

# H5N1 in America

## Understanding the Outbreak and Illinois Response

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Great Lakes Center for  
Farmworker Health and Wellbeing



College of Agricultural,  
Consumer &  
Environmental Sciences

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

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Medical Center™

COLLEGE OF PUBLIC HEALTH

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ILLINOIS DEPARTMENT OF PUBLIC HEALTH

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# Agenda

- Introduction  
*by Josie M Rudolphi*
- Two Studies in Farm Safety in response to Highly Pathogenic Avian Influenza (HPAI) in dairy and poultry production  
*by Matthew W. Nonnenmann*
- Illinois Raw Milk Sampling to Detect Highly Pathogenic Avian Influenza H5N1  
*by Guy Sprouls*





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GREAT LAKES CENTER FOR  
**FARMWORKER**  
HEALTH AND WELLBEING

## **Josie M Rudolphi, PhD**

Center Deputy Director for  
Great Lakes Center for Farmworker Health and Wellbeing

# H5N1 - Resources and Support



**Illinois Extension**  
UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

Contact Josie Rudolphi ([josier@illinois.edu](mailto:josier@illinois.edu)) with requests for training and information to protect yourself or workers.



## FREE MENTAL HEALTH CARE

**FREE** mental health sessions for farmers.

Scan the QR code to learn more.



## AG CONCERN HOTLINE

**1-800-447-1985**

- Agricultural-specific legal, financial, and stress support.
- Free, 24/7 access to trained staff.
- Confidential.



## 988 LIFELINE CHAT & TEXT

**Call or Text 988**

- Suicide, mental health and/or substance use support.
- Free, 24/7 access to trained staff.
- Confidential.



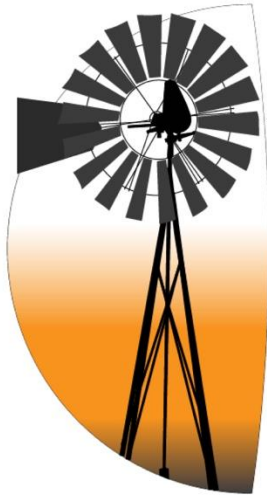
## ONLINE RESOURCES

**farmstress.org**

170+ ag-specific resources.

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AgHealth  
Central States  
Center for Agricultural  
Safety and Health

[www.unmc.edu/publichealth/cscash](http://www.unmc.edu/publichealth/cscash)

# Two Studies in Farm Safety in response to Highly Pathogenic Avian Influenza (HPAI) in dairy and poultry production

UNIVERSITY OF  
**Nebraska**  
Medical Center



## College of Public Health



**Matthew  
Nonnenmann**  
MS, PhD, CAIH, CIH



**Alex Farfalla, MS  
PhD Candidate**



**Kelsey Irvine,  
MPH, CPH**  
Communications  
Specialist



**Cheryl Beseler, PhD**  
Evaluation,  
Surveillance



**Ellen Duysen, MPH**  
Coordinator,  
Outreach,  
Pilot Program

# Agenda

- Background

- Study 1

Distribution of worker educational materials and personal protective equipment in response to Highly Pathogenic Avian Influenza (HPAI) in dairy and poultry production

UNIVERSITY OF  
**Nebraska**  
Medical Center



- Study 2

Seroprevalence study of H5N1 antibodies among dairy farm workers

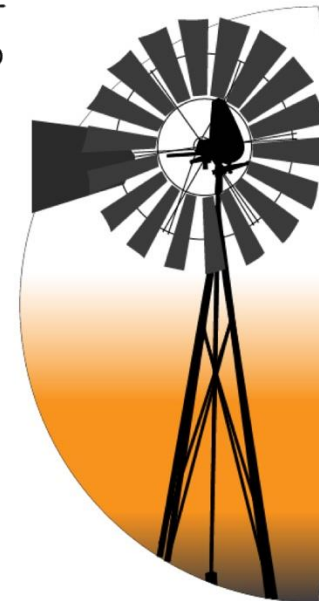
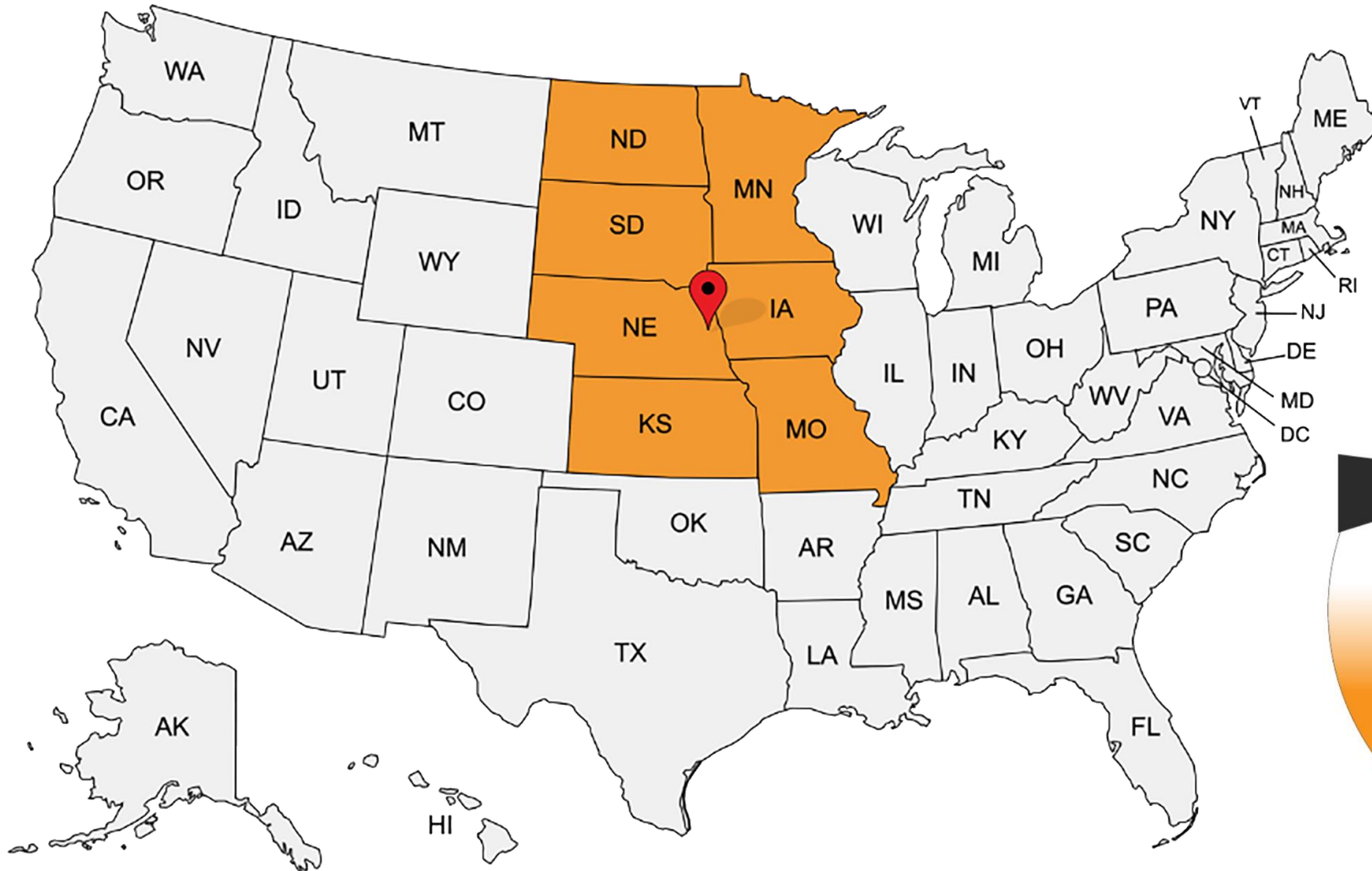


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Public Health





# Central States Center for Agricultural Safety and Health (CS-CASH)



AgHealth  
Central States  
Center for Agricultural  
Safety and Health

[www.unmc.edu/publichealth/cscash](http://www.unmc.edu/publichealth/cscash)

# H5N1 Background

- Outbreaks have resulted in poultry flock depopulation within the 7-state region of CS-CASH
- May 30th, 2024, in Sioux County, Iowa that impacted **4.2 million commercial egg-laying chickens** resulting in the depopulation of the flock – others have subsequently been impacted across the US





# Avian Influenza (Bird Flu)

[www.cdc.gov/bird-flu/situation-summary/data-map-commercial.html](http://www.cdc.gov/bird-flu/situation-summary/data-map-commercial.html)

## Birds Affected

**159,307,978**

Highly pathogenic avian influenza (HPAI) A(H5) viruses have been detected in U.S. wild aquatic birds, commercial poultry and backyard or hobbyist flocks beginning in January 2022. These are the first detections of HPAI A(H5) viruses in the U.S. since 2016. Preliminary genetic sequencing and RT-PCR testing on some virus specimens shows these viruses are HPAI A(H5N1) viruses from clade 2.3.4.4.

## States Affected

**51**

## Counties Affected

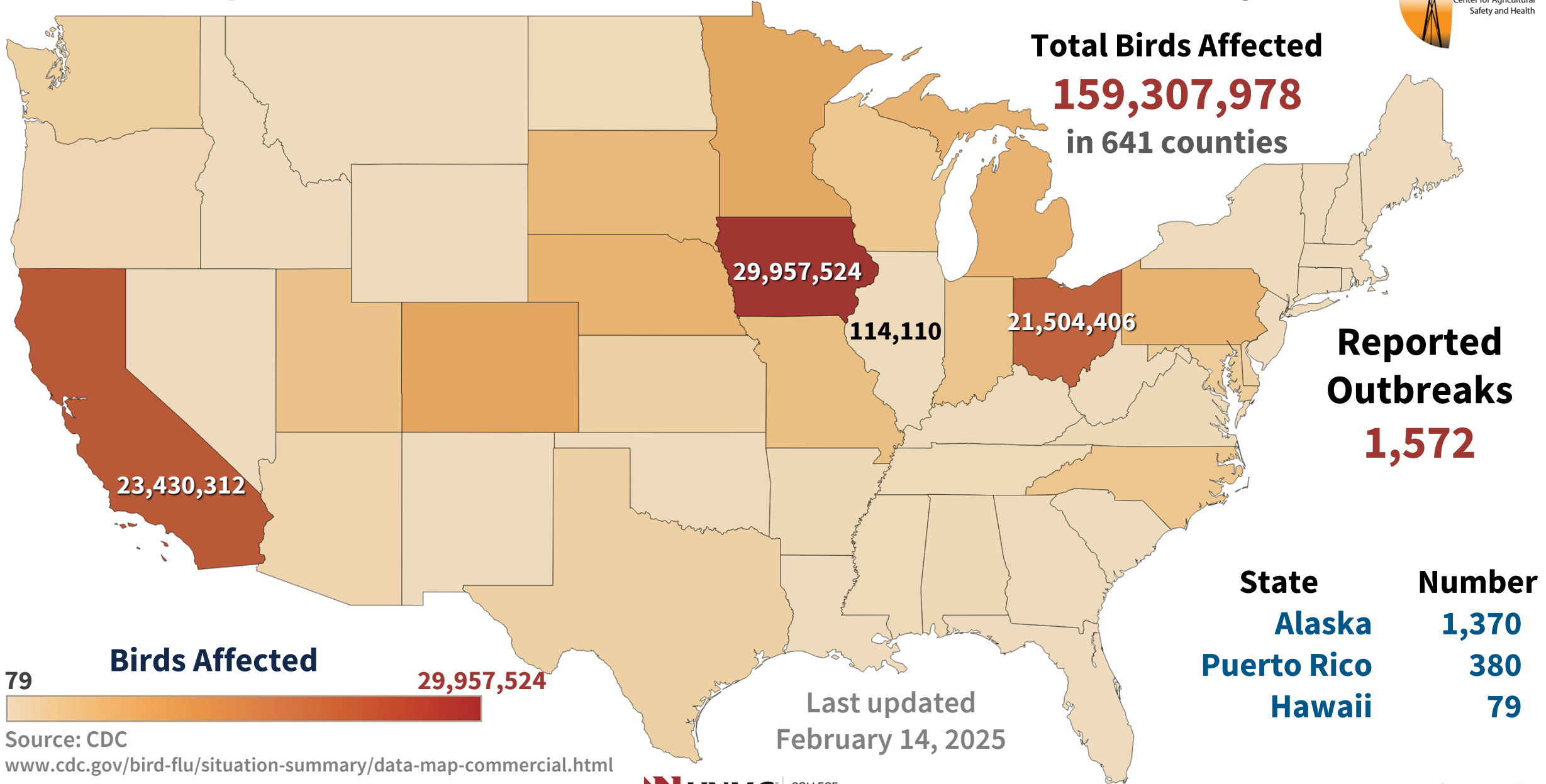
**641**

## Reported Outbreaks

**1,572**

February 14, 2025

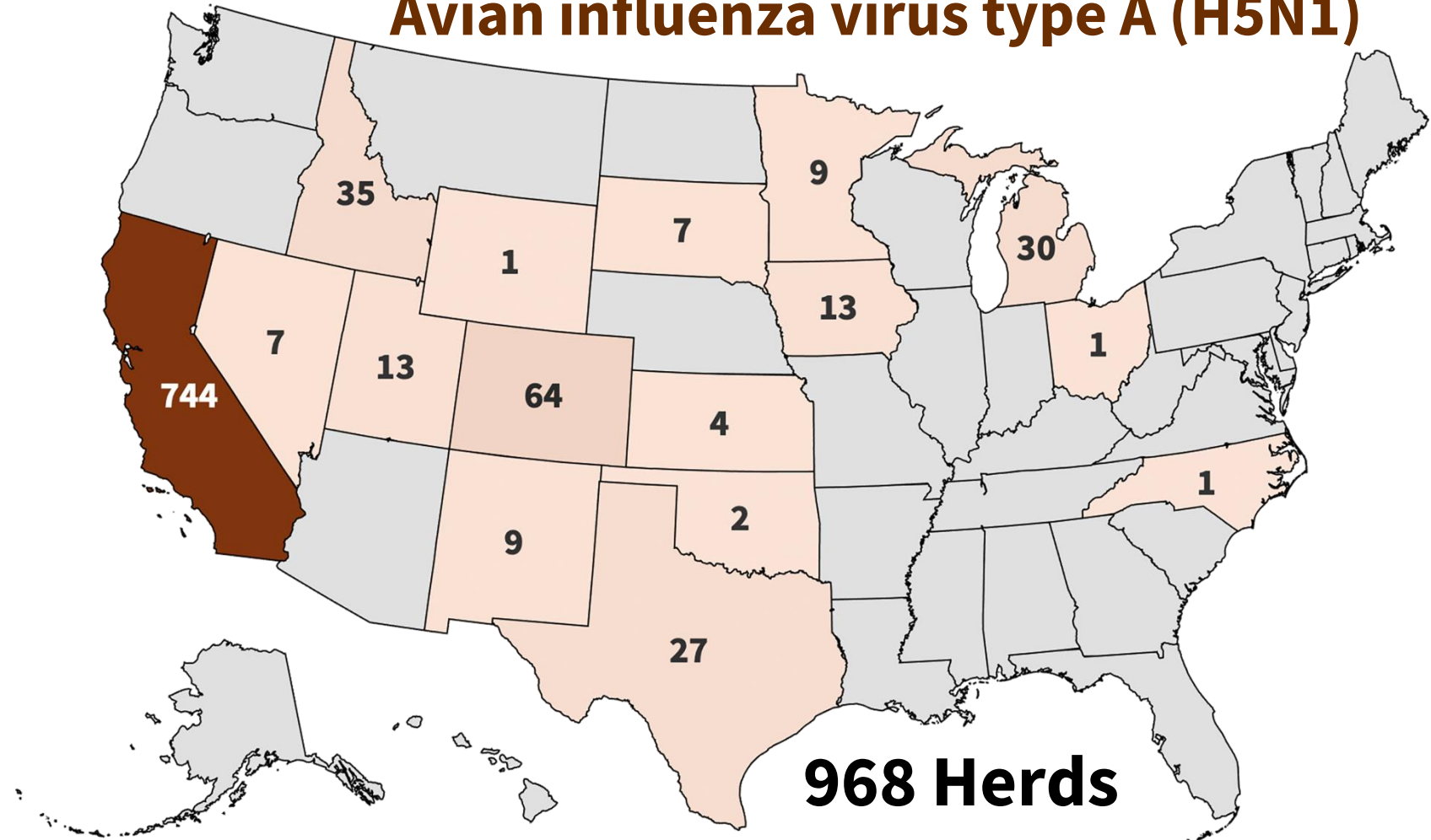
# USDA Reported H5N1 Bird Flu Detections in Poultry



# H5N1 Background

The dairy industry has experienced an outbreak of H5N1 HPAI that has resulted in spillover to workers in March 2024

## Dairy herds with confirmed Avian influenza virus type A (H5N1)



Source: American Veterinary Medical Association

Last updated: February 11, 2025



# H5N1 Background

- Workers, and farm families may be exposed to the virus during the outbreak and depopulation procedures
- The disease burden among workers/producers/families is unclear
- The number of people infected also remains unclear – other studies ongoing



# Influ-Venn-Za

Who can catch which flu?

"Australian Flu"  
Variation of Swine Flu typically spreading via close contact with pigs - though human-to-human transmission is being seen (fatality rate: 6%).



Influenza Type A is divided into H & N strains (i.e. H1N1) referring to different combinations of:

**H = hemagglutinin**  
(binds to cells)

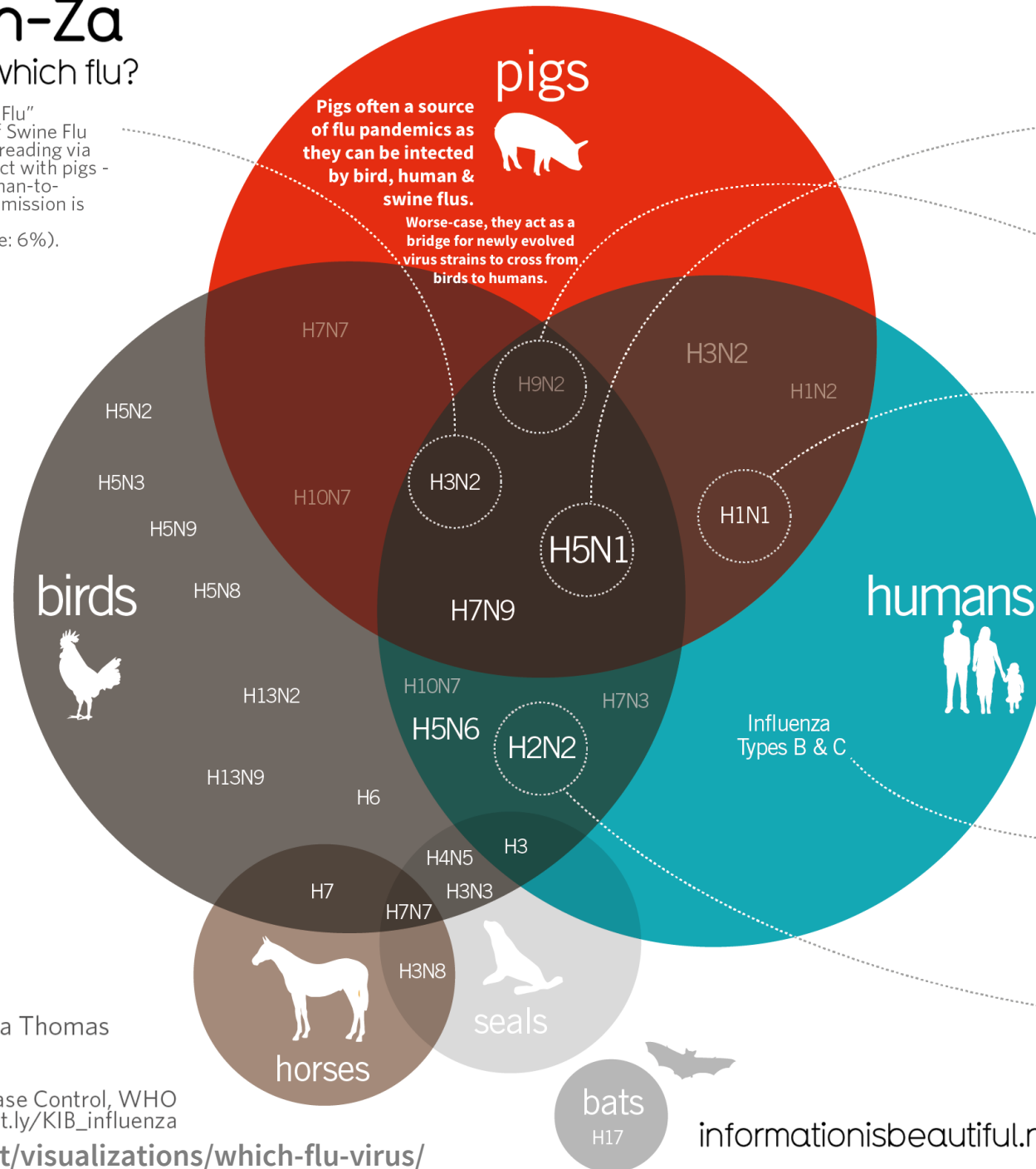
**N = neuraminidase**  
(surface enzyme)

