

# **How does the UMN CVM help Minnesota Agriculture in the fight against HPAI and ASF?**

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# Mission of the UMN CVM

- We are dedicated to
  - improving the health and well-being of animals and people, and strengthening Minnesota's economy
- We achieve this by
  - providing high-quality **education**, conducting leading-edge **research**, and delivering **innovative** veterinary services.

# The UMN helps reach goals

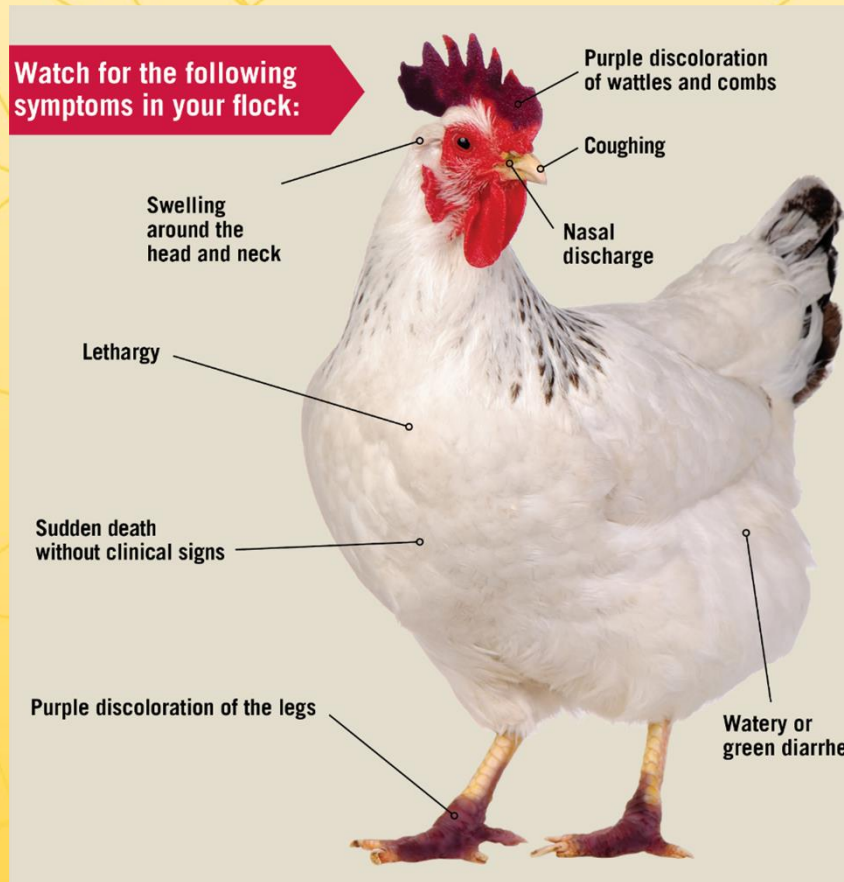
- 1. Scientific research and diagnostic services** needed to successfully respond to HPAI and prepare for/prevent ASF
- 2. Training** of animal health professionals who can be part of a flexible workforce capable of critical thinking to help animals, farmers, companies, and the public through an animal disease emergency.
- 3. Re-training** of and **outreach** to veterinarians and giving them **innovative**, new skill sets via just-in-time delivery of online courses

(advanced epidemiology, animal diseases, food safety, livestock and poultry production)

