

# SURVIVING HIGHLY PATHOGENIC AVIAN INFLUENZA

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and the Secure Food Systems team



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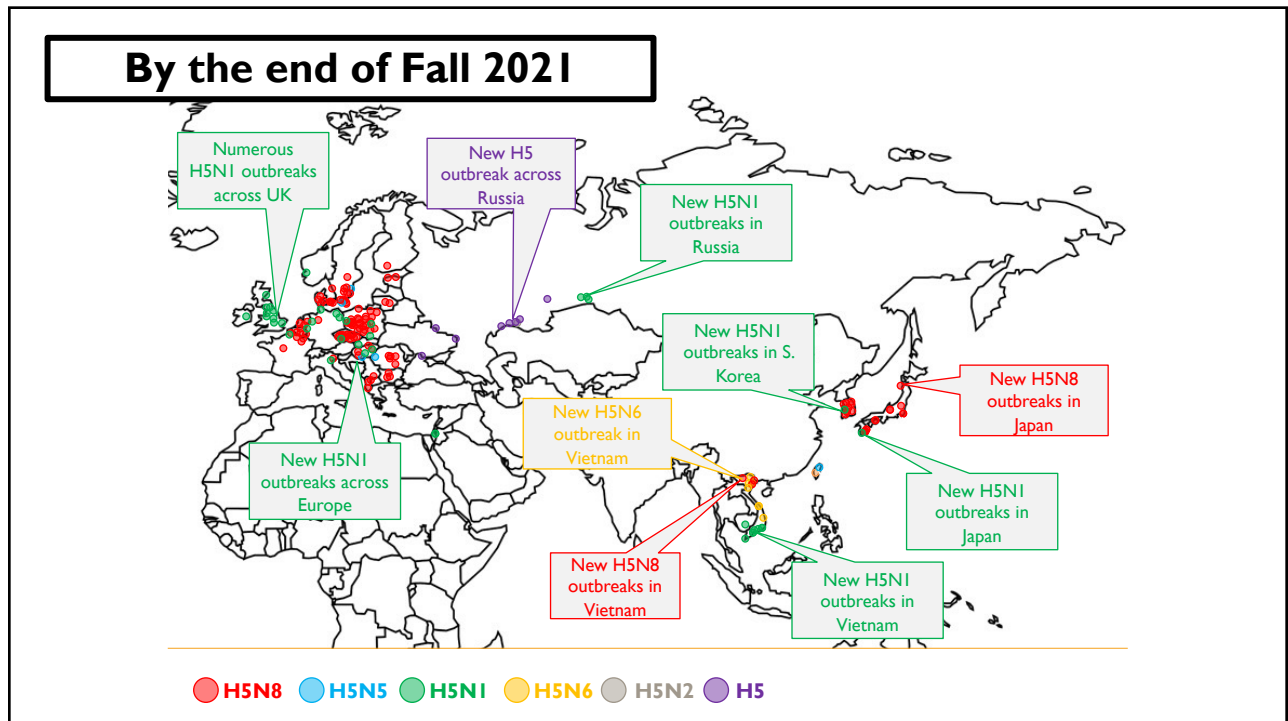
## LET'S TALK

- 2022 outbreak
- Why do companies fail in an outbreak?
- Secure Food System
- Learn, it will help you the next time

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# THE 2022 HPAI OUTBREAK

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## 2015 flashback



Highly pathogenic Eurasian H5 avian influenza moving in wild birds that are not showing any signs.

*It is clearly moving in wintering grounds. But which ones?*

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## THERE WERE SIMILARITIES

- March 25, 2015 Lac Qui Parle I
- March 29, 2022 Lac Qui Parle I

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## HPAI 2015 vs 2022 in Turkeys

