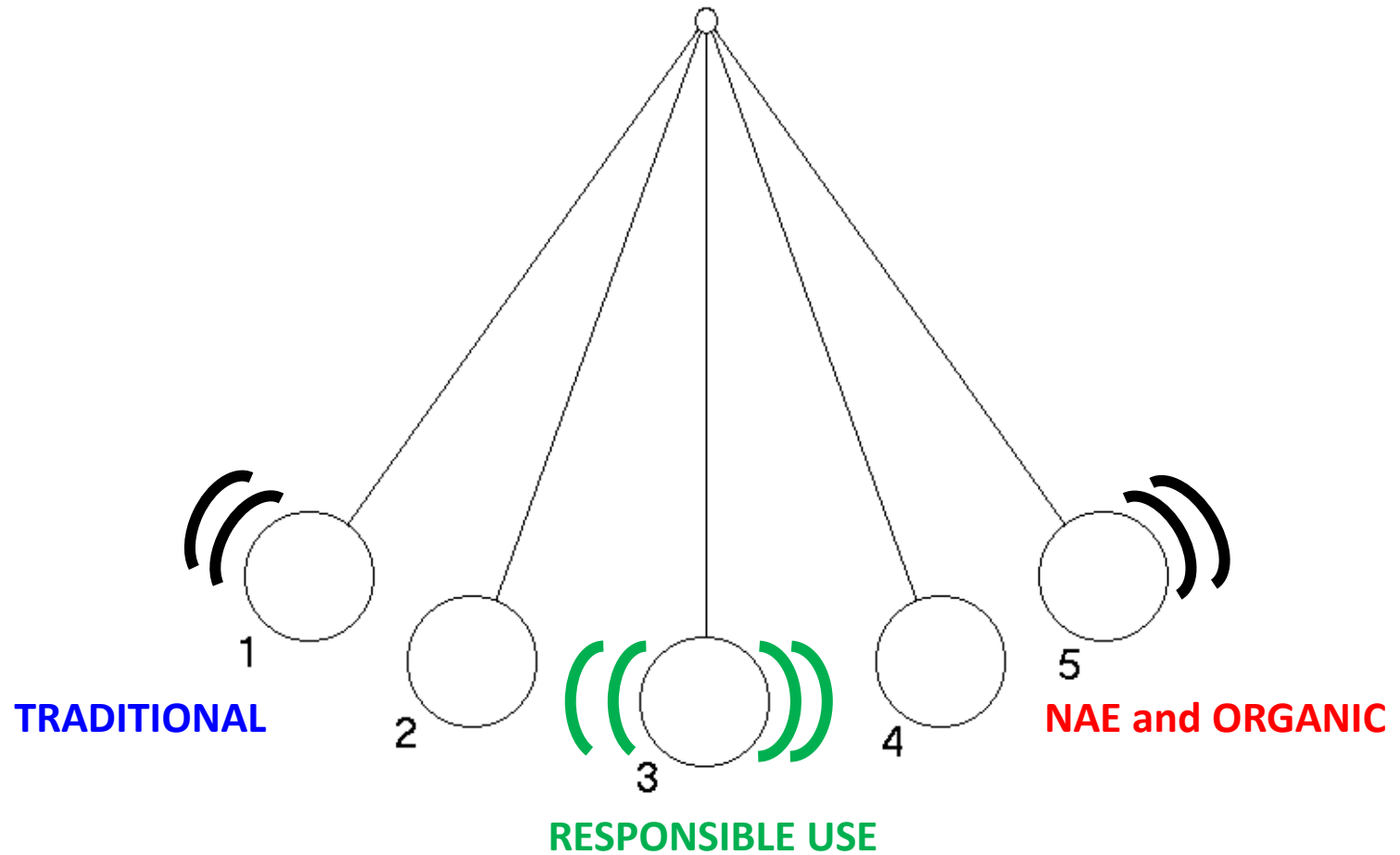
# Consumer Acceptance of Antibiotic Use in Food Animals



# Antibiotic Use Programs: Balanced Approach Preferred by Consumers and Chickens

- **NAIHM: No Antibiotics Important in Human Medicine**
- **FDA List:** Allows Bacitracin and Ionophores and a few others
- **WHO List:** Allows Ionophores only
- **Challenges:**
  - Difficult to communicate and lack of labeling
  - Does not allow for treatment of illness with medically important drugs
  - More of a product specification vs a retail sales attribute