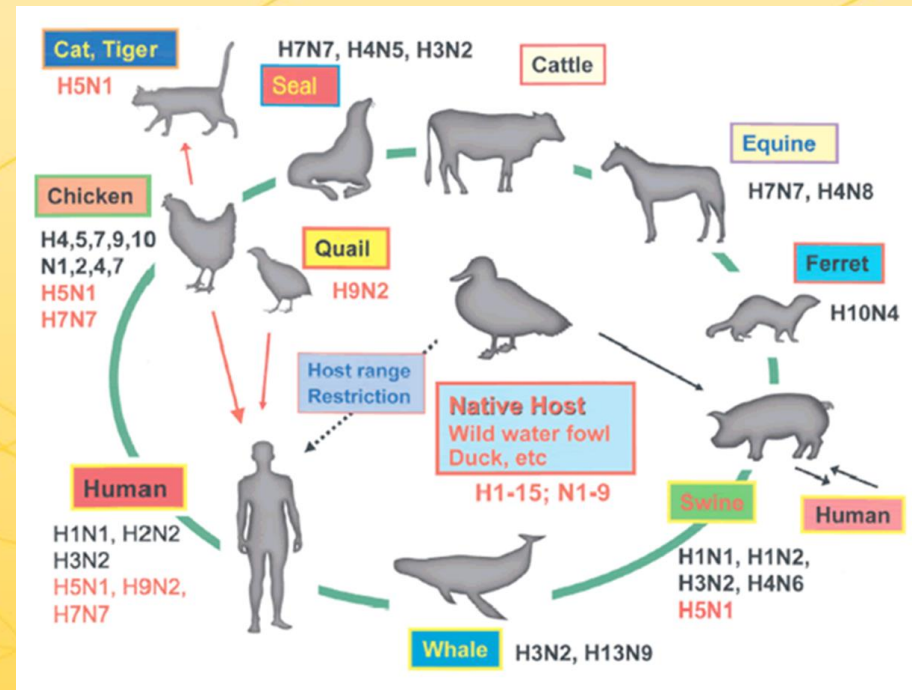
# SCIENCE

## What is HPAI - Highly Pathogenic Avian Influenza?

- Virus of birds and..