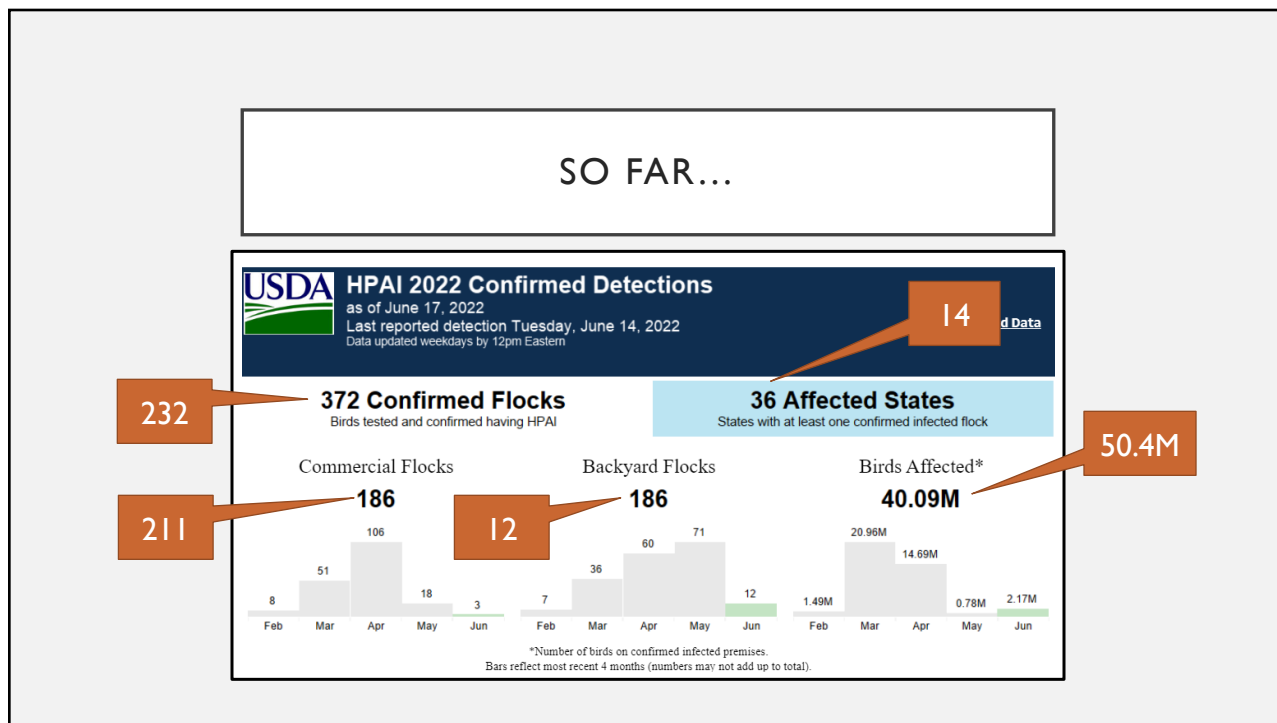
### 2015

- 5-7 days Initially from 1<sup>st</sup> sample to depop
- Neurologic clinical signs
- 2 day advance warning on drinker swabs
- Both Independent and quite a bit of lateral transmission
- Limited wild bird and backyard involvement
- Largely focused on IA and MN and in turkeys and egg layers

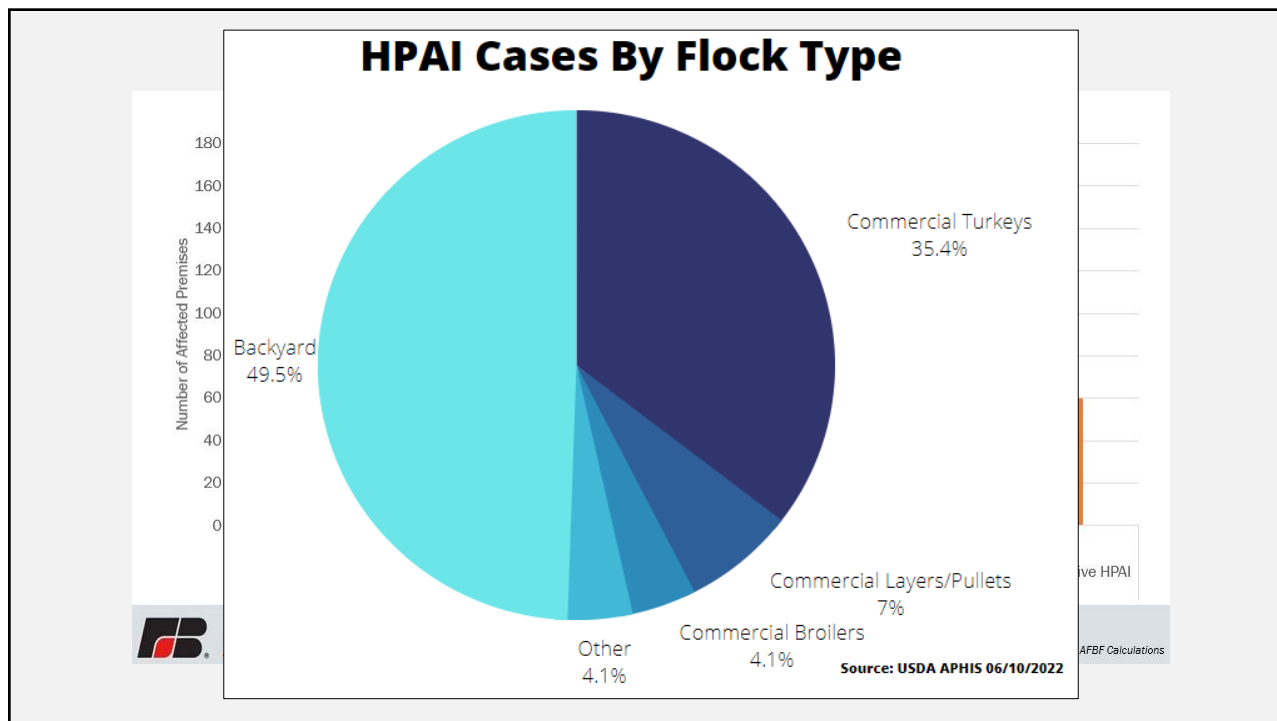
### 2022

- 24-36 hrs from first sample to depop
- Limited neurologic signs
- Drinker swabs positive at same time as trachea swabs/clinical signs
- Very limited lateral spread mostly independent introductions
- Extensive wild bird and backyard involvement
- Geographically stressed response effort in broilers, egg layers, turkeys and ducks

