



# AMPV Working Group: Avian Metapneumovirus Outbreak in US Poultry Flocks 2023-2024

**Steven Clark, DVM, ACPV**

Professional Veterinary Services Manager, Turkeys

# aMPV Working Group