UGA Extension



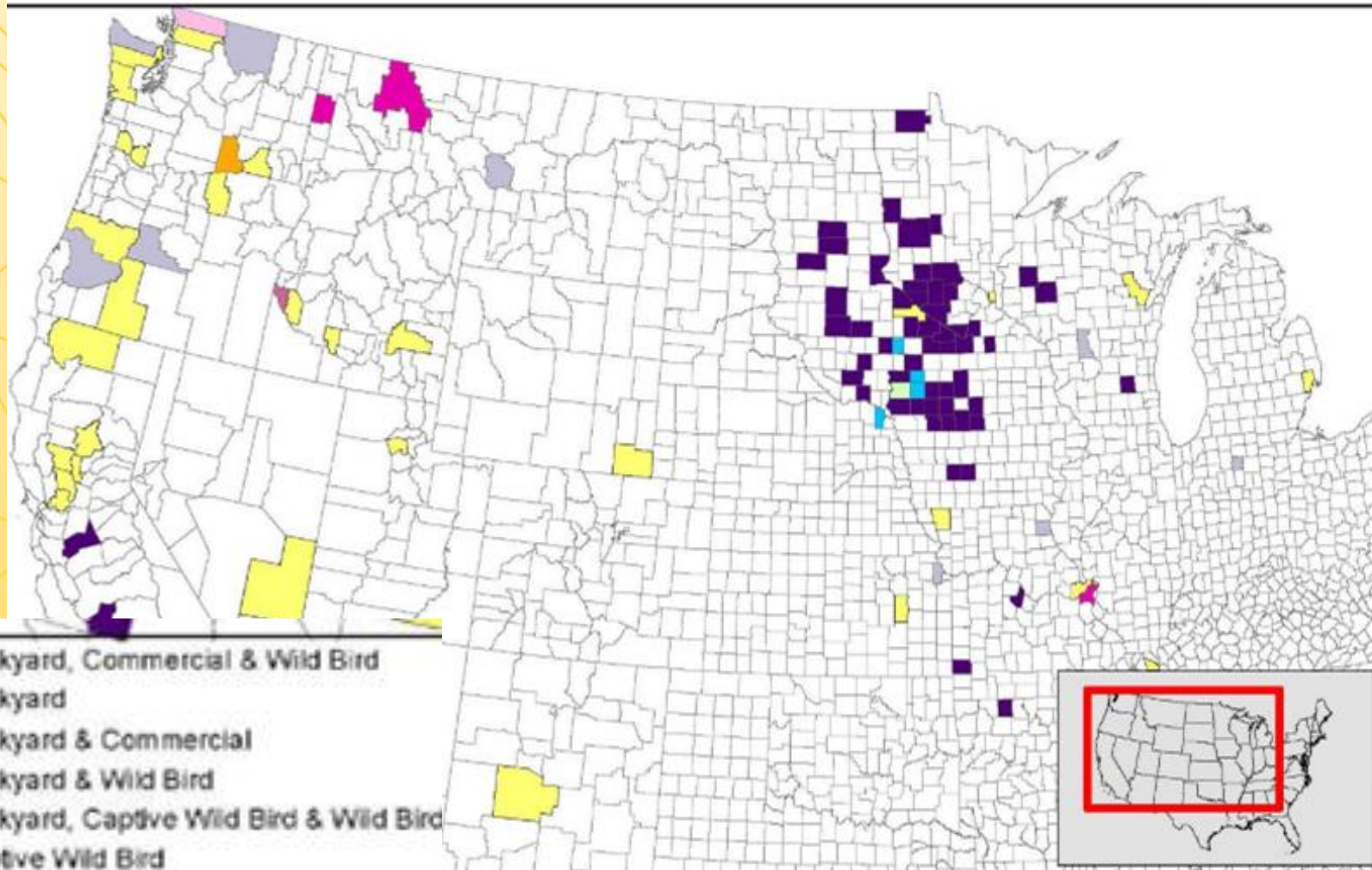
Ecology of Influenza



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## HPAI 2014/2015 Distribution in the United States