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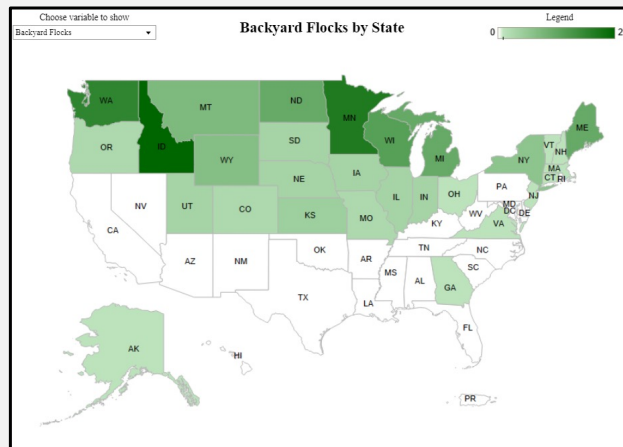


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## AN INCREASING THREAT AS BIRDS MIGRATED NORTH



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## WHEN DO COMPANIES FAIL IN AN OUTBREAK?

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## LOSS OF MARKET

- Consumers lose confidence in a product/company

Country, beginning of market shock	Price effect	Volume effect	Duration
Cambodia, Jan. 2004	75% drop	80–90% drop	By March 2004 prices back to pre-outbreak levels
Indonesia, Jan. 2004	50–85% drop	33% drop	By May 2004 prices back to pre-outbreak levels
Vietnam, Oct. 2005	50–60% drop	50% drop	In Dec. 2005 prices were still 30% below pre-HPAI level
Turkey, Oct. 2005	50% drop	50% drop	Prices took about 6 months to recover
Egypt, Nov. 2005 <sup>1</sup>	30% drop	n.a. <sup>1</sup>	Prices took about 6 months to recover
Nigeria, Feb. 2006	n.a.	80% drop	Four months later, still 50% lower than pre-outbreak
Bangladesh, Feb. 2007	8–13% drop	n.a.	Prices were back to pre-outbreak level in July 2007

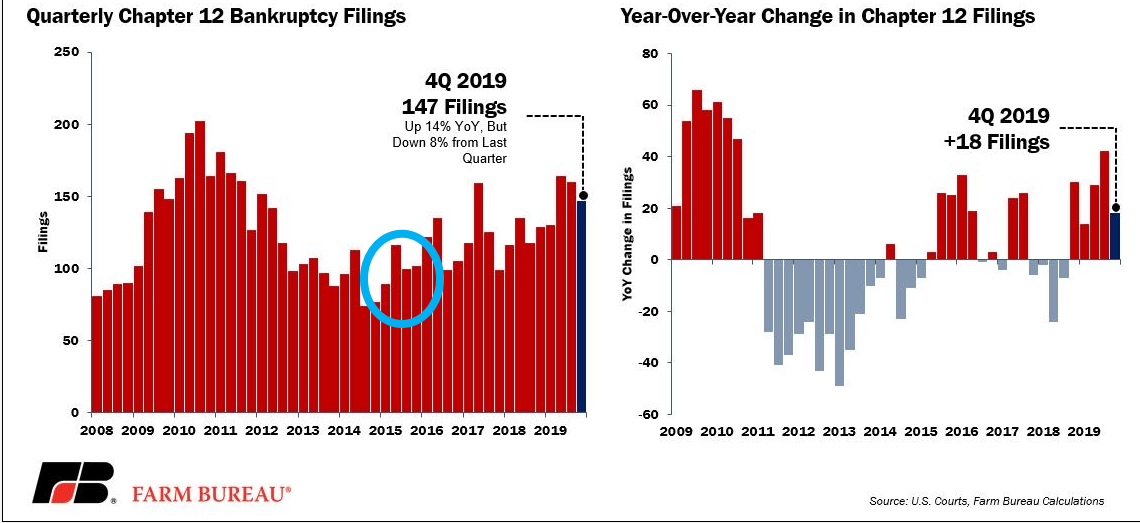
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## PRODUCERS CANNOT MEET DEMAND

- Loss of production
  - Flocks are infected
  - Or depopulated
- Regulatory actions that stop the spread of the outbreak but also stop movements

