Panel on Protecting the Milk Supply:

Managing Risk, Safety, and Continuity in 2026

A panel moderated by Dan Rice, Sr. Consultant Nationwide

High Plains Dairy Conference:
20 years providing science and information to dairy producers of the High Plains

Jason Lombard, DVM MS

Colorado State University

- **Panel on Protecting the Milk Supply: Managing Risk, Safety, and Continuity in 2026**

- **<u>Focus for this Presentation and Panel discussion:</u>**
  - 1 What do we know about H5N1 after 2 years?
  - 2 Ideas on why H5N1 spread at will through the dairy industry
  - 3 How do we implement the ‘correct’ biosecurity procedures?
  - 4 The dairy industry must get serious about biosecurity

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- *The findings and conclusions in this presentation are my own and should not be construed to represent any official USDA or U.S. Government determination or policy*

- *The data used in, or part of this presentation, was made possible, in part, by an agreement with the United States Department of Agriculture's APHIS. This presentation may not necessarily express the views of APHIS.*

Timeline of H5N1 Detections in the U.S.

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Dec 2021

Wild Birds

- Carolinas
- Blue-winged Teal
- American Widgeon
- Gadwall
- Northern Shoveler

Feb 2022

Commercial Turkeys

- Indiana

2022-early 2024

Numerous

- First H5N1 genotype B3.13 detected in wild birds
- Commercial and backyard poultry
- 1st Human Case – maybe
- Goats B3.6 genotype

2024

Dairy Cattle

- B3.13 genotype
- Texas and Kansas
- Spread to multiple states
- Commerical and backyard poultry
- Human Case in Texas
- Alpacas B3.13
- Swine D1.2 genotype

Feb 2025

Dairy Cattle

- Genotype D1.1
- Arizona and Nevada

Dairy Cattle

- Genotype D1.1
- Wisconsin

Dec 2025

HPAI Confirmed Cases in Livestock Herds

Reporting period: March 25, 2024 through February 18, 2026
Last reported new confirmed case: Saturday, December 13, 2025
Data updated weekdays by 12pm Eastern

Download Data

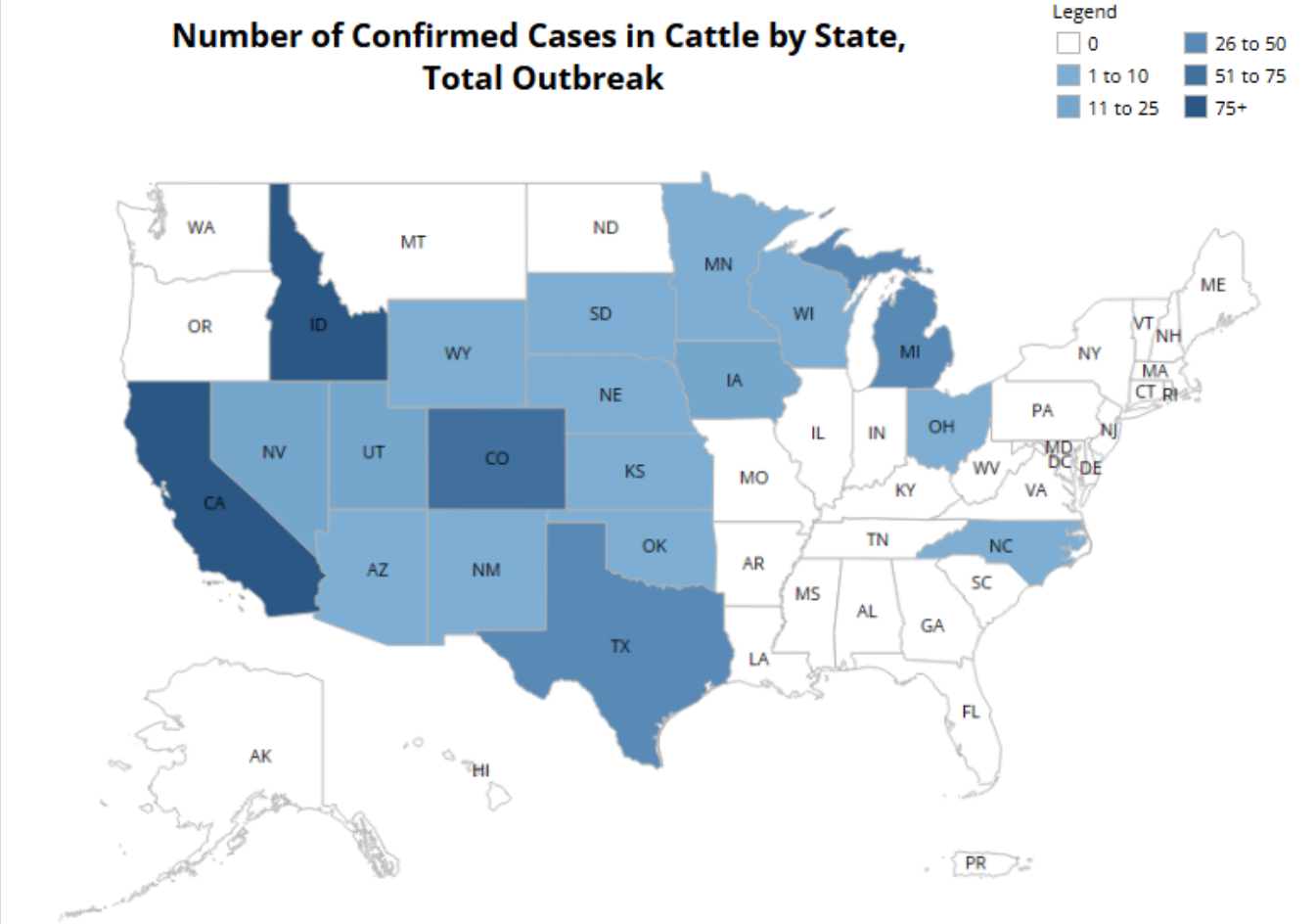
Choose time period: Total Outbreak
Choose species: Cattle

Situational Update

Click for International Exports

In the Total Outbreak, in Cattle, there were:
1,088 Confirmed Cases in **19** States

Number of Confirmed Cases in Cattle by State, Total Outbreak



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What do we know about H5N1 in dairy cattle?