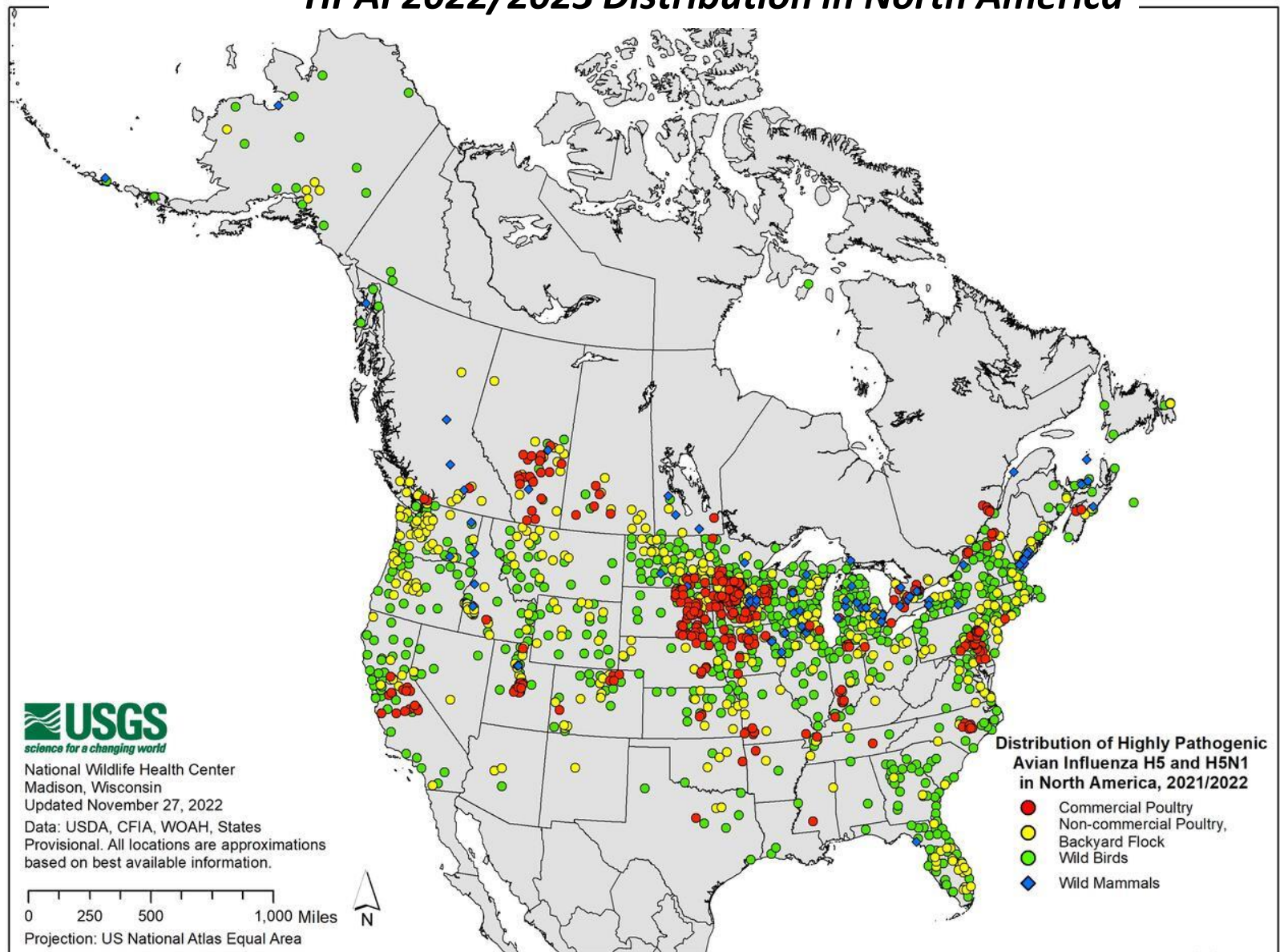


USDA August 11, 2016



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## HPAI 2022/2023 Distribution in North America





# Wild birds are widespread



# DIAGNOSTICS, RESEARCH, OUTREACH

## MINNESOTA HPAI

- 14/15
  - 108 infected premises
    - Commercial turkeys, 102
    - Commercial chickens, 5
    - Backyard flock, 1
  - 9,024,632 birds
- 22/23 as of 18 Jan 2023
  - 110 infected premises
    - Commercial turkeys, 79
    - Commercial chickens, 2
    - Backyard flock, 29
  - 4,219,806 birds

## After 2015, we learned...

...having a **diagnostic lab** near poultry industry helped with rapid detection

...that delays in removing infected birds results in farm-to-farm spread of HPAI

...we did stamping out really well  
...but, the virus has *changed*

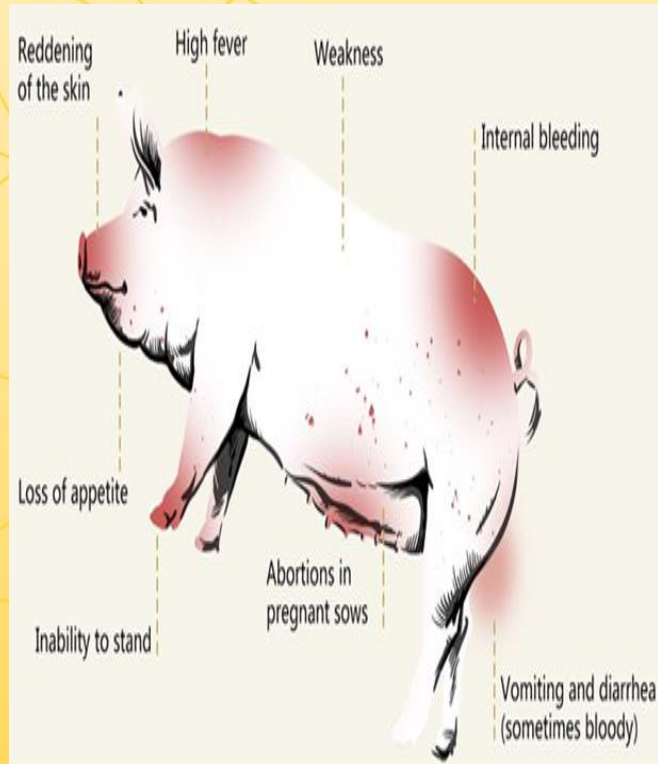
...wild bird spread was more efficient in 2022