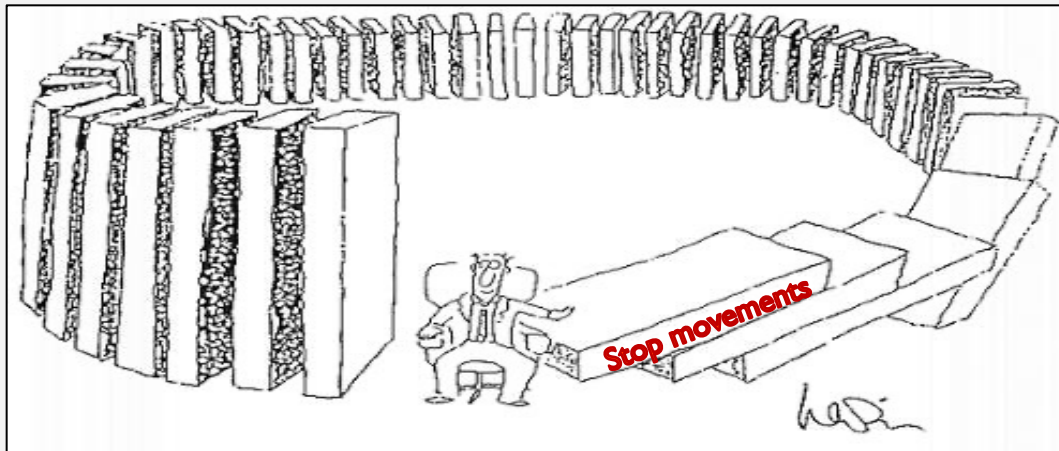
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**Figure 1. Quarterly and Year-Over-Year Change in Chapter 12 Farm Bankruptcies, 2008 to 2019**



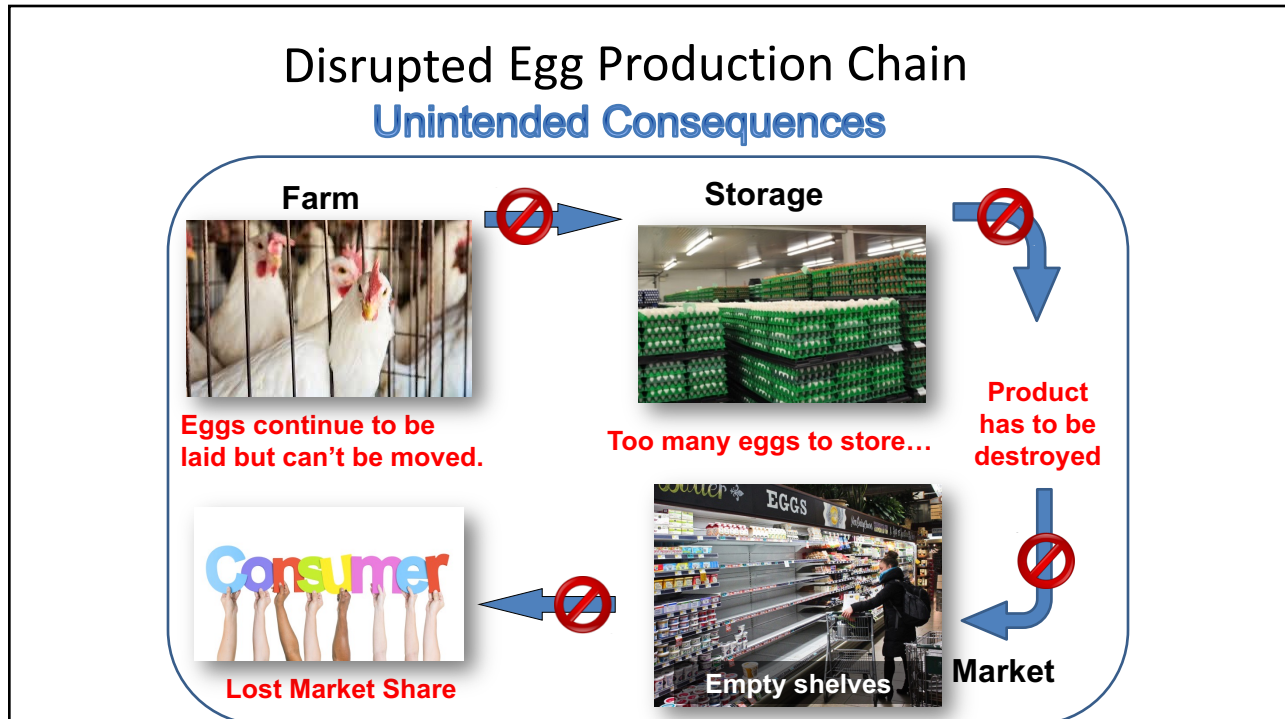
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**UNINTENDED CONSEQUENCES**



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## It all started as an idea

- The products from uninfected flocks in a Control Area could be moved to market without expanding an outbreak
- In 2015, we found out that those pre-determined ways to move product did not spread the outbreak!!

cue the trumpets

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## BUSINESS CONTINUITY IN ANIMAL DISEASE RESPONSE

- Development of protocols and tools to eliminate or minimize unintended negative consequences of the disease and disease response on agriculture and consumers while at the same time achieving the goals of disease control and response.