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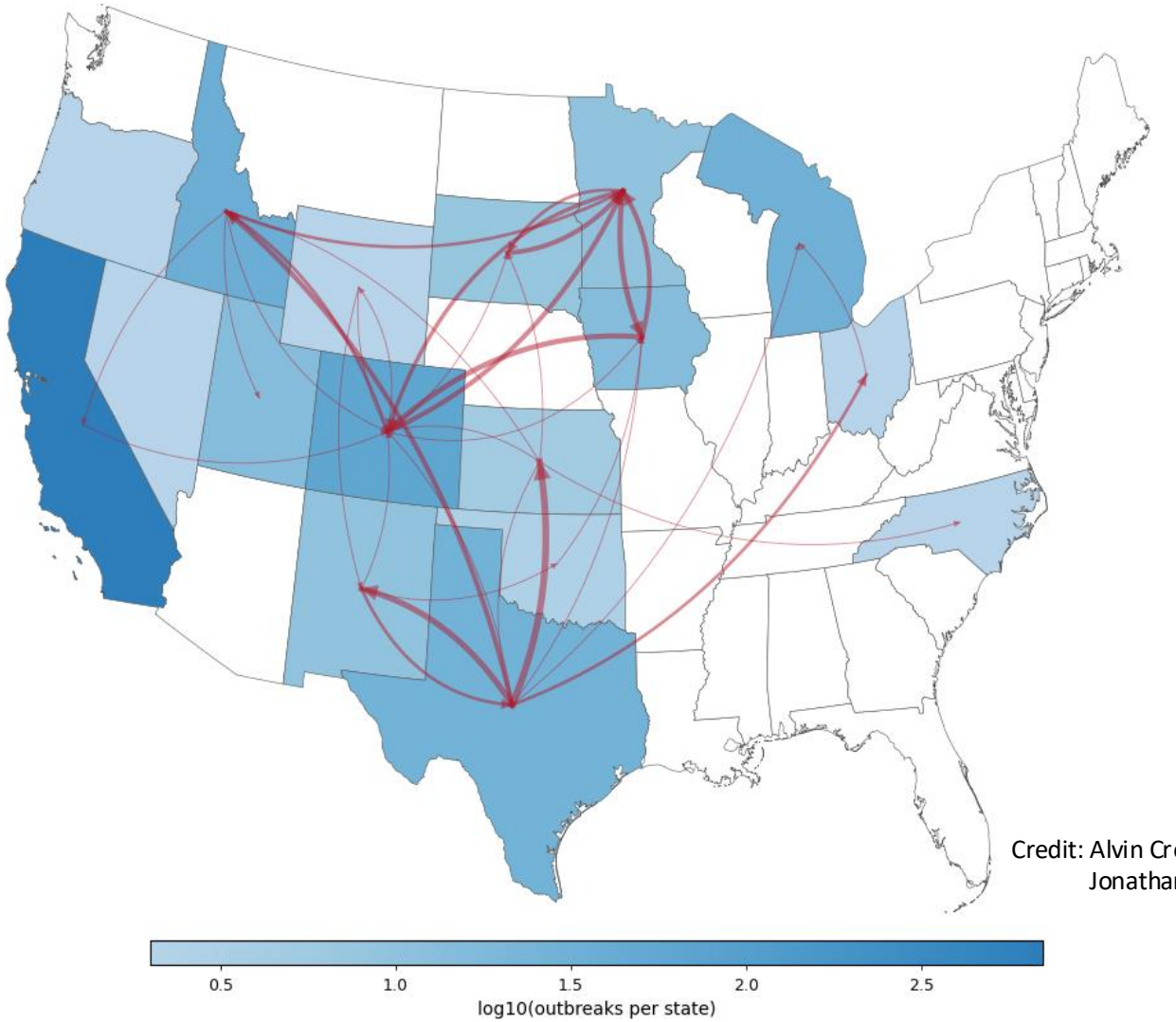
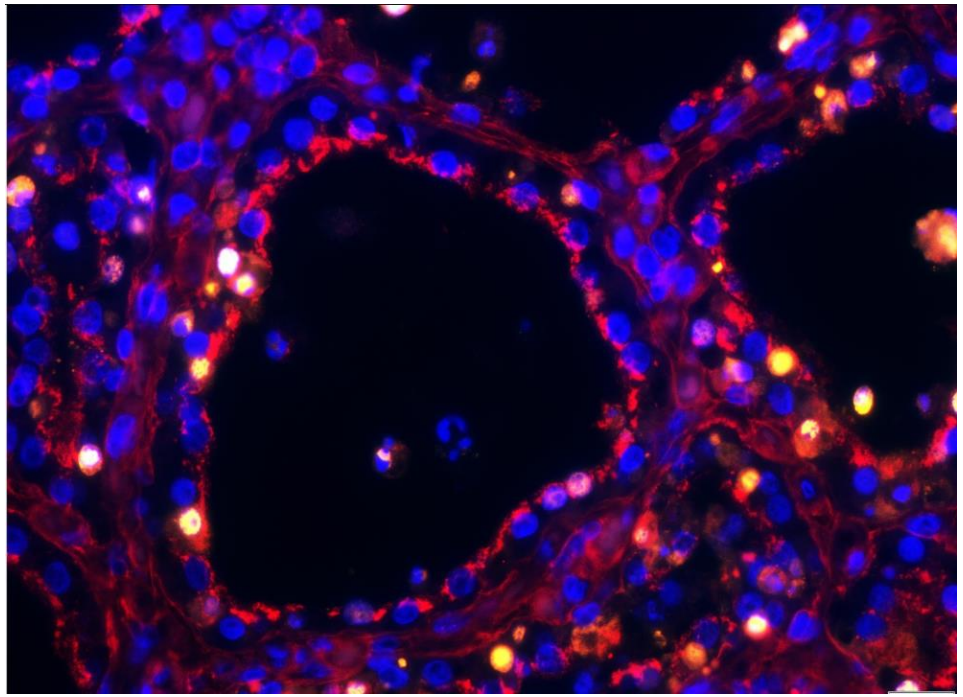
- Disease spread
  - Movement of cattle

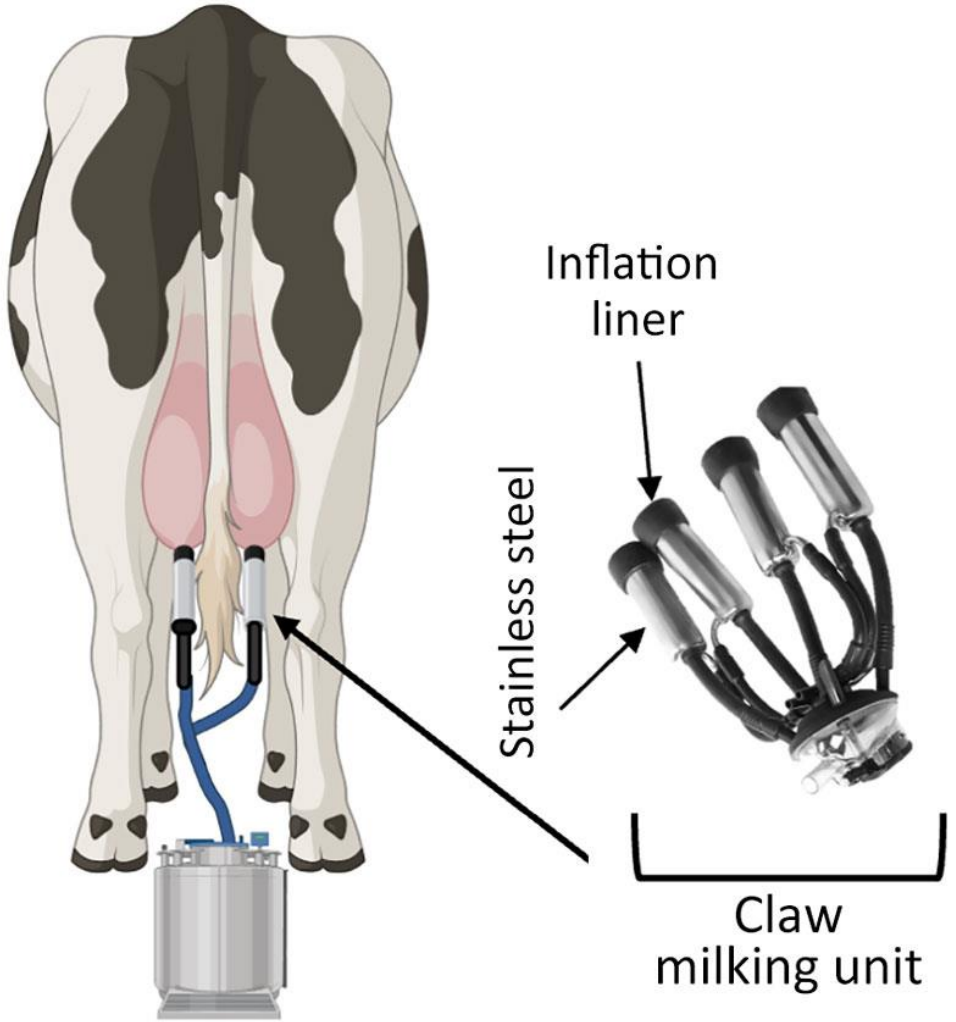


Credit: Alvin Crespo-Bellido (NIH) and Jonathan Pekar (U-Edinburgh)

It’s in the milk!!



- Sialic acid receptors = red
- AIV = yellow



Nelli RK, Harm TA, Siepker C, et al. Sialic Acid Receptor Specificity in Mammary Gland of Dairy Cattle Infected with Highly Pathogenic Avian Influenza A(H5N1) Virus. *Emerging Infectious Diseases*. 2024;30(7):1361-1373. doi:10.3201/eid3007.240689.

Le Sage V, Campbell A, Reed DS, Duprex W, Lakdawala SS. Persistence of Influenza H5N1 and H1N1 Viruses in Unpasteurized Milk on Milking Unit Surfaces. Emerg Infect Dis. 2024;30(8):1721-1723. https://doi.org/10.3201/eid3008.240775

What do we know about H5N1 in dairy cattle?