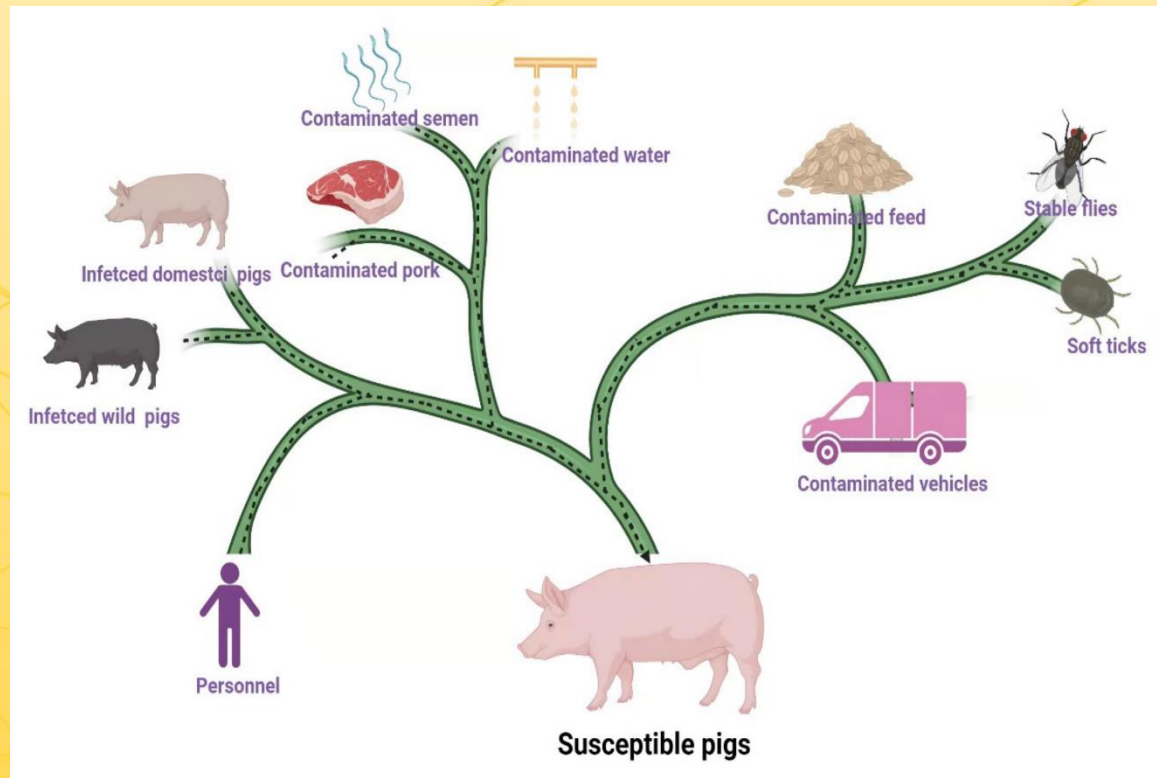
# SCIENCE

## What is African Swine Fever?

- Virus of pigs, only pigs

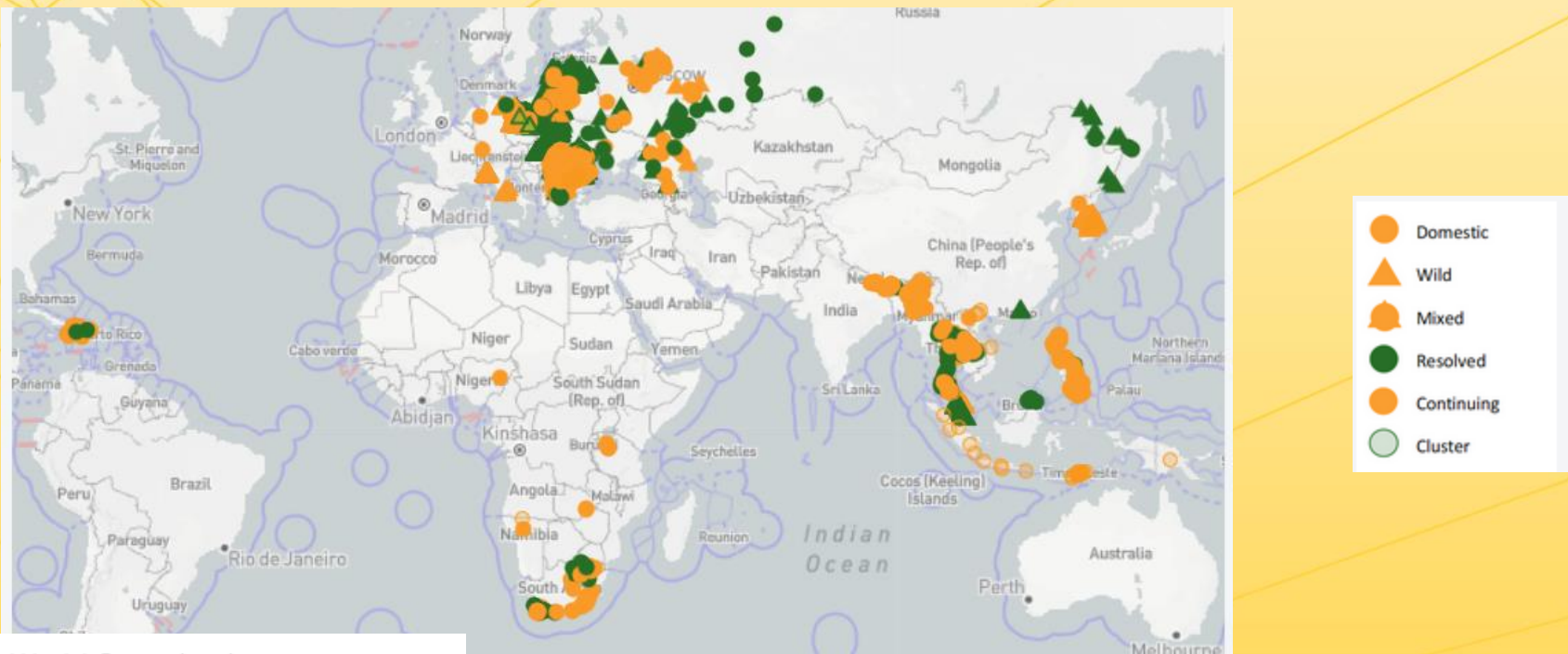


World Organization of Animal Health



Liu et al. Viruses 2021, 13, 2552. doi.org/10.3390/v13122552

# ASF is globally widespread



World Organisation  
for Animal Health  
Founded as OIE

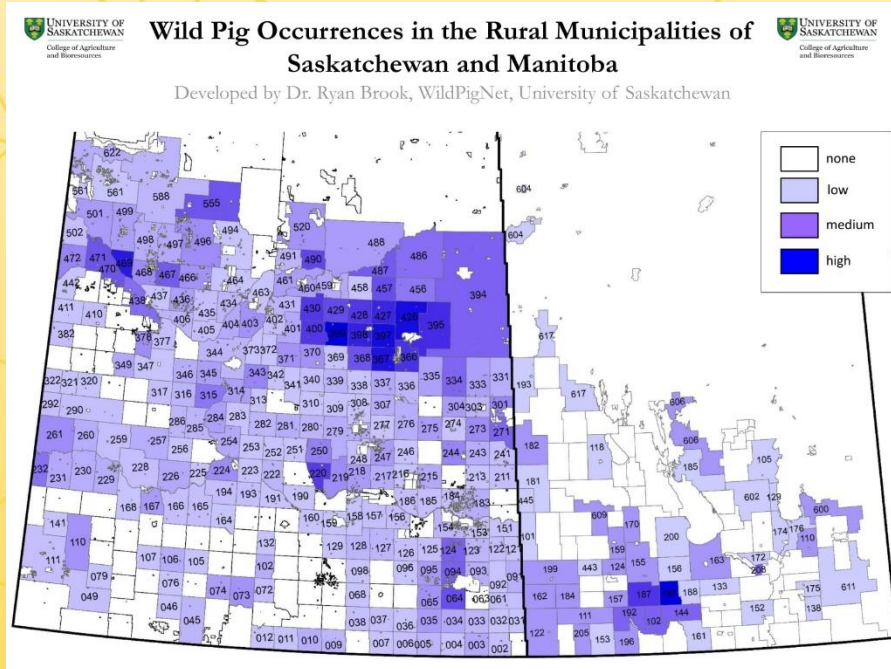
WAHIS

<https://wahis.woah.org/#/dashboards/country-or-disease-dashboard>

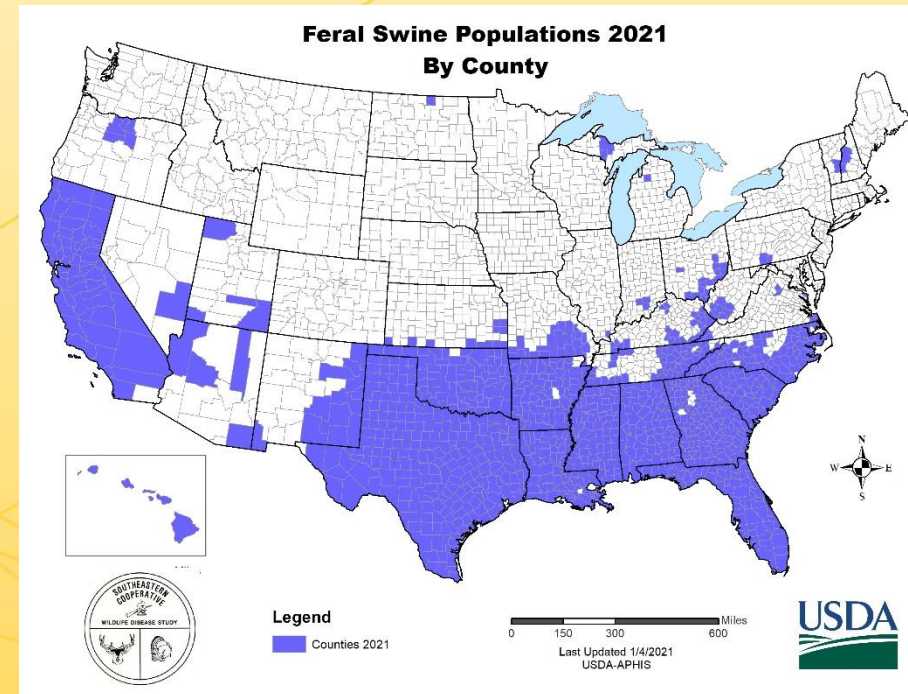


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# Wild pigs are widespread



Above Minnesota



Below Minnesota



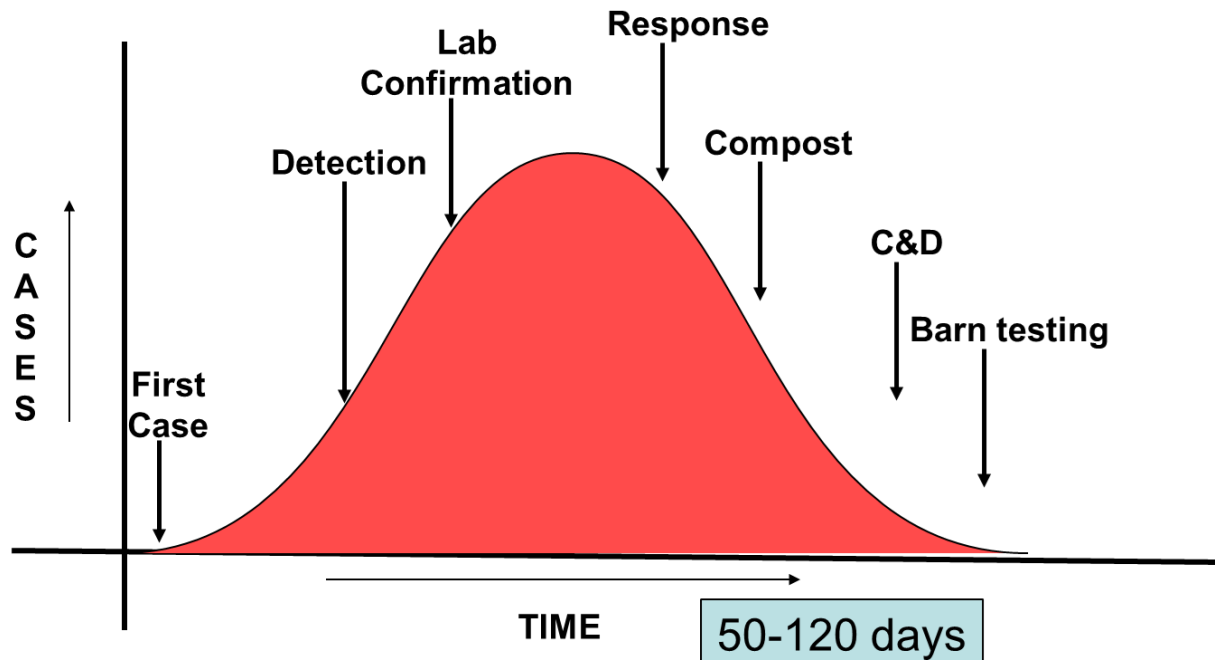
# ASF and HPAI control - common goals

- Prevent, Prepare, Respond