NCBA 2010

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## CREATING THE SES

- Risk pathways were identified
  - *How could the outbreak be spread by this movement?*
- Workgroup identified ways to mitigate risk
  - *What could be done to reduce risk?*
- Risk with mitigations were modeled. Risk assessment was written.

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## DEFINING A RISK PATHWAY

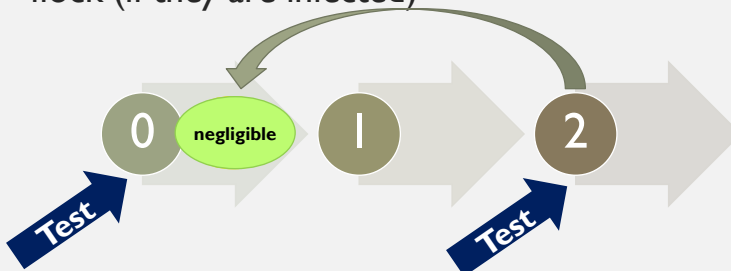
- There could be HPAI on the inside of an egg laid by a flock (if they are infected)



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## MITIGATION OF A RISK PATHWAY

- There could be HPAI on the inside of an egg laid by a flock (if they are infected)



- The eggs are held for 2 days and the flock tested before the eggs leave the processing plant

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## THE EXAMPLE OF W & S EGGS

- HPAI could be inside the egg
  - ✓ Hold eggs for 2 days while testing flock
- HPAI could be on the packing materials
  - ✓ Use only new pack
- HPAI could be on the outside of the egg
  - ✓ Nope, washed and *SANITIZED*
- HPAI could be on the truck or driver
  - Yep, so that is the permit criteria

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## Secure Food Systems

<http://securefoodsystems.umn.edu/>

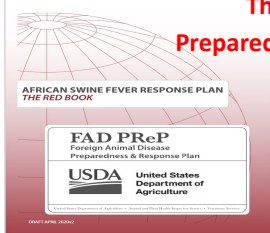
- Platform at the University of Minnesota (UMN) using public-private partnerships in the development of proactive risk assessments that guide risk-based continuity of business (COB) movements.



**The BIG idea: biosecurity or testing, alone, not enough to release hold order**  
 Before an outbreak, establish science-based strategies by which product from not known to be infected premises could be moved without spreading infection

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### The Foreign Animal Disease Preparedness and Response Plans



**infected farms**

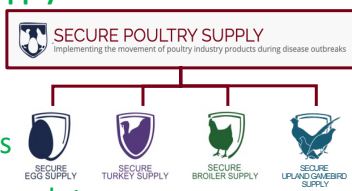
guidance to responders at federal, state, and local levels

before, during, and after a foreign animal disease outbreak

to control and eradicate the foreign animal disease from the USA

by outlining key outbreak response strategies, activities and tools

### The Secure Food Supply Plans



**uninfected farms**

a proactive approach to move animals and products

while in a control area during a foreign animal disease outbreak

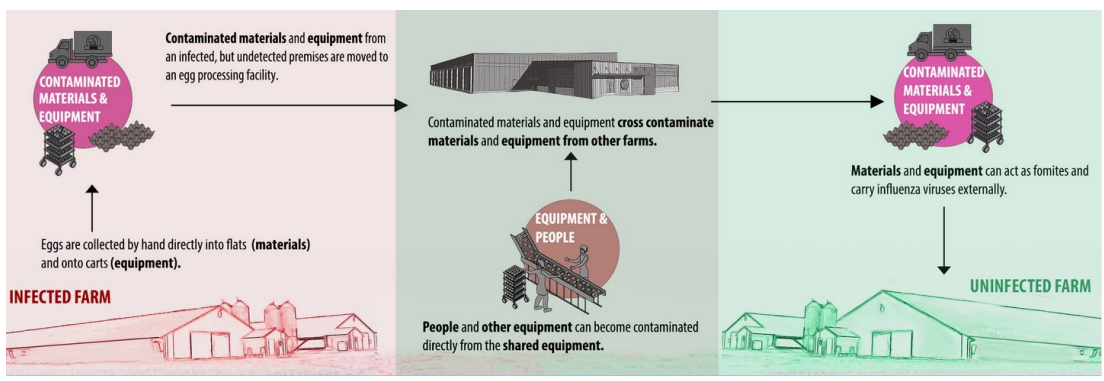
to limit disease risk associated with specific movements

by using risk-based science to construct risk mitigation strategies

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## Risk Assessments Specifically Address:

- Pathways of infection
- Sensitivity of infection detection
- Potential pathways of transmission
- Impact of mitigation strategies
- Assignment of a risk rating



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## Overall Risk Determination

Overall risk estimate for movement determined by **qualitatively combining likelihoods of individual pathways** assuming all applicable preventive measures

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## Who is involved in RA Content Development?