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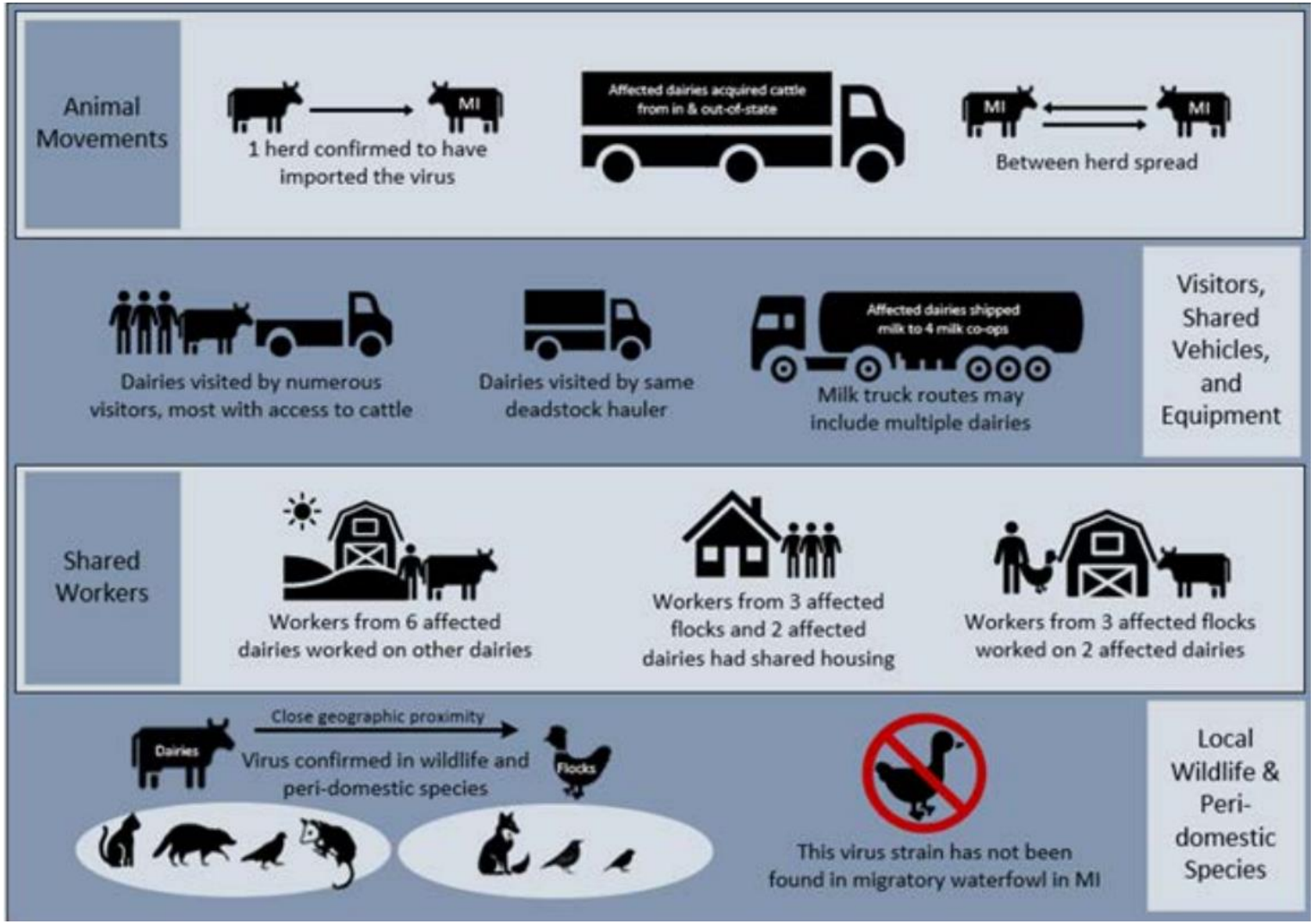
- Disease spread
  - Movement of cattle
  - Movement of people



2024 Highly Pathogenic Avian Influenza (H5N1) - Michigan Dairy Herd and Poultry Flock Summary

What do we know about H5N1 in dairy cattle?

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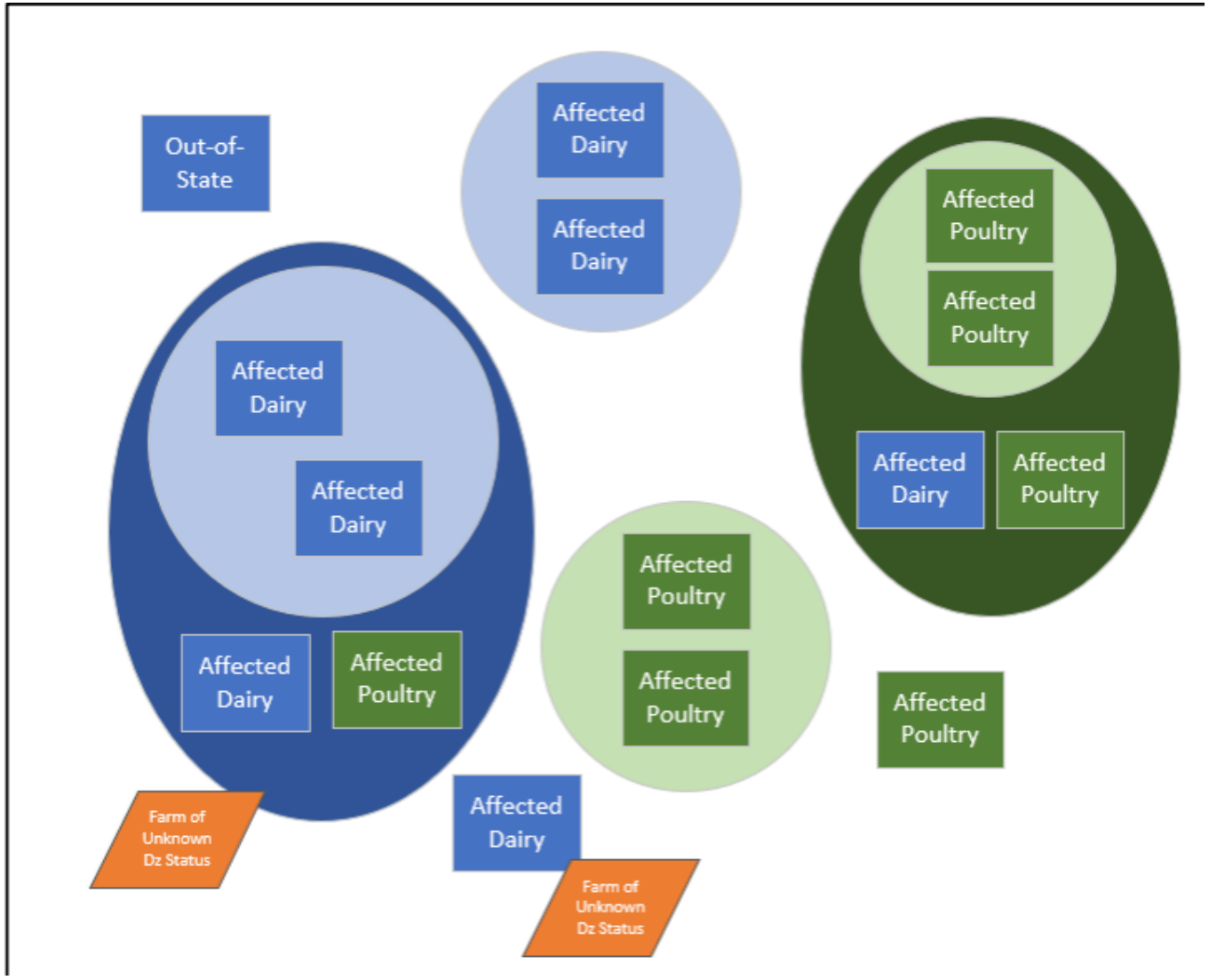
- Disease spread
  - Movement of cattle
  - Movement of people
  - Dairy → Poultry
  - Poultry → Dairy



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- Disease spread
  - Movement of cattle
  - Movement of people
  - Dairy → Poultry
  - Poultry → Dairy
  - Aerosol

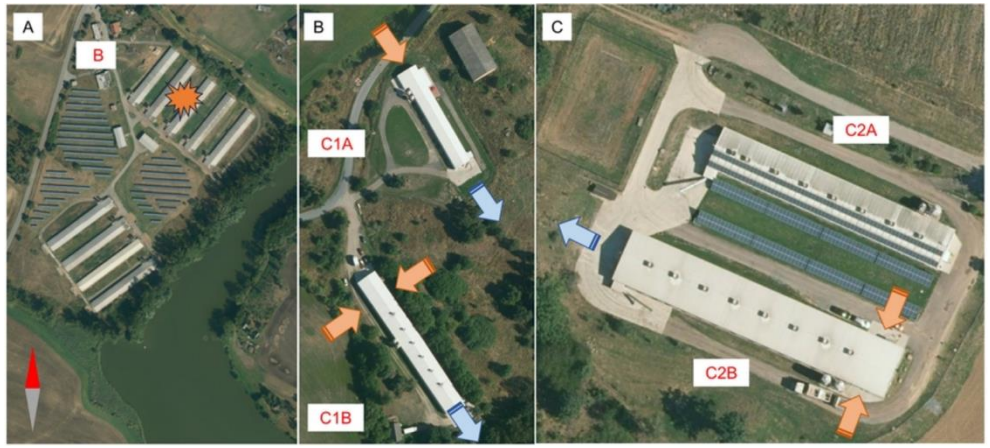
Genetic data and meteorological conditions: unravelling the windborne transmission of H5N1 high-pathogenicity avian influenza between commercial poultry outbreaks