- Repeat

At your:

- farm
  - including wildlife
  - shared ecosystem
- neighbors
  - neighboring states
- state
  - neighboring countries
- country

## Standard Model for Outbreak Detection and Response



# Who is needed to reach the goals?

- Roles and Responsibilities during a response
  - Farmers and Agricultural Systems
    - Keep virus out
    - Keep virus contained if it gets in
  - State
    - Implement prevention and response strategies that fit with Minnesota's agriculture
  - Federal
    - Provide support resources
    - Facilitate interstate, regional and national response
    - International trade



# EDUCATION, RESEARCH, OUTREACH

## What is needed to reach goals?

- Dedicated workforce
  - Knowledgeable
  - Available
  - Robust
  - Innovative
- Over 500 professional and graduate students
  - DVMs
  - MS
  - PhD
  - Residents
- Research
  - Diagnostics
  - Interventions
- Training at all levels to provide expertise to help with response
- Retraining/Outreach
  - Poultry certificate
  - Leman Swine Conference





# RESEARCH AND INNOVATION

- We need
  - innovation
    - HPAI vaccination is coming.
    - ASF vaccination is coming.
      - But...the poultry and swine industries have changed
        - » vaccines that can be mass applied
  - disease control plans based on our current knowledge of microbial, animal, and human nature
  - knowledge, innovation, and confidence to build as we fly



# EDUCATION and OUTREACH

## Training and Re-Training

- Animal industries need big adjustments to be competitive in a new microbial environment
- Training can add flexibility to a workforce
- Training new professionals and re-training professionals
  - Expand disease paradigms to fit the new normal
- Working with animal industries to take on their new roles in response
  - Promoting **public-private partnerships**

Are we ready for a new reality that includes HPAI and the threat of emerging diseases like ASF?

UMN CVM:

Research - to understand changing diseases

Education - to train and retrain workforce

Service – to provide diagnostic testing, outreach