- Federal Government:**
  - USDA APHIS
  - USDA CEAH
- State Government:**
  - State Departments of Agriculture
  - State Departments of Health
  - State Boards of Animal Health
- Poultry industry:**
  - Associations of Veterinarians in (Poultry) Production
  - Private companies
- Academia:**
  - Secure Food Systems Team
  - Poultry Health Research
  - The Center for Food Security & Public Health

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## Science is the language of Secure Supply Plans

- Movement of product from a Control Area into a region with a dense poultry population is scary
- The risk assessments of the COB plans provide a way to understand risk even when you're not familiar with the activity



- Example: How does a broiler company understand the risk to them of an egg production farm moving washed and sanitized eggs?

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... AND THEN WE GOT TO USE THE PLANS

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## IN 2015 WE LEARNED...

- For every case, there are many non-case premises that will want/need to move product
- To permit movements requires effort and
- Poultry guidance and permits were too detailed for regulators to use
- Differing permit guidance for similar/different products caused confusion

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SPS is built on the STS plans

E  
T  
B

Theory

Operation

- The science of the Risk Assessments are the basis for the permit guidance in the SPS.
  - The Permit guidance is the operational part of a Risk Assessment

*What do I need to do to mitigate risk when moving this product from a monitored premises to an approved location?*

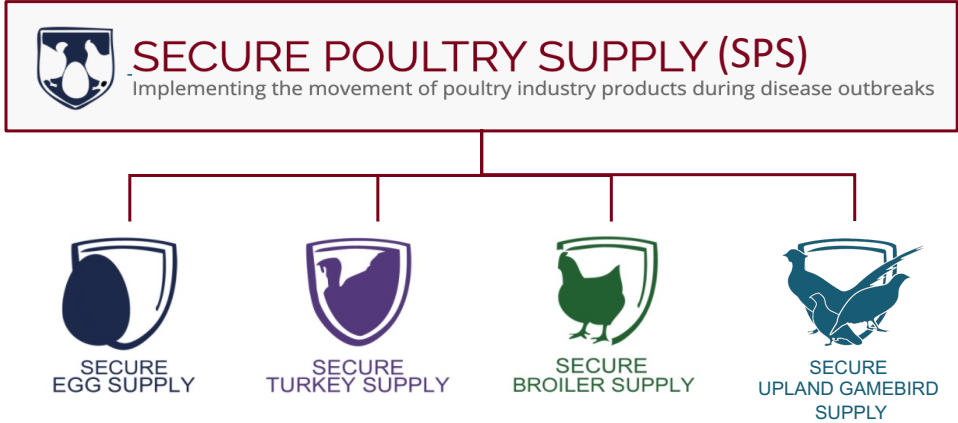
A: Look in the SPS permit guidance for that movement.

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# Permit Guidance for Product Movements

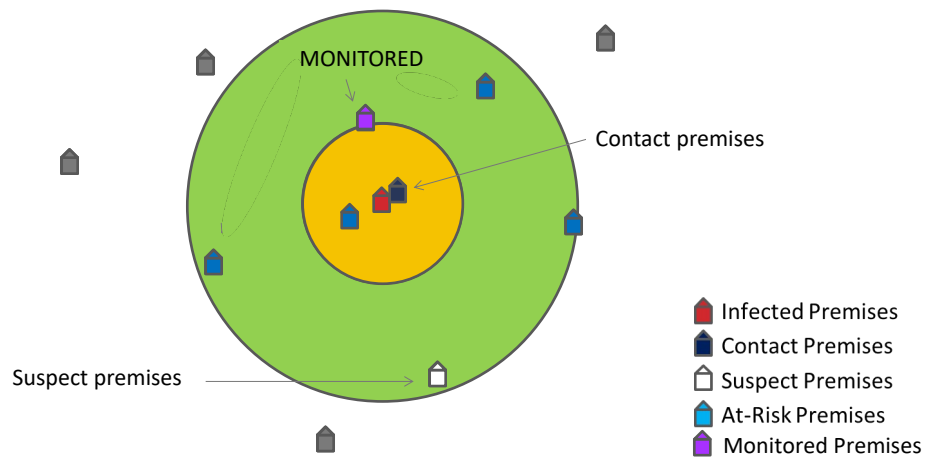
[securepoultrysupply.umn.edu](http://securepoultrysupply.umn.edu)