# Antibiotic Use Programs: Balanced Approach Preferred by Consumers and Chickens



# Marketing a Balanced Program to Consumers

Potential  
Marketing  
Solution for a  
Balanced  
Program

[www.onehealthcertified.org](http://www.onehealthcertified.org)

- Promote more balanced consumer choice programs that allows for treatment of sick animals with antibiotics without creating “second class chicken”
- **One Health Certified™** is one such program



Currently available programs



- One Health Certified™ is managed by the **National Institute of Antimicrobial Resistance Research and Education (NIAMRRE)** based at Iowa State University
- A **multi-stakeholder** Standards Oversight Committee oversees development and scheduled revisions of technical standards

# Marketing a Balanced Program to Consumers

**RESPONSIBLE ANIMAL CARE™**  
**ONEHEALTH CERTIFIED™**  
OneHealthCertified.org

**USDA  
PROCESS  
VERIFIED**  
processverified.usda.gov

**USDA PROCESS VERIFIED  
PROGRAM REQUIREMENTS**

- ✓ BIOSECURITY
- ✓ VETERINARY CARE
- ✓ ANTIBIOTIC RESTRICTIONS
- ✓ ANIMAL WELFARE
- ✓ ENVIRONMENTAL IMPACT

**Learn More at [ONEHEALTHCERTIFIED.ORG](http://ONEHEALTHCERTIFIED.ORG)**

# Healthy Broilers Healthy People 2035: Antibiotic Use Programs Summary

- **A BALANCED APPROACH IS THE FUTURE OF ANTIBIOTIC USE**
- **Don't give medically important antibiotics to all the chickens**
- Use antibiotics when medically necessary for chicken health and welfare as directed by a licensed veterinarian with a valid patient client relationship (VCPR)

# Food Safety: Salmonella





# Salmonella Background

Salmonella is a commensal organism in poultry and part of the normal gut microflora

Over 2500 Salmonella serotypes exist

Very few serotypes cause illness in poultry



# New USDA Proposed Salmonella Framework

October 2022

# New USDA Proposed Salmonella Framework: 10/17/22

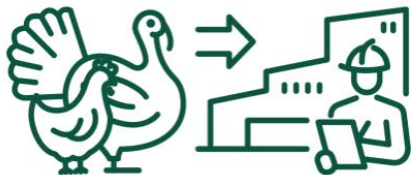
The screenshot shows the top navigation bar of the USDA Food Safety and Inspection Service website. The header includes the USDA logo and the text 'Food Safety and Inspection Service U.S. DEPARTMENT OF AGRICULTURE'. Navigation links include 'ABOUT FSIS', 'CONTACT US', 'CAREERS', 'NEWS & EVENTS', and 'EMPLOYEES'. A secondary navigation bar contains 'FOOD SAFETY', 'SCIENCE & DATA', 'POLICY', 'INSPECTION', 'RECALLS', 'SEARCH', and 'FULL MENU'. Below this is a dark green banner with a repeating pattern of food icons. A sidebar menu on the left lists 'Inspection', 'Inspection Programs', 'Inspection of Meat Products', and 'Inspection of Poultry Products'. The main content area features a large green headline: 'Proposed Regulatory Framework to Reduce Salmonella Illnesses Attributable to Poultry'.



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[Proposed Regulatory Framework to Reduce Salmonella Illnesses Attributable to Poultry | Food Safety and Inspection Service \(usda.gov\)](#)

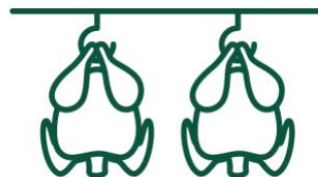
# New USDA Proposed Framework: 10/17/22



## Component 1

Requiring incoming flocks be tested for Salmonella before entering an establishment

[Read More →](#)



## Component 2

Enhancing establishment process control monitoring and FSIS verification

[Read More →](#)



## Component 3

Implementing an enforceable final product standard

[Read More →](#)

**How did the Poultry Industry react?**

# National Chicken Council (NCC) Response

“While *Salmonella* prevalence continues to decline, we recognize illness attributed to *Salmonella* have not. Even with very low levels of pathogens, there is still the possibility of illness if a raw product is improperly handled or cooked. Increased consumer education about proper handling and cooking of raw meat must be part of any framework moving forward. Proper handling and cooking of poultry is the one thing that will eliminate any risk of foodborne illness. All bacteria potentially found on raw chicken, regardless of strain, are fully destroyed by handling the product properly and cooking it to an internal temperature of 165°.