**text SIZE**  
= human fatality rate

**LIGHT TEXT**  
= rarely infects humans

David McCandless  
Ella Hollowood, Phillipa Thomas  
Version 1.4 / Nov 2021

Sources: Centres for Disease Control, WHO  
data: [http://bit.ly/KIB\\_influenza](http://bit.ly/KIB_influenza)



The "Bird Flu" most mentioned in the media. Kills 60% of humans it infects. But direct human-to-human transmission has not been reported.

Lesser known "bird flu" endemic in poultry in Eurasia. Rarely seen in humans.

The most common variant of "Swine Flu". As "Spanish Flu" it killed 50-100 million people in 1918. The 2009-10 pandemic killed 15,000 worldwide.

"Common flu" only found in humans. Less harmful than type A. Does not cause pandemics.

Caused "Asian Flu" pandemic in 1957 then disappeared from human population. Still circulates in birds.

# Study 1



**Distribution of worker educational materials and personal protective equipment in response to Highly Pathogenic Avian Influenza (HPAI) in dairy and poultry production**



# Project Aims

**Aim 1:** Develop HPAI hazard identification educational materials for dairy and poultry farms

- Print materials (e.g., signs and symptoms of disease)
- Videos (e.g., PPE use, donning, doffing)

**Aim 2:** Disseminate HPAI educational materials and Worker Personal Protective Equipment (PPE) Kits to dairy and poultry farms in the CS-CASH region

# Dairy Industry









# Progress

- Conference calls every two weeks with NE Extension/PH partners
- Collaborating with other **National Institute for Occupational Safety and Health (NIOSH)** H5N1 project primary investigators (PI's)
- Regular contact with dairy and poultry commodity groups seeking to understand what message will resonate with producers and workers

# Progress

- **Educational materials review/edits - currently working on those drafts – targeting co-branding with Extension/Commodity Groups**
  - **Biosecurity, hygiene and seasonal influenza vaccine information seems to resonate with commodity groups and producers**
  - **Producers wary of Centers for Disease Control and Prevention (CDC) information/funded projects**
    - **lack of trust**

# Progress

- Purchased farm (dairy/poultry) databases containing contact information for producers
- Utilizing relationships with regional PH clinics
- Will attend several commodity group meetings to provide educational materials and PPE kits to producers, as well as collect feedback on materials



# Progress

- Will send educational materials, instructional videos and PPE kits to farms using contact information from purchased databases and commodity groups
- Will gather feedback and make changes to materials as needed

# Study 2

Project PI: Dr. David Douphrate

## Seroprevalence study of H5N1 antibodies among dairy farm workers

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Environmental and Occupational Health



### Assessment of Highly Pathogenic Avian Influenza (H5N1) Among Dairy Farm Workers

Texas A&M University, School of Public Health  
College Station, Texas

# Study 2



- 12-month project
- Texas A&M University School of Public Health (TAMU SPH) researchers are committed to ensuring anonymity of dairy farms, owners, and workers
- Texas A&M University Institutional Review Board approved all methods



# Progress

- ✓ Farms/owners being contacted and participating
- ✓ Workers currently being enrolled
- ✓ Data collection is ongoing and has been successful
- ✓ Sample analysis is ongoing and data are being summarized
- ✓ The project will be completed in July, 2025 with perhaps additional data collection occurring in 2025/2026

# Contact Information



## Study 1

**Matt Nonnenmann**

**[mnonnenmann@unmc.edu](mailto:mnonnenmann@unmc.edu)**



**UNMC**<sup>SM</sup>

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## Study 2

**David Douphrate**

**[douphrate@tamu.edu](mailto:douphrate@tamu.edu)**



TEXAS A&M  
**Public Health**

# Illinois Raw Milk Sampling to Detect Highly Pathogenic Avian Influenza H5N1

**Guy Sprouls, MS, LEHP**  
Dairy Program Manager





# National Milk Testing Strategy


Stage 1  
Plant Silo Monitoring

Stage 2  
Determination of IL Status

Stage 3  
Active surveillance

Stage 4  
Monitoring

Stage 5  
Freedom from  
H5N1 Determination

- December 6, 2024, **USDA**  United States Department of Agriculture releases Federal Order
- State Milk Regulatory Agencies tasked with collecting co-mingled raw milk samples from dairy plant silos
- Bulk Tank Units (BTU's) whose milk is in the silo at the time of sampling will be identified
- A broad net will be cast, limited information available from results

# National Milk Testing Strategy

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H5N1 Determination

- Silo sampling will occur monthly at same time as routine product sampling
- 24 dairy plants and 7 direct ship farms across Illinois
- Plants must receive Grade A raw milk from Interstate Milk Shippers (IMS) listed Bulk Tank Units (BTUs)

# National Milk Testing Strategy

Stage 1  
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- 1 sample collected from each silo with raw milk at time of sampling
- BTU numbers collected on all truck loads in the tank at time of sampling but since last full wash and sanitizing

# National Milk Testing Strategy

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- Triggered by positive plant sample
- Illinois Department of Agriculture required to begin epidemiological (epi) investigation to identify infected farms



- Traceback will be conducted using samples collected by Milk Hauler and taken to the plant with the tanker.



# National Milk Testing Strategy

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- Bulk milk tankers to be sampled at dairy plants
- Positive tank traced back to farm using individual producer samples collected by hauler



# National Milk Testing Strategy

Stage 1  
Plant Silo Monitoring

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- Begins when several months of results show no presence of virus in Illinois herds
- Sampling frequency reduced



# National Milk Testing Strategy

Stage 1  
Plant Silo Monitoring

Stage 2  
Determination of IL Status

Stage 3  
Active surveillance

Stage 4  
Monitoring

Stage 5  
Freedom from  
H5N1 Determination

- After **all states** progress to stage 4
- Detections no longer found in the United States
- Determined by



# Upcoming Webinar

February 25, 2025

## H5N1 Prevention Strategies

### A Guide for Agricultural Producers

This webinar provides information to agricultural producers and the public regarding testing for H5N1 and infection prevention and control recommendations

Presenters:

Mark Ernst, DVM, Illinois State Veterinarian

Tasha Bunting, Director of Commodity Programs & Farm Systems  
Illinois Farm Bureau



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