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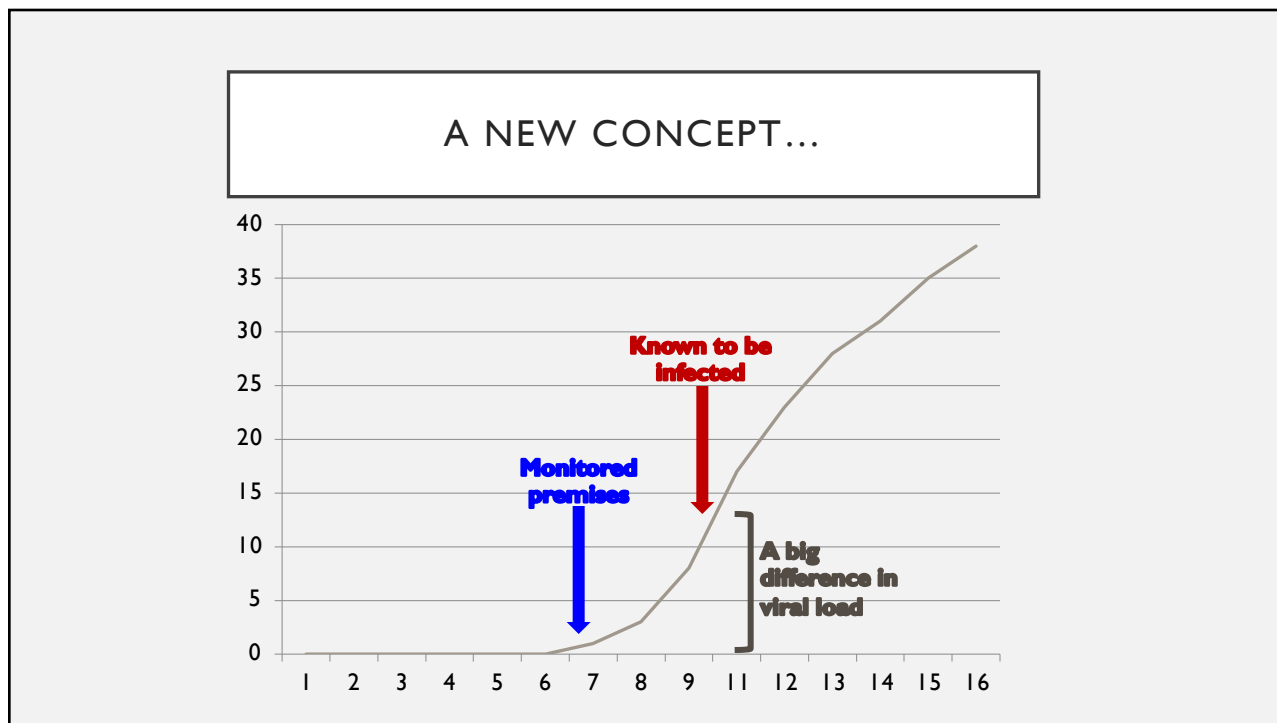
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## Step 1: Monitored Premises



Product movement can happen from monitored premises

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## 2. Finding permit guidances [securepoultrysupply.umn.edu](http://securepoultrysupply.umn.edu)