“**We pledge to continue to do our part** – the industry will remain committed to investing significant resources – at the hatchery, feed mill, farm and plant – to further enhance the safety profile of chicken products.

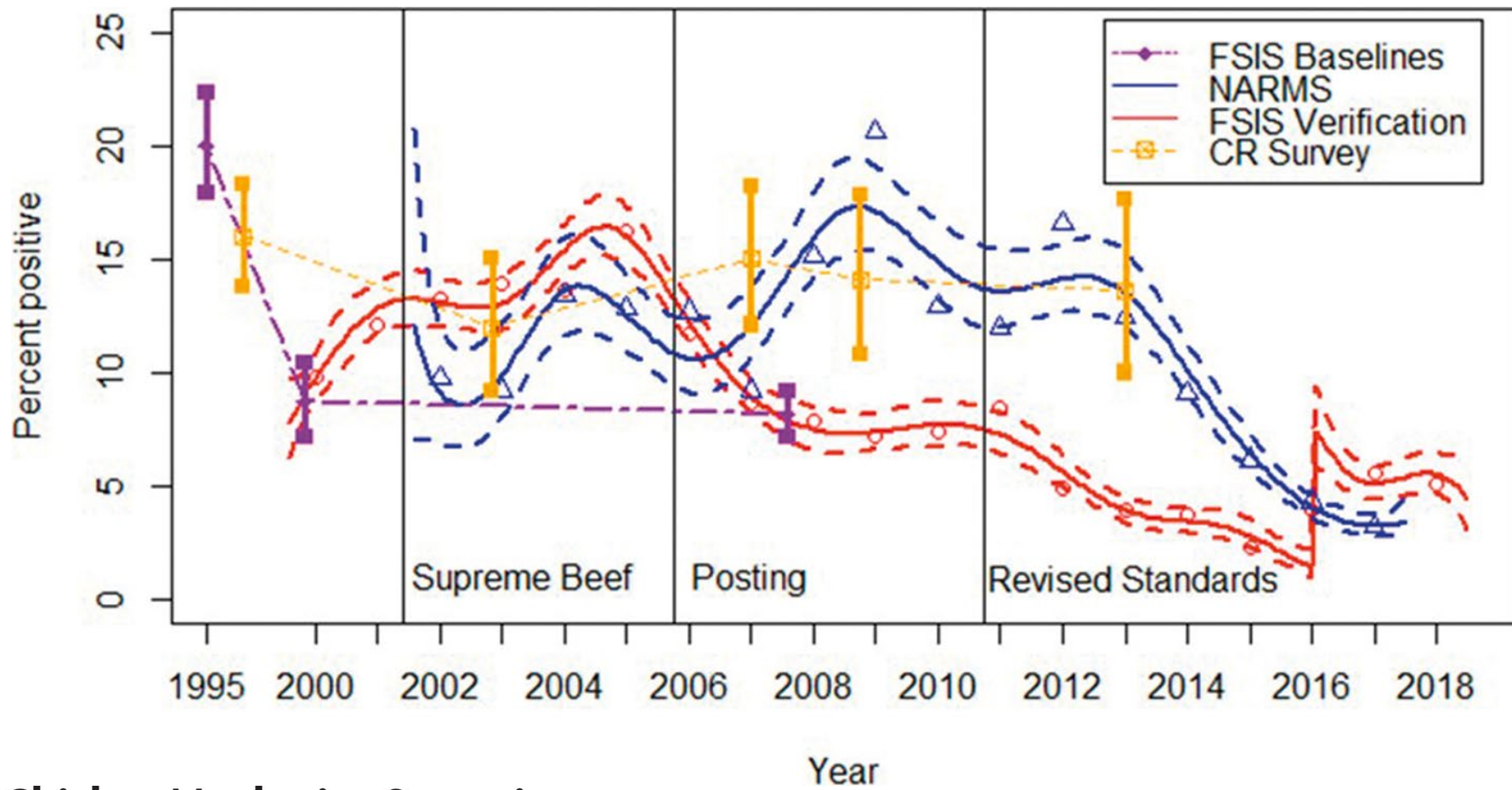
# National Turkey Federation (NTF) Response

- “All segments of the turkey industry are united in the effort to address food safety challenges. NTF and its members have long shared ideas and research on the most effective ways to control naturally occurring *Salmonella* in poultry products,” stated NTF President Joel Brandenberger.
- “Because there are no simple solutions, improving food safety requires the type of collaborative approach USDA is advocating.
- **NTF supports — and looks forward to participating in — the process outlined by Secretary Vilsack and Deputy Under Secretary (Sandra) Eskin.”**

**Why did this happen?**



# Changes in Salmonella Contamination in Meat and Poultry Since the Introduction of the Pathogen Reduction and HACCP Rule

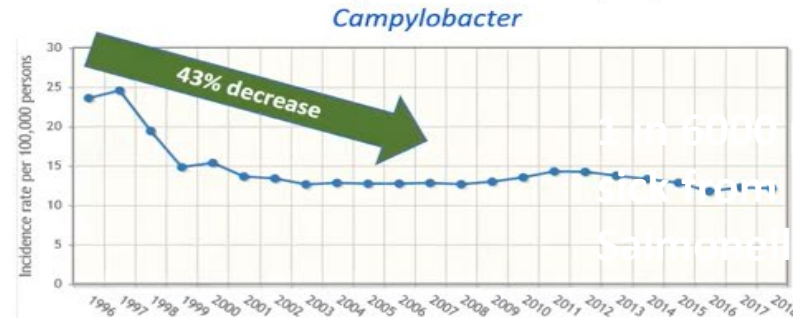
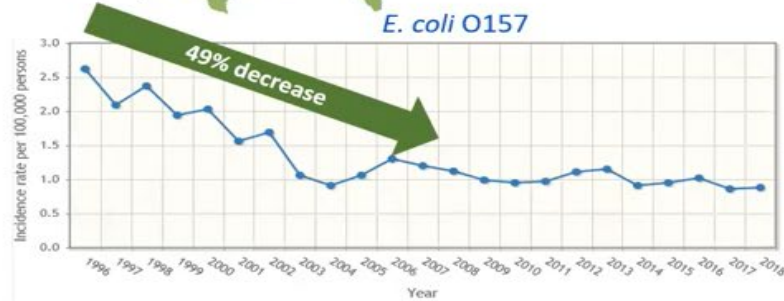


# No Reduction in Human Illness Due to Salmonella in over 20 Years

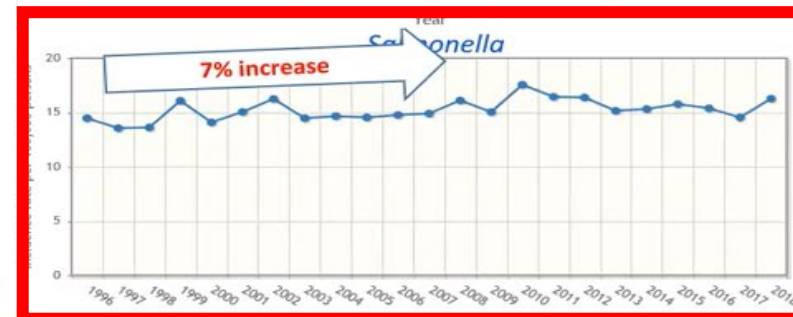
## Tracking incidence of infections by pathogen, FoodNet



- 8 infections often spread through food
- Collaboration among CDC, 10 FoodNet sites, FDA, USDA/FSIS
- Reliable and up-to-date data on illness trends since 1996
- Culture-confirmed illnesses per 100,000 population (15% of US)



Culture-Confirmed only



[www.cdc.gov/foodnetfast](http://www.cdc.gov/foodnetfast)

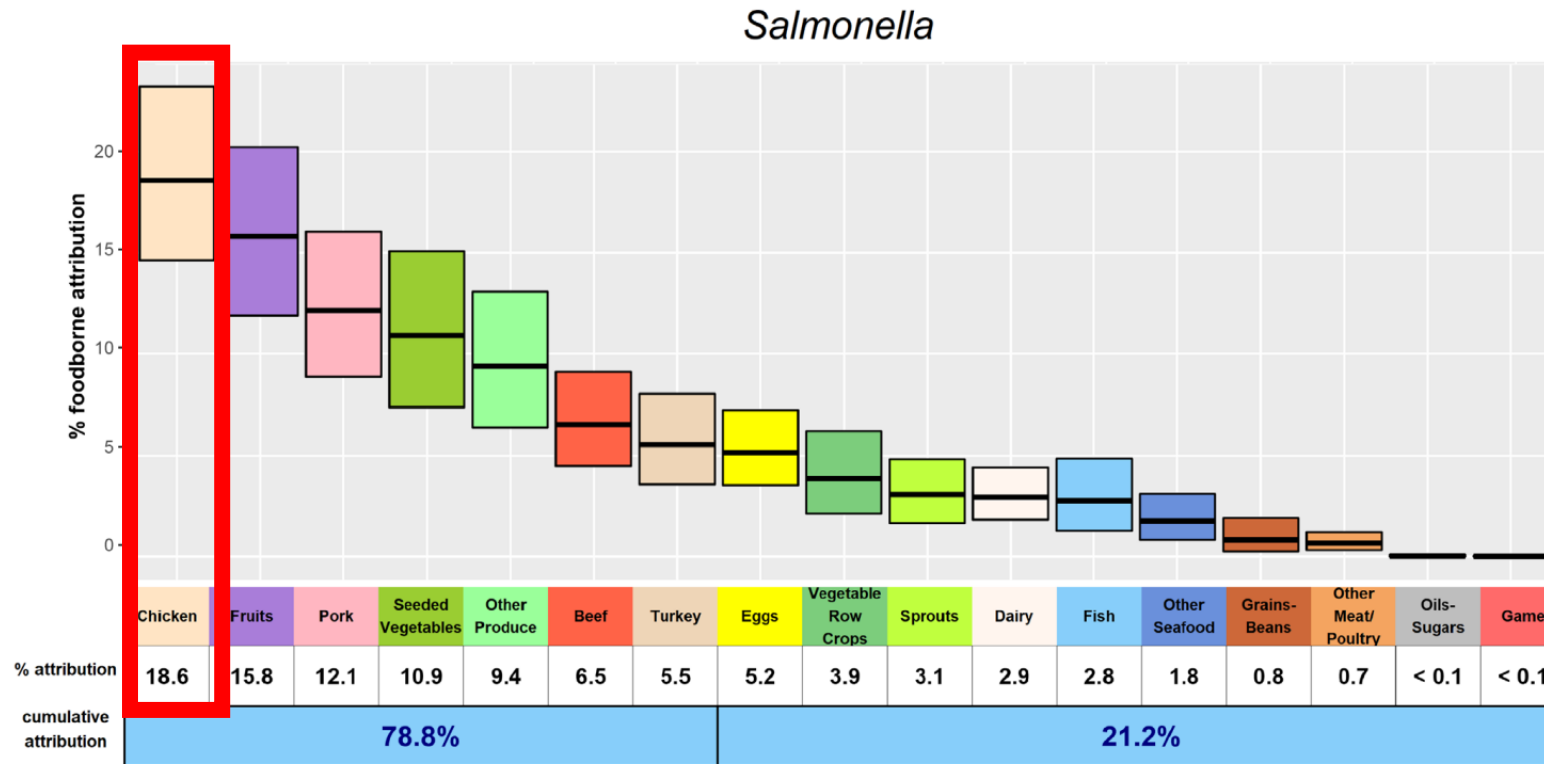
# Salmonella is the biggest bacterial foodborne illness challenge in the United States

-----Each year CDC estimates there are -----

Pathogen	Foodborne illnesses	Foodborne hospitalizations	Foodborne deaths
<i>Salmonella</i>	1,000,000	19,000	380
<i>Campylobacter</i>	845,000	8,500	80
<i>E. coli</i> O157	63,000	2,100	20
<i>Listeria</i>	1,600	1,500	260

# Approximately 1 in 5 Salmonella Cases are attributed to eating Chicken

Figure 2: Estimated percentage of foodborne *Salmonella* illnesses (with 90% credibility intervals) for 2021, in descending order, attributed to each of 17 food categories, based on outbreak data from 1998 through 2021,\* United States



# Which Salmonella serotypes are most common in human infections?

- 53% of infections are with the most common 6 serotypes
- 4 of the 6 are poultry-associated (34.3% of infections)
- 6 are in 3 different serogroups (and vaccines exist for 2 of those 3)
  - #1 Enteritidis 17% Serogroup D1 (O:9)
  - #2 Newport 10%
  - #3 Typhimurium 9% Serogroup B (O:4)
  - #4 Javiana 8%
  - #5 4,[5],12:i:- 5.5% Serogroup B (O:4)
  - #6 Infantis 2.8% Serogroup C1 (O:7)

# What Does USDA Want?

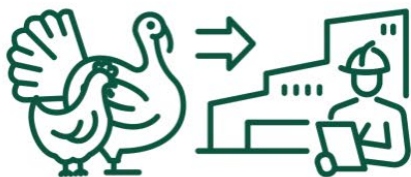
- Healthy People 2030 goal for Salmonella is a 20% decrease in human cases
- Down from >15/100,000 people to <11/100,000 people incidence rate

## • USDA Perspective:

- Too many people are getting sick from eating poultry
- Current control measures are not doing enough to address this issue



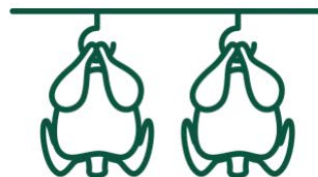
# New USDA Proposed Framework: 10/17/22



## Component 1

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[Read More →](#)



## Component 2

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## Component 3

Implementing an enforceable final product standard

[Read More →](#)

# An Enforceable Finished Product Standard: Adulterant Classification for Certain Serotypes

— #1	Enteritidis	17%	Serogroup D1	(O:9)
— #2	Newport	10%		
— #3	Typhimurium	9%	Serogroup B	(O:4)
— #4	Javiana	8%		
— #5	4,[5],12:i:-	5.5%	Serogroup B	(O:4)
— #6	Infantis	2.8%	Serogroup C1	(O:7)



# An Enforceable Finished Product Standard: Adulterant Classification for Certain Serotypes

**Adulterant Classification:** Product containing certain Salmonella Serotypes above a threshold level could not be sold to consumers as fresh poultry.

Adulterated product could only be used for further processing with a lethality step (cooking).

This creates a **test and hold scenario** for all lots of finished product

**Current Salmonella Control Measures:**

**Focus on ALL Salmonella**

# Current Salmonella Control Measures: Car Wash Analogy

- Current Salmonella control measures rely heavily on the ability of the processing plant to wash Salmonella off the surface of a contaminated carcass
- Washing and chemical treatments can overcome most carcass contamination rates but may be overwhelmed at times when heavily contaminated flocks are processed
- **Goal is to deliver a live chicken with consistently less Salmonella (or less risky Salmonella) contamination to be cleaned by the plant processes**



# Future Salmonella Control Measures

Focus control efforts on Serotypes of public health concern

# Focus on Serotypes of Public Health Concern: Know Your Risk by **Monitoring** the Supply Chain

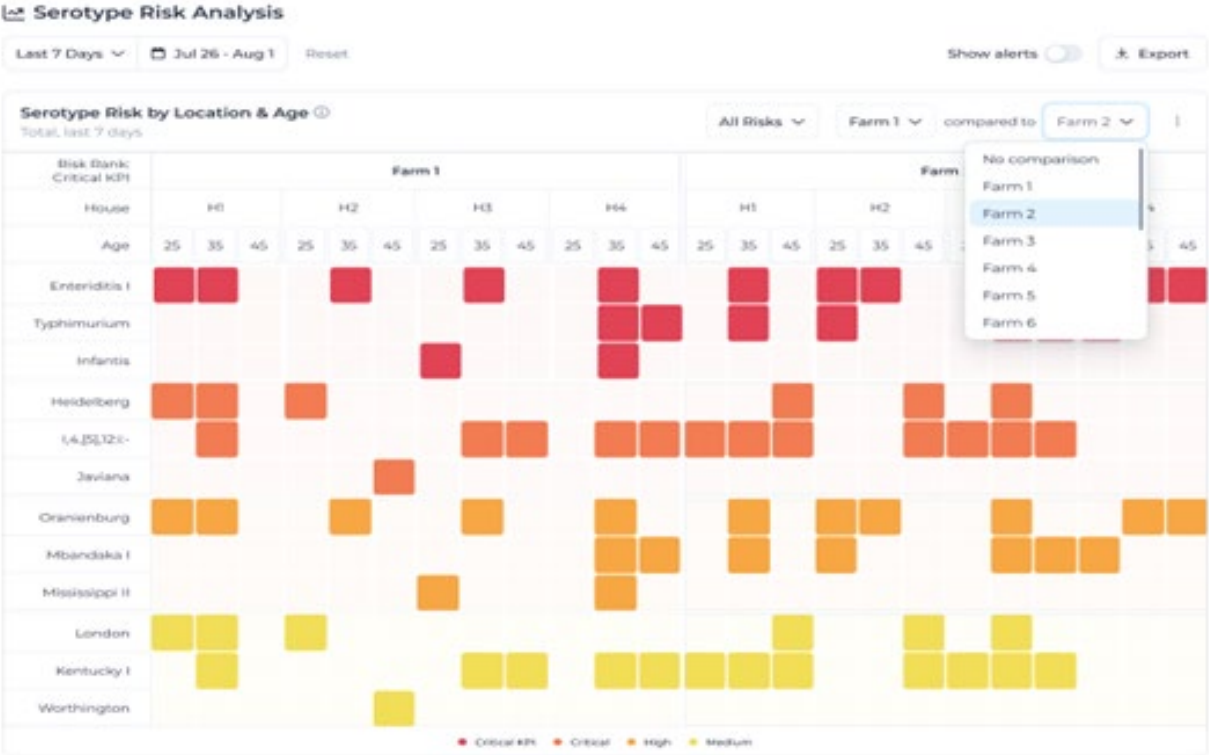
Ongoing live side monitoring to track serotypes:

1. Breeders
2. Hatchery (?)
3. Broilers

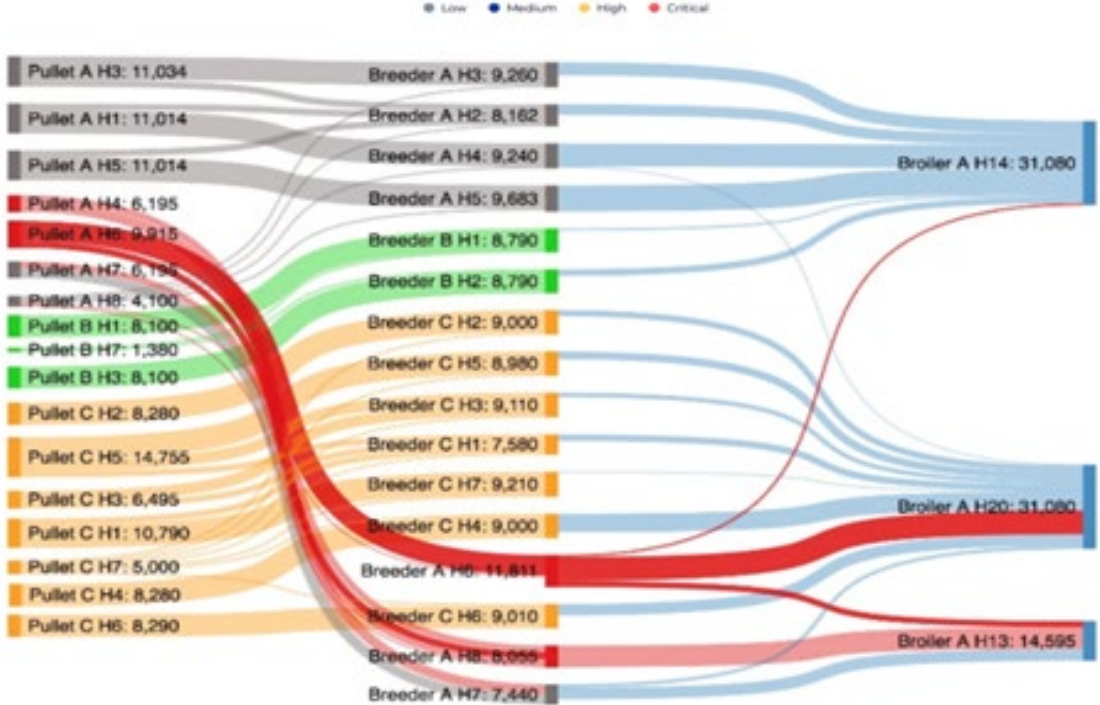
Evaluate live side interventions to reduce serotypes of concern

Test periodically to verify that interventions are still working

# Focus on Serotypes of Public Health Concern: Know Your Risk by Monitoring the Supply Chain



Salmonella Traceability: April 1, 2023 - April 7, 2023



**How can live side Salmonella load be reduced?**

# Interventions to reduce live side Salmonella load

- Vaccines
  - Breeder: Whole Cell Bacterin or SRP Proteins
  - Broiler: Gene-deleted live ST
- Feed or Water Additives
  - Prebiotics, probiotics and postbiotics
  - Natural compounds (plant extracts and essential oils)
  - Short chain and medium chain fatty acids
  - Multi-component synergistic product
- New technologies in development



# What diagnostic tests are used to assess the effectiveness of interventions to reduce live side Salmonella load?

- MPN (Most Probable Number)
- PCR (Sal-quant BAX and Clear Labs NGS)
- Deep Serotyping (Ancera)
- WGS (Whole Genome Sequencing)
- New technologies in development

# Healthy Broilers Healthy People 2035: Food Safety: Salmonella Summary

- Salmonella control is a precompetitive issue
- Know your Salmonella status and serotypes identified in your system by monitoring regularly
- Work together to improve food safety of poultry products
- Be willing to partner with USDA, academics, NGOs and other stakeholders
- Freely share outcomes (good and bad)

**If you want to go fast, go alone**

**If you want to go far, go together**

**African proverb**

# Zoonotic Disease Risk: H5N1 HPAI

# Zoonotic Disease Risk: HPAI in Poultry

- H5N1 HPAI in wild waterfowl and poultry has been ongoing since 2021
- This virus has become endemic and persists in wild waterfowl
- Contact with H5N1 positive waterfowl droppings infects commercial poultry
- H5N1 HPAI infected poultry are humanely depopulated to prevent spread
- Vaccines are not used for HPAI due to potential negative international trade impacts
- Eventually a new influenza virus will replace the H5N1 in wild waterfowl and risk of infecting commercial poultry will go back to normal very low levels

# Zoonotic Disease Risk: HPAI in Dairy Cows

- In 2024 sick dairy cows were diagnosed with H5N1 HPAI
- H5N1 virus in cows is identical to virus infecting poultry
- First farms were identified when dead cats on dairy farms tested positive for HPAI
- Subsequent tests of sick cows confirmed H5N1 HPAI infection
- Milk from infected cows contains **HIGH LEVELS** of H5N1 HPAI virus
- 20% of retail milk samples test positive for inactivated (dead) HPAI virus

# Zoonotic Disease Risk: HPAI in Dairy Cows

- Recent **HUMAN INFECTIONS** with H5N1 HPAI have been reported
- Dairy workers
- Poultry workers
- Conjunctivitis (pink eye) and/or mild respiratory illness reported
  
- **Any time an avian virus infects mammals the risk of adaptation to efficiently infect and spread in mammals increases**

# Healthy Broilers Healthy People 2035: Zoonotic Disease Risk: HPAI Summary

## Real Concern:

- H5N1 HPAI virus may mutate or acquire genes to enable efficient infection of humans and possibly create a worldwide pandemic
- H5N1 vaccine preparations are underway for at risk workers and the public

# Healthy Broilers Healthy People 2035: One Health View

- One Health recognizes that the health of people, animals and the environment are all interconnected
- What happens in one sector affects other sectors
- A **balanced approach** is necessary to optimize outcomes for all





# Questions?

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