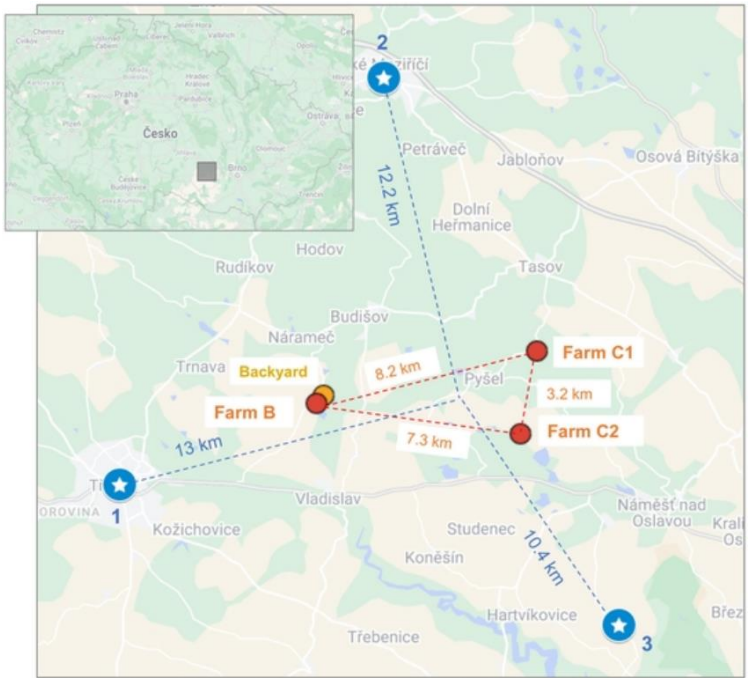
Alexander Nagy[1*], Lenka Černíková[1], Kamil Sedlák[1]

[1] State Veterinary Institute Prague, Prague, Czech Republic

* Corresponding author

E-mail: alexander.nagy@svupraha.cz





Aerosol Investigation - California

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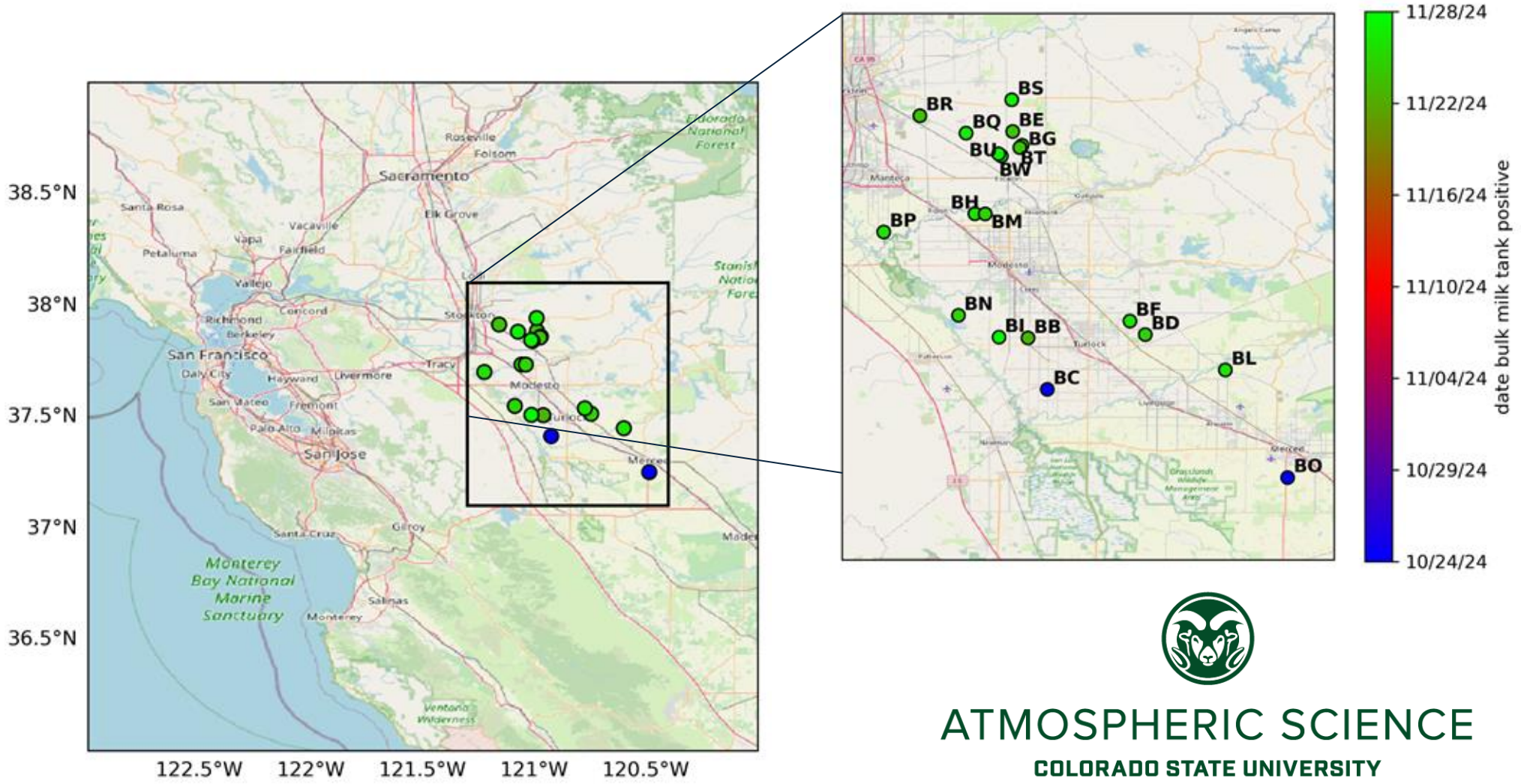

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Aerosol Investigation - California

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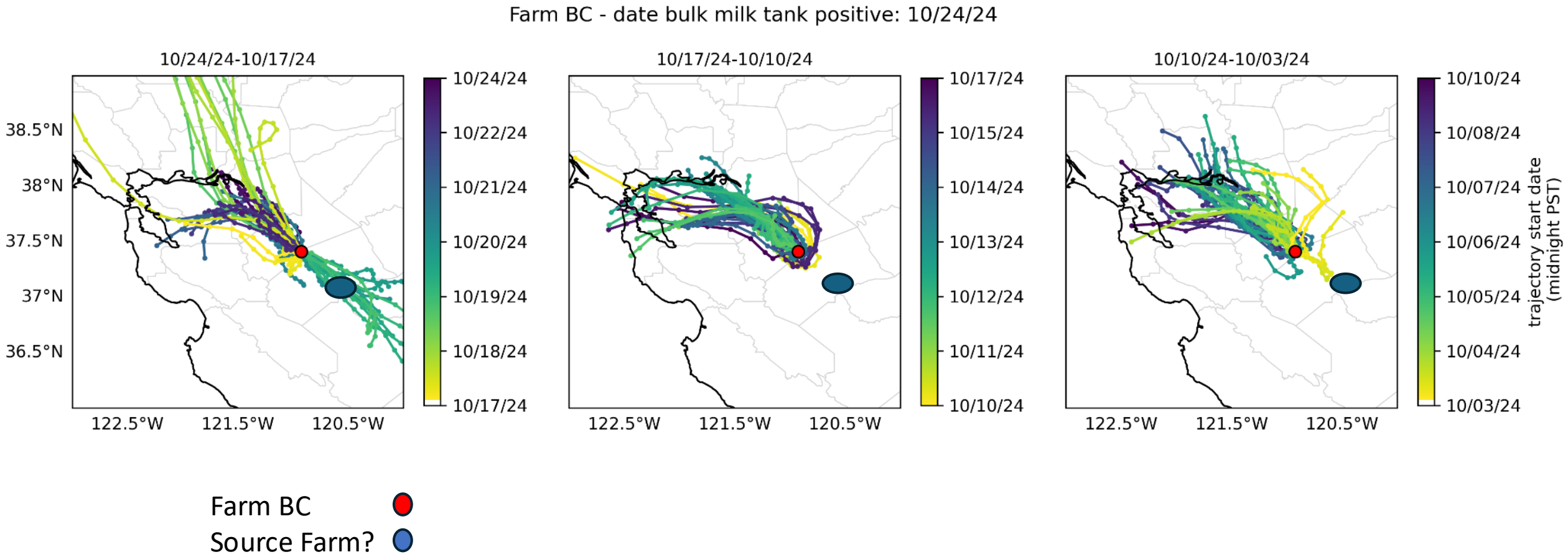

What do we know about H5N1 in dairy cattle?

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- Disease spread
  - Movement of cattle
  - Movement of people
  - Dairy → Poultry
  - Poultry → Dairy
  - Aerosol
  - Flies

Article | Open access | Published: 28 November 2025

Detection of H5N1 highly pathogenic avian influenza virus RNA in filth flies collected from California farms in 2024

Dana Nayduch ✉, Stacey L.P. Scroggs, Phillip Shults, Luke A. Brendel, Lindsey M. Reister-Hendricks, Caitlin Taylor, Edward Bird, Brina Lopez & Edith S. Marshall

Scientific Reports **16**, Article number: 375 (2026) | Cite this article

What do we know about H5N1 in dairy cattle?

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- Disease spread
  - Movement of cattle
  - Movement of people
  - Dairy → Poultry
  - Poultry → Dairy
  - Aerosol
  - Flies
  - Peridomestic birds
    - Swallow
    - Pigeons
    - starlings

Brief Report

AAVLD

Journal of Veterinary Diagnostic Investigation
1–6

DOI: 10.1177/10406387261417354
jvdi.sagepub.com

Detection of highly pathogenic avian influenza A(H5N1) clade 2.3.4.4b virus in cull dairy cows with underlying respiratory and systemic disease

Daniel J. Righter, Erin B. Howey, Chris L. Siepker, Eric R. Burrough, Drew R. Magstadt, Marta Mainenti, Asha Fears, Aaron D. Lehmkuhl, Gleeson Murphy, Kimberly Lehman, Mia Kim Torchetti, Suelee Robbe-Austerman, Carrie E. Schmidt[1]

Abstract. Highly pathogenic avian influenza (HPAI) A(H5N1) clade 2.3.4.4b virus was identified in 4 cull dairy cows condemned by the U.S. Department of Agriculture because of pneumonia with accompanying systemic changes. Histologic findings were bronchopneumonia in 3 cows and embolic pneumonia and nephritis in 1 cow. In addition to detection of HPAI A(H5N1) virus by reverse-transcription real-time PCR in various formalin-fixed, paraffin-embedded tissues, influenza A virus was detected by immunohistochemistry and in situ hybridization in the pulmonary respiratory epithelium of 2 of the cows with bronchopneumonia and in renal medullary tubules of the cow with nephritis. A PCR panel screening for common bovine respiratory pathogens in the cows with bronchopneumonia revealed variable coinfections with *Histophilus somni*, *Pasteurella multocida*, *Mannheimia haemolytica*, *Mycoplasmopsis bovis*, and bovine coronavirus. We describe the distribution of HPAI A(H5N1) virus in naturally infected cows while highlighting the need for research on the roles of coinfection and immune response in influenza viral replication.

Which of these can you control?

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✓ New Introductions

Wind/Aerosols

Flies

People

Breathing

Peridomestic Birds

Why do we want to implement biosecurity?

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- **Healthier, more productive, and profitable herd!**

- Reducing risk of disease introduction
  - Requires planning
  - Costs involved
  - Not failsafe
- You don’t always know how or when disease enters your herd
- Biosecurity practices should eliminate or minimize disease

When it works correctly, you don’t know what you have prevented

Biosecurity Umbrella

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Trichomonas ntrol

Re Johne's disease

Bovine viral diarrhea virus

Bio Tuberculosis

Anima testing Qu rance program

Foreign anim **Biosecurity isn't easy!** is

For ment

Hairy heel wart

V Bovine leukosis virus

Biologica *Streptococcus agalactiae* oterroris H5N1

Dis *Mycoplasma*tion C *Staphylococcus aureus*

Acknowledgements

- Dr. Chloe Stenkamp-Strahm
- Dr. Kathy Whitman
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- Erin Burke
- Madison Morse
- Irene Reis
- Luan Mora
- Lex Galligan
- Madison Gallivan
- Rhyse Campion
- Alexa Phillips
- Kara Linder
- Rebecca Williamson
- Marcie Bernard
- Kate Schinkel
- Eliza Behzadi
- Participating Dairy Producers
- The Cows ☺
- CSU – Veterinary Diagnostic Laboratory
  - Dr. Kristy Pabilonia
- Lander Veterinary Clinic
  - Dr. Blaine Melody
- Colorado Department of Agriculture
  - Dr. Maggie Baldwin
- California Department of Food and Agriculture (CDFA)
  - Dr. Edie Marshall
- Iowa State University – Veterinary Diagnostic Laboratory
- IDEXX Laboratories
- The Dairy Authority Laboratory
  - Dr. Greg Goodell
- CSU Atmospheric Sciences
- CSU Centroid

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USDA

cdfa
CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

LANDER VETERINARY CLINIC
EST. 1950

IOWA STATE UNIVERSITY
Veterinary Diagnostic Laboratory

THE Dairy AUTHORITY

COLORADO
Department of Agriculture

Geospatial Centroid

IDEXX

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HIGH PLAINS DAIRY CONFERENCE

Karen Bohnert
Dairy Editorial Director, Farm Journal

Panel on Protecting the Milk Supply: Managing Risk, Safety, and Continuity in 2026

Focus for this Presentation and Panel discussion:

- 1 The Reality of the Gap
- 2 The Producer's Dilemma: ROI vs. Risk
- 3 The Data: Large vs. Small Operations
- 4 The "Why" Behind the Urgency
- 5. Recommendation for Action Steps

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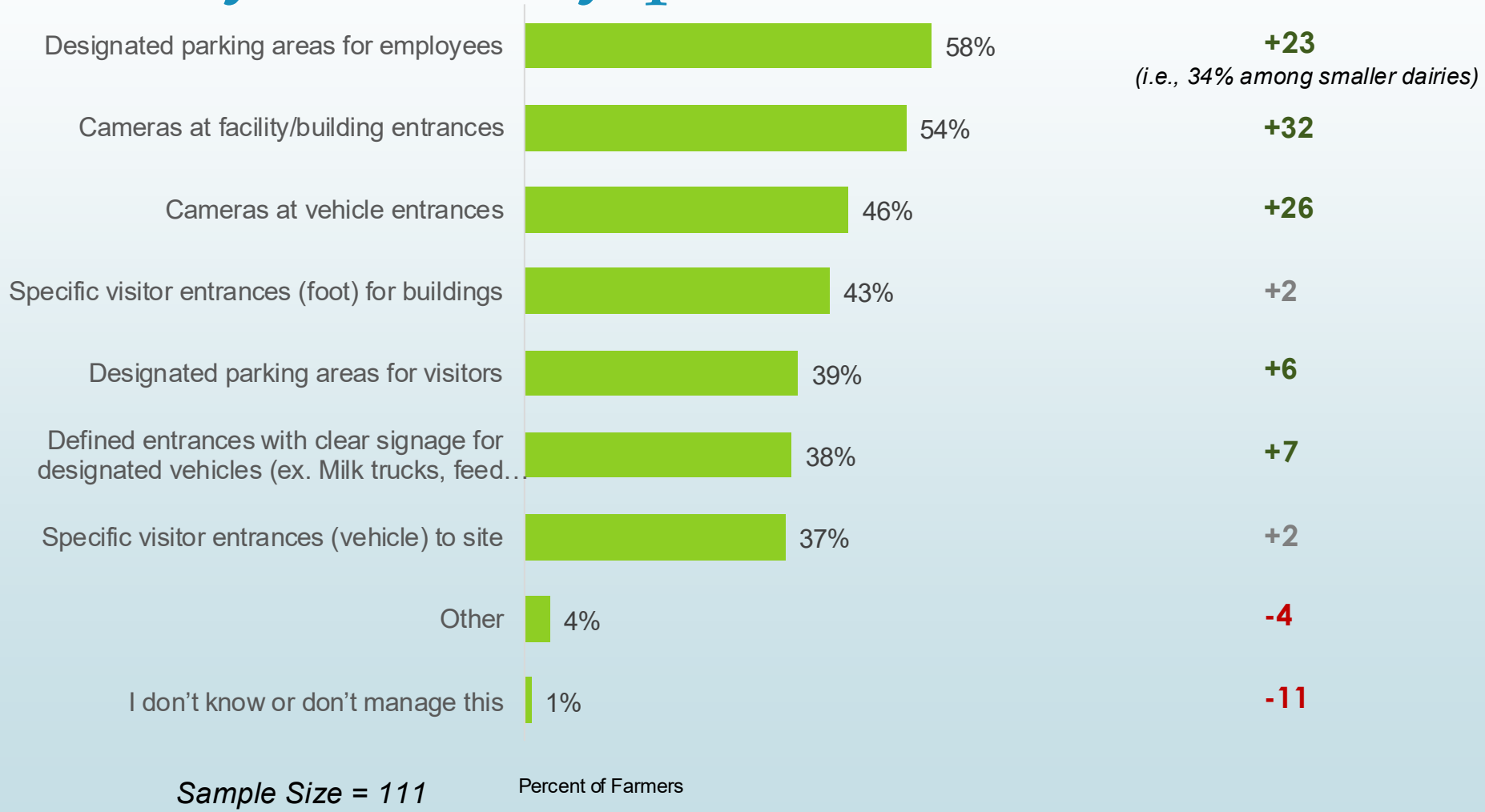
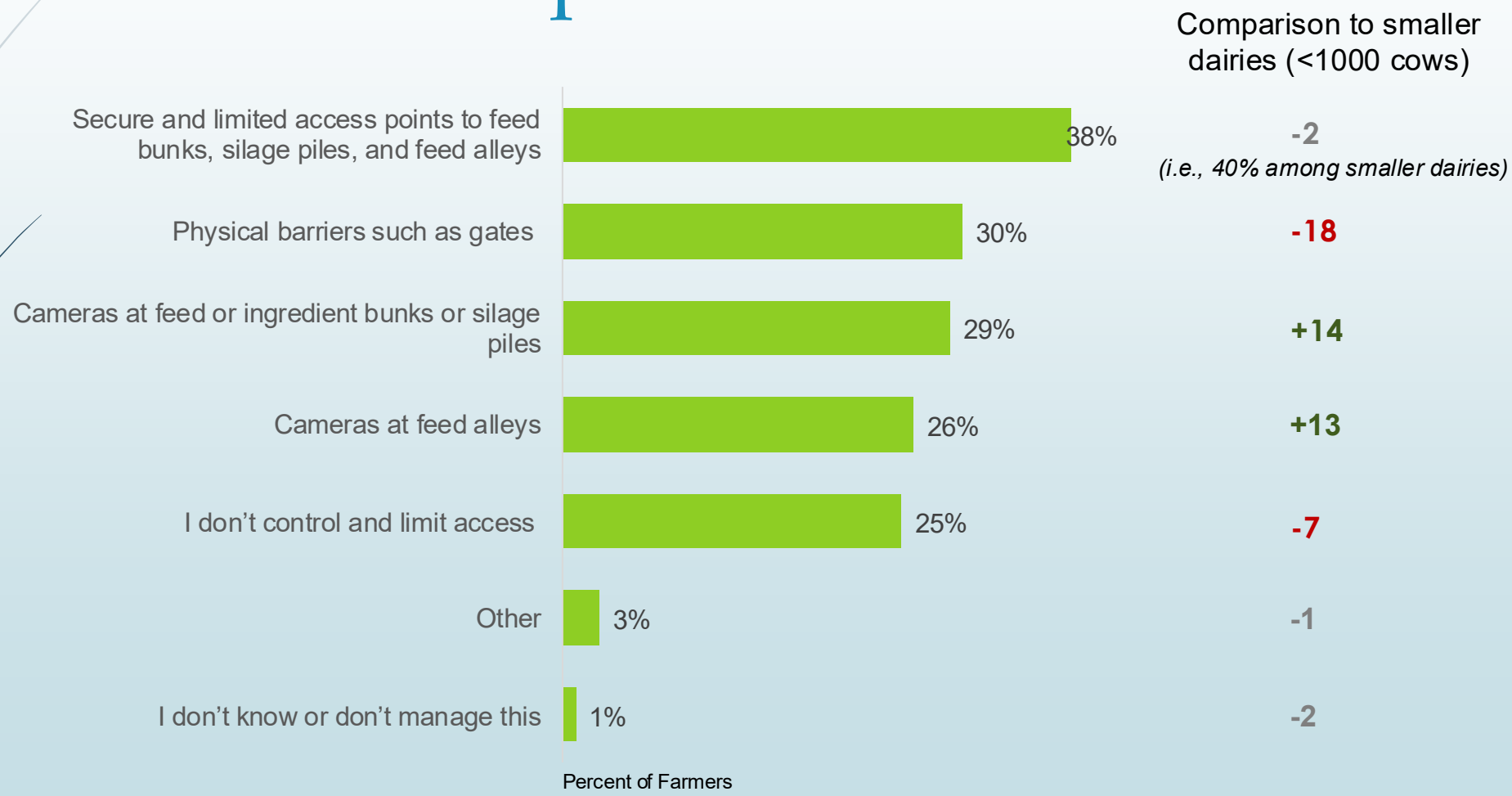
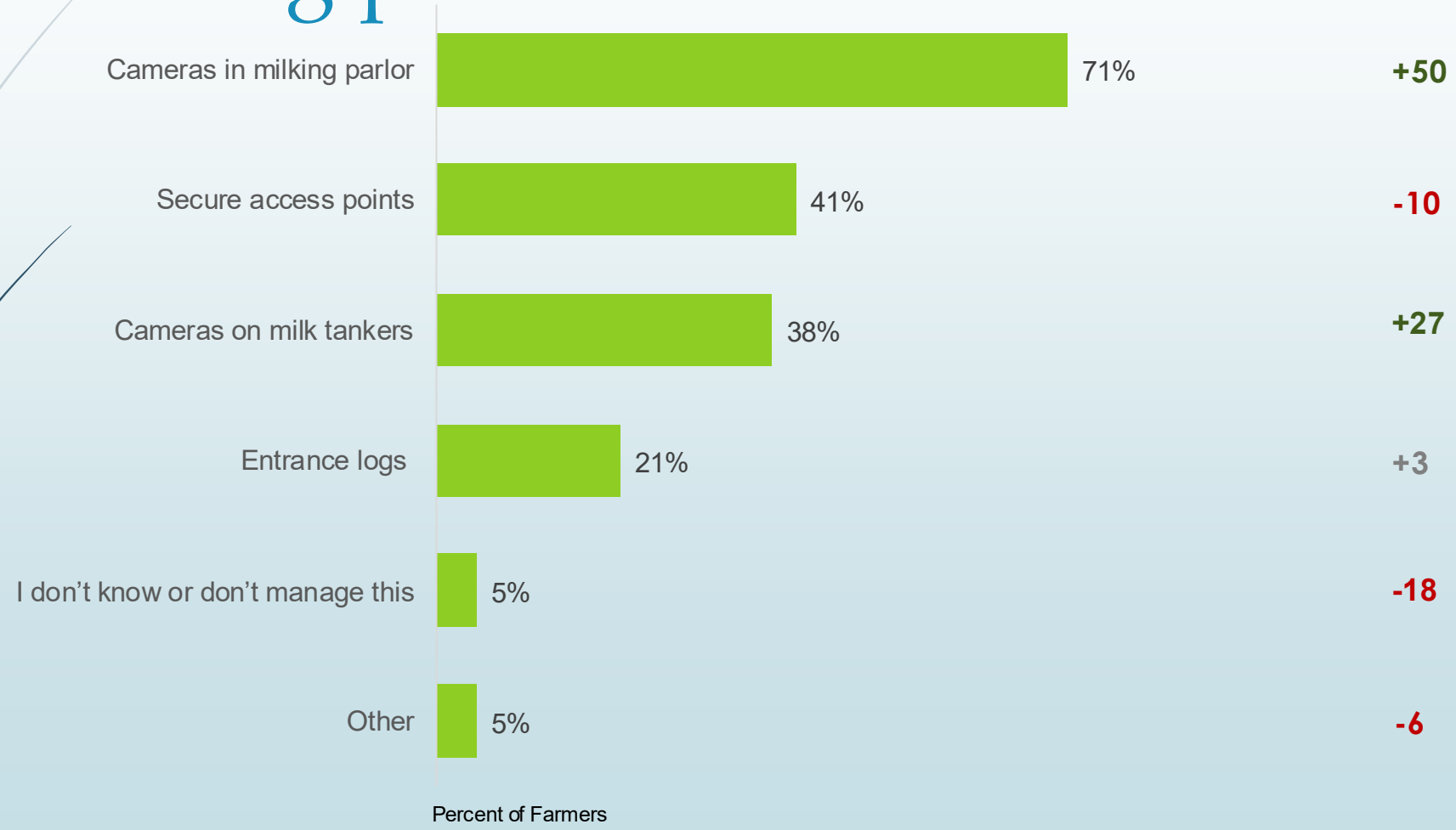
How do you secure the perimeter and entrances of your dairy premises?



How do you control and limit access to areas where feed is provided or stored?



How do you control and limit access to your milking parlor and milk tankers?



What Can You Do? Recommendations for Action

Assemble the team & review protocols now — Even if you feel your dairy is in a good place, it never hurts to be prepared as birds and other wildlife or others in the supply chain may bring threats to your door. The most advanced dairies review protocols often, *before* a challenge takes place.

Look at your perimeter and sanitation — Even the most advanced dairies had room to grow when it came to sanitation in transport and worker areas and insecure feed areas in particular.

If you serve dairy producers, support them in their biosecurity investments. Their work to protect their dairies benefits us all and cost was mentioned as a barrier to further biosecurity improvements, how can you help?

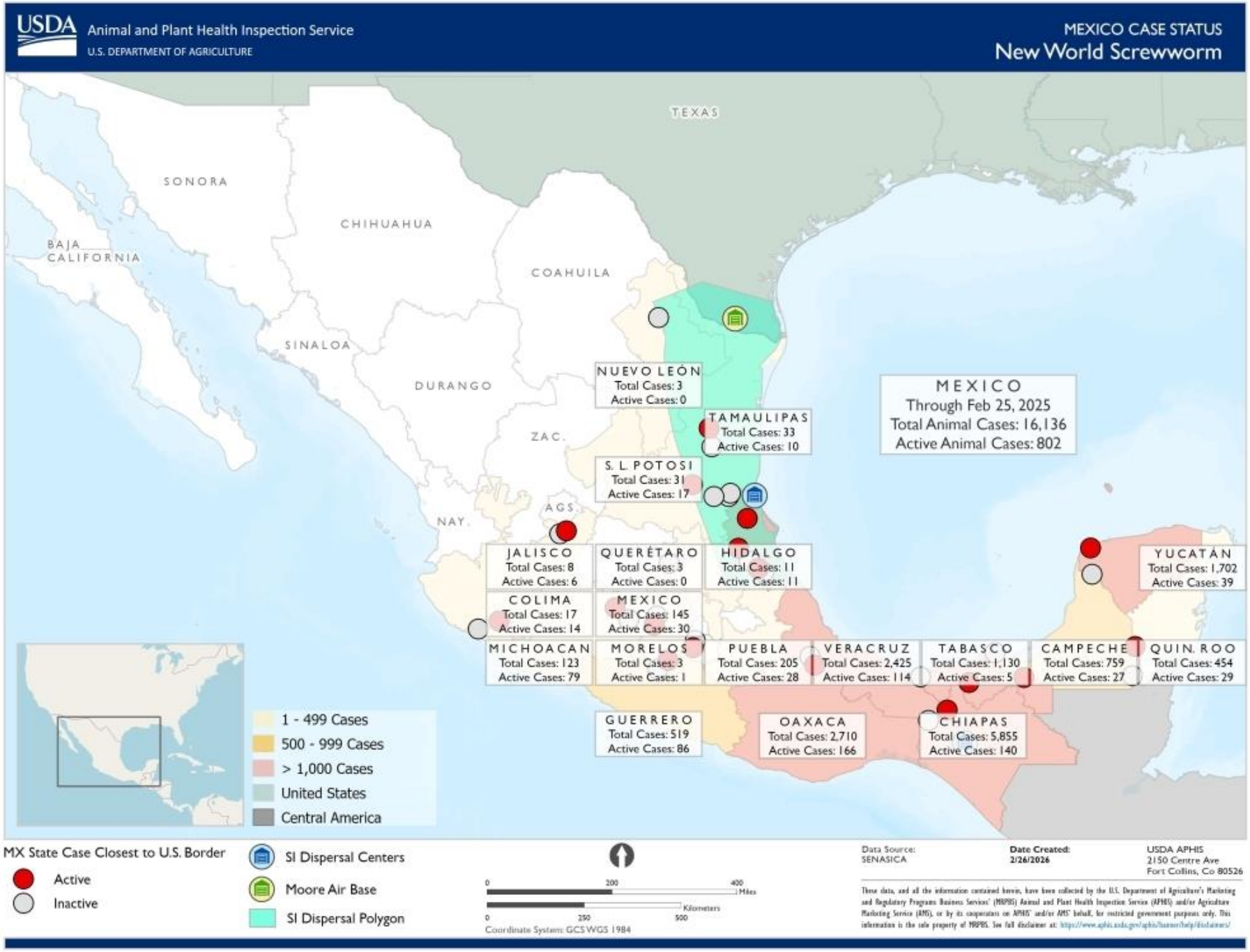
New World Screwworm

Samantha Holeck, DVM, MS
State Veterinarian
New Mexico Livestock Board

What it’s not…

History of screwworm distribution and eradication

GUSANO BARRENADOR DEL GANADO
USDA
COPEG


USDA
Animal and Plant Health Inspection Service
U.S. DEPARTMENT OF AGRICULTURE
MEXICO CASE STATUS
New World Screwworm
TEXAS
SONORA
CHIHUAHUA
BAJA CALIFORNIA
COAHUILA
SINALOA
DURANGO
ZAC.
NAY.
AGS.
NUEVO LEÓN
Total Cases: 3
Active Cases: 0
TAMAULIPAS
Total Cases: 33
Active Cases: 10
S. L. POTOSI
Total Cases: 31
Active Cases: 17
MEXICO
Through Feb 25, 2025
Total Animal Cases: 16,136
Active Animal Cases: 802
JALISCO
Total Cases: 8
Active Cases: 6
QUERÉTARO
Total Cases: 3
Active Cases: 0
HIDALGO
Total Cases: 11
Active Cases: 11
COLIMA
Total Cases: 17
Active Cases: 14
MEXICO
Total Cases: 145
Active Cases: 30
YUCATÁN
Total Cases: 1,702
Active Cases: 39
MICHOACAN
Total Cases: 123
Active Cases: 79
MORELOS
Total Cases: 3
Active Cases: 1
PUEBLA
Total Cases: 205
Active Cases: 28
VERACRUZ
Total Cases: 2,425
Active Cases: 114
TABASCO
Total Cases: 1,130
Active Cases: 5
CAMPECHE
Total Cases: 759
Active Cases: 27
QUIN. ROO
Total Cases: 454
Active Cases: 29
GUERRERO
Total Cases: 519
Active Cases: 86
OAXACA
Total Cases: 2,710
Active Cases: 166
CHIAPAS
Total Cases: 5,855
Active Cases: 140
1 - 499 Cases
500 - 999 Cases
> 1,000 Cases
United States
Central America
MX State Case Closest to U.S. Border
Active
Inactive
SI Dispersal Centers
Moore Air Base
SI Dispersal Polygon
0 200 400 Miles
0 250 500 Kilometers
Coordinate System: GCS WGS 1984
Data Source: SENASICA
Date Created: 2/26/2026
USDA APHIS
2150 Centre Ave
Fort Collins, Co 80526

Samantha Holeck, DVM, MS

- **Panel on Protecting the Milk Supply: Managing Risk, Safety, and Continuity in 2026**

- **<u>Focus for this Presentation and Panel discussion:</u>**
  - 1 Where is NWS now?
  - 2 What should we expect if we get NWS in the US?
  - 3 What does this threat mean for the dairy industry?
  - 4 What tools do we have to control NWS?
  - 5 How long will we be dealing with NWS?

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Expectations and Implications

- This will change the way we do business
  - Movement restrictions
  - Trade restrictions (live animals only, NOT products)
  - More intensive inspections
  - +/- treatments
- Other risk factors
  - Fly can move independently
  - Ground can be “contaminated” – part of the life cycle

What tools are in our toolbox today?

- Don’t focus just on medications
- Prevent injuries, adjust management practices
- Keep wounds clean and protected
- Remove larvae (and dispose of them correctly!!)


How long will NWS be here…

Dee Ellis, DVM MPA

- **Panel on Protecting the Milk Supply: Managing Risk, Safety, and Continuity in 2026**

- **<u>Focus for this Presentation and Panel discussion:</u>**

  - Secure Milk Supply (SMS)Overview
  - Business continuity during a disease outbreak
  - Practical basic biosecurity management practices

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Secure Milk Supply Plan

- Enhanced biosecurity plan
- Voluntary, science- and risk-based framework
- Template created in partnership between industry and USDA
- Provides disease response & regulatory Coordination (USDA guidelines usually implemented however by state animal health officials)

Secure Milk Supply Plan

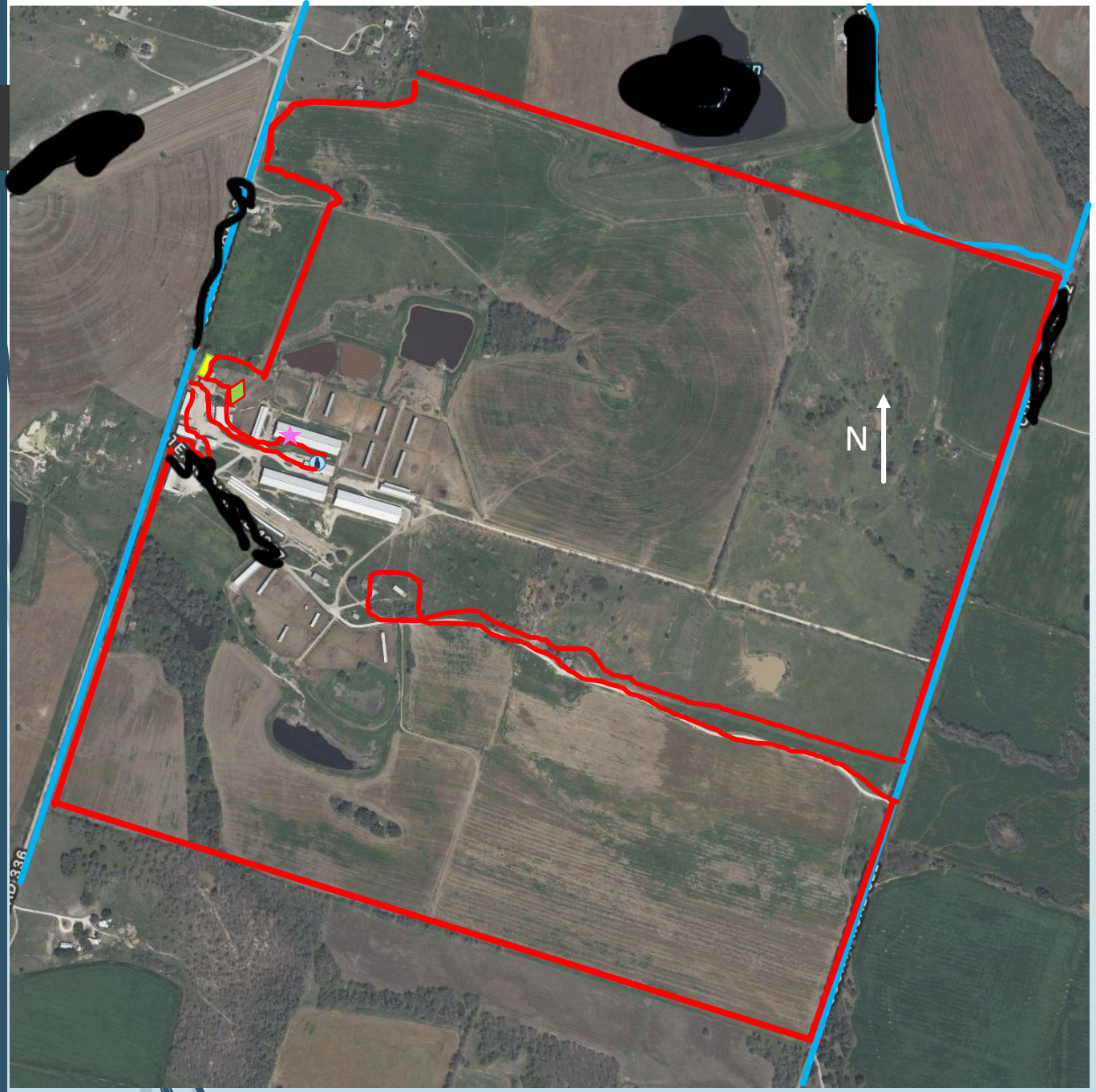
- Complements other "Secure" plans for pork, beef, poultry and egg
- Intended to ensure continued movement of milk in a disease outbreak
- intended for dairies with no evidence of infection
- Focus of the plan originally was originally Foot and Mouth Disease

Secure Milk Supply Plan (cont.)

- **Preparedness (Before an Outbreak)**
  - Written, operation-specific biosecurity plan
- **Continuity of Business Planning**
    - Milk shipments
    - Feed deliveries
    - Animal movements
    - Essential personnel access
        - Personnel
        - Veterinarians
        - Vendors
        - contractors

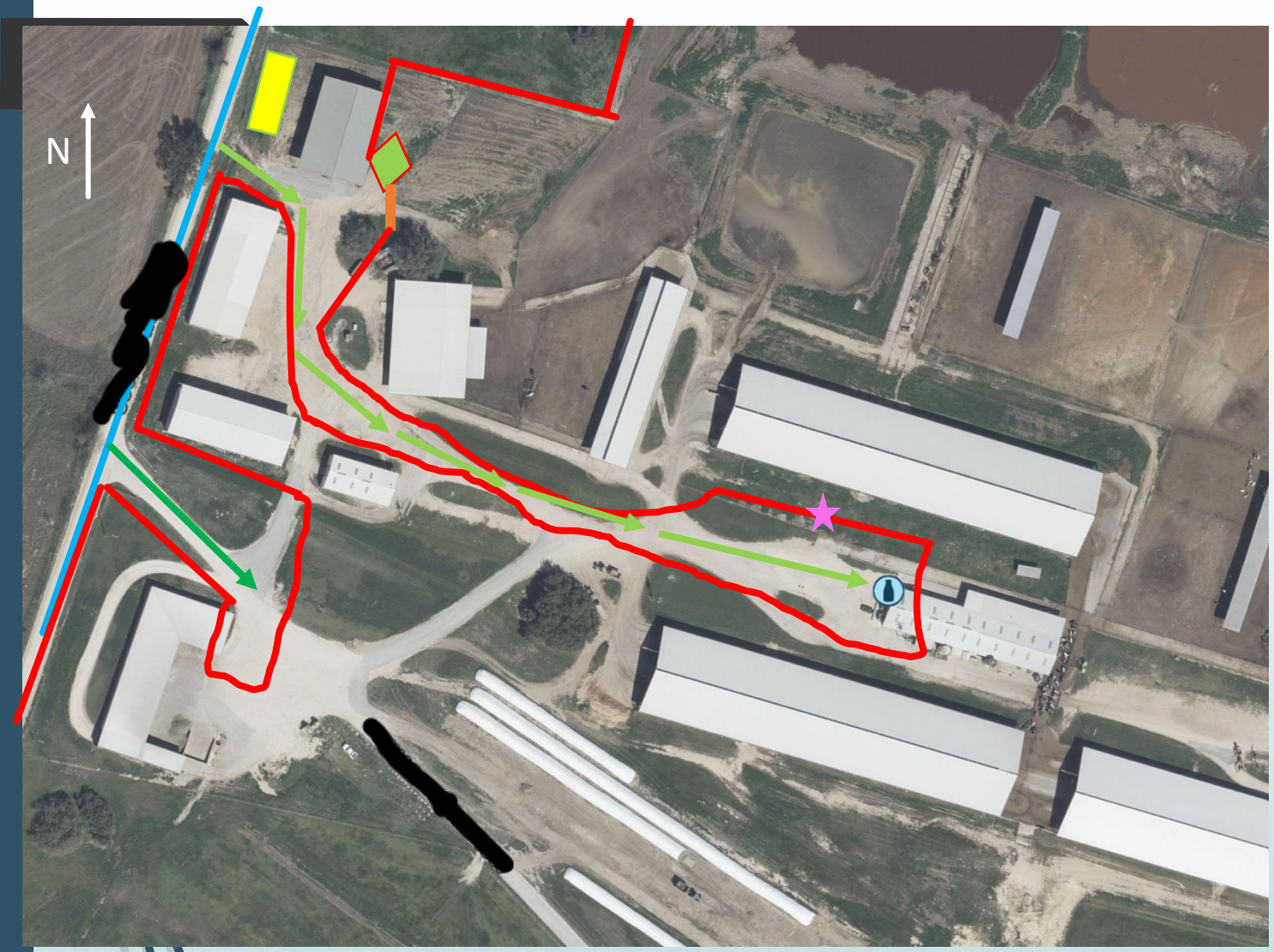
Secure Milk Supply Plan(cont.)

- Employee awareness/training
  - Identification of a Biosecurity Manager
- Milk tanker procedures
  - Bulk milk hauler/sampler – who is responsible? Dairy or truck driver?
  - Texas Dept of State Health Services Regulations apply
- Communication Strategy
- Clear communication pathways between:
  - Producers
  - Milk processors
  - State animal health officials
  - Federal authorities



- Public Road
- Line of Separation (LOS)
- LOS Access Point
- Vehicle cleaning & disinfecting station(s)
- Designated parking area
- Milk truck route to milk house
- Milk house
- Carcass disposal
- Carcass removal pathway
- Deliveries (non-essential)
- Animal loading/unloading

Sample Dairy Map



- Line of Separation (LOS)
- LOS Access Point
- Vehicle cleaning & disinfecting station(s)
- Designated parking area
- Milk truck route to milk house
- Milk house
- Deliveries (non-essential)
- Animal loading/unloading
- Feed truck route to commodity area
- Public Road

Secure Milk Supply Summary

- Every SMS Plan is unique to the dairy evaluated
- Biosecurity concepts are same however for all
- Plan can be tedious and hard to complete
- Don't sacrifice good for perfect
- Search for resources to help complete this
- Share with employees
- "Clean/Dirty" most important to understand
- Post map in location for all to see every day
- Update when appropriate
- File with FARM plan documents

Basic Biosecurity Actions to Consider

- Talk to your veterinarian about dairy biosecurity
- Talk to Coop representative about their biosecurity expectations
- Create a map with basic dairy site information
- Post map in visible location
- When plan is activated create logs for:
  - Cattle ingress/egress
  - Visitor ingress/egress
  - Put up barriers to visualize clean/dirty line (police tape, etc)
- Educate employees about biosecurity, especially clean/dirty side concept
- Control wildlife contact with cattle

Secure Milk Supply Implementation

- Current grant opportunity to have an SMS prepared for your dairy currently
- Partnership between Texas A&M AgriLife and Texas A&M College of Veterinary Medicine
- We will come to your dairy to help write your plan
- Contacts for writing SMS plan
  - Dr. Dee Ellis – Texas A&M AgriLife – College Station
  - Dr. Mike Kleinhenz – Texas A&M College of Veterinary Medicine – Canyon

The End

Questions

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