**Eggs and egg products**

**Hatching eggs**

- Broiler Hatching Eggs

**Permit Guidance**

**Live birds**

**Day old birds**

- Broiler Day-Old Chicks

*What needs to get done and how to do it*

**Birds to slaughter**

- Broilers to Market

**Moving Poultry and Poultry Products**

- Eggs and egg byproducts
- Day-old Birds
- Live Birds
- Chicken
- Turkeys

**Understanding permit guidance**

**Secure Poultry Plans**

*Contain Risk Assessment documents*

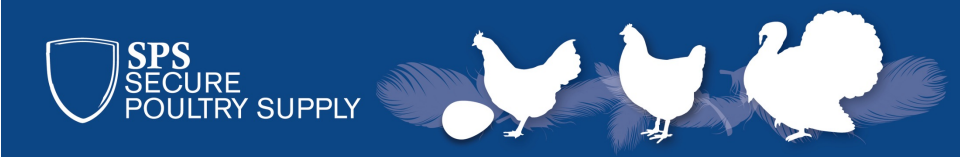
SECURE EGG SUPPLY

SECURE BROILER SUPPLY

SECURE TURKEY SUPPLY

**The science behind business continuity plans**


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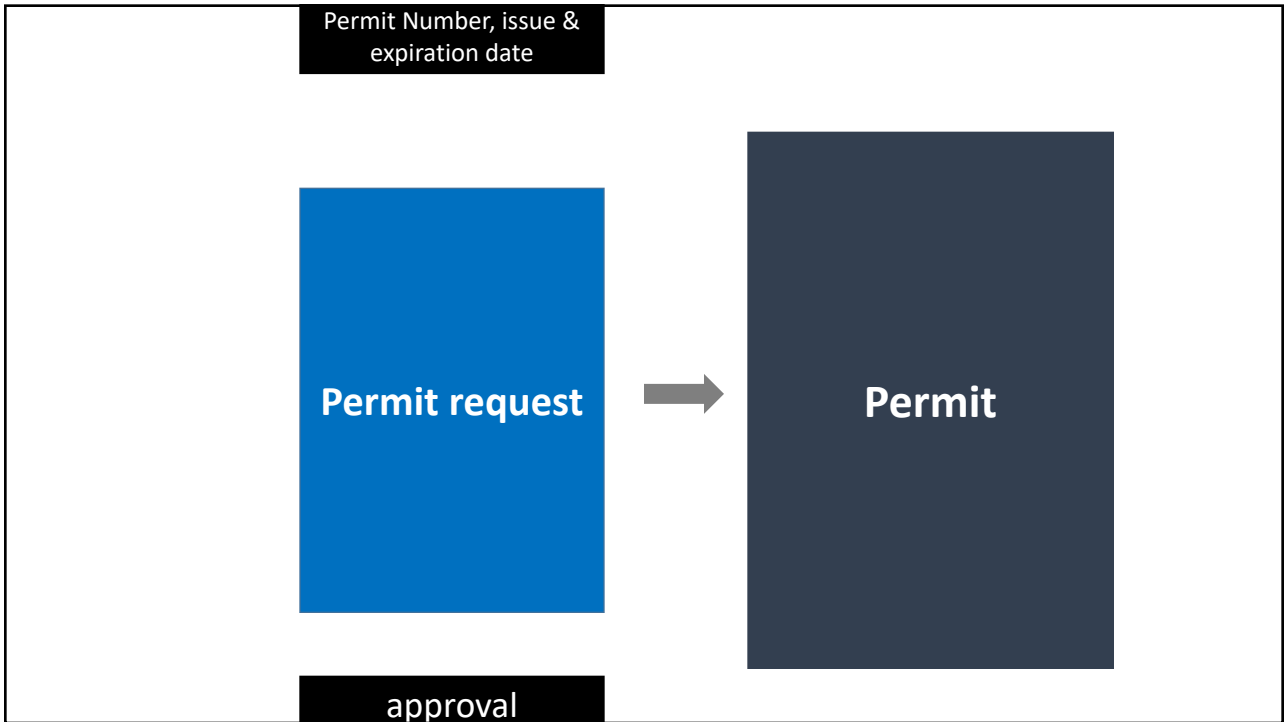
- State of origin will enter or check data entered via the EMRS portal and accept the permit request

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**Pending permit**

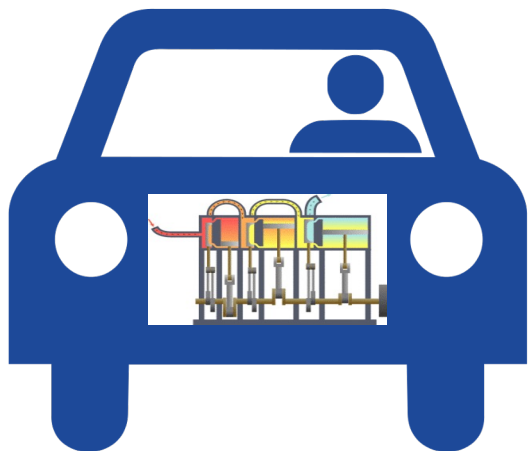


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## Secure Food Supply Plans are a partnership



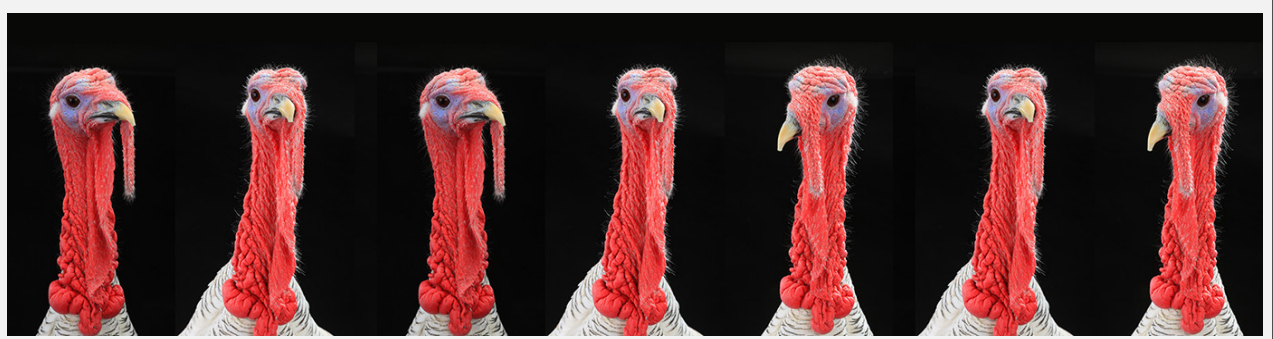
- Industry assures **all** permit guidance criteria are met
  - They have to know the details of the engine
- State Animal Health Offices see that appropriate assurances have been made
  - They have to drive the car

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## LESSONS LEARNED AND APPLIED

- Stamping out works when applied correctly.
- Preparing for the last outbreak helped us with this outbreak.
- The Secure Poultry Supply plan helped poultry companies stay in business

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WHAT ARE THE LESSONS OF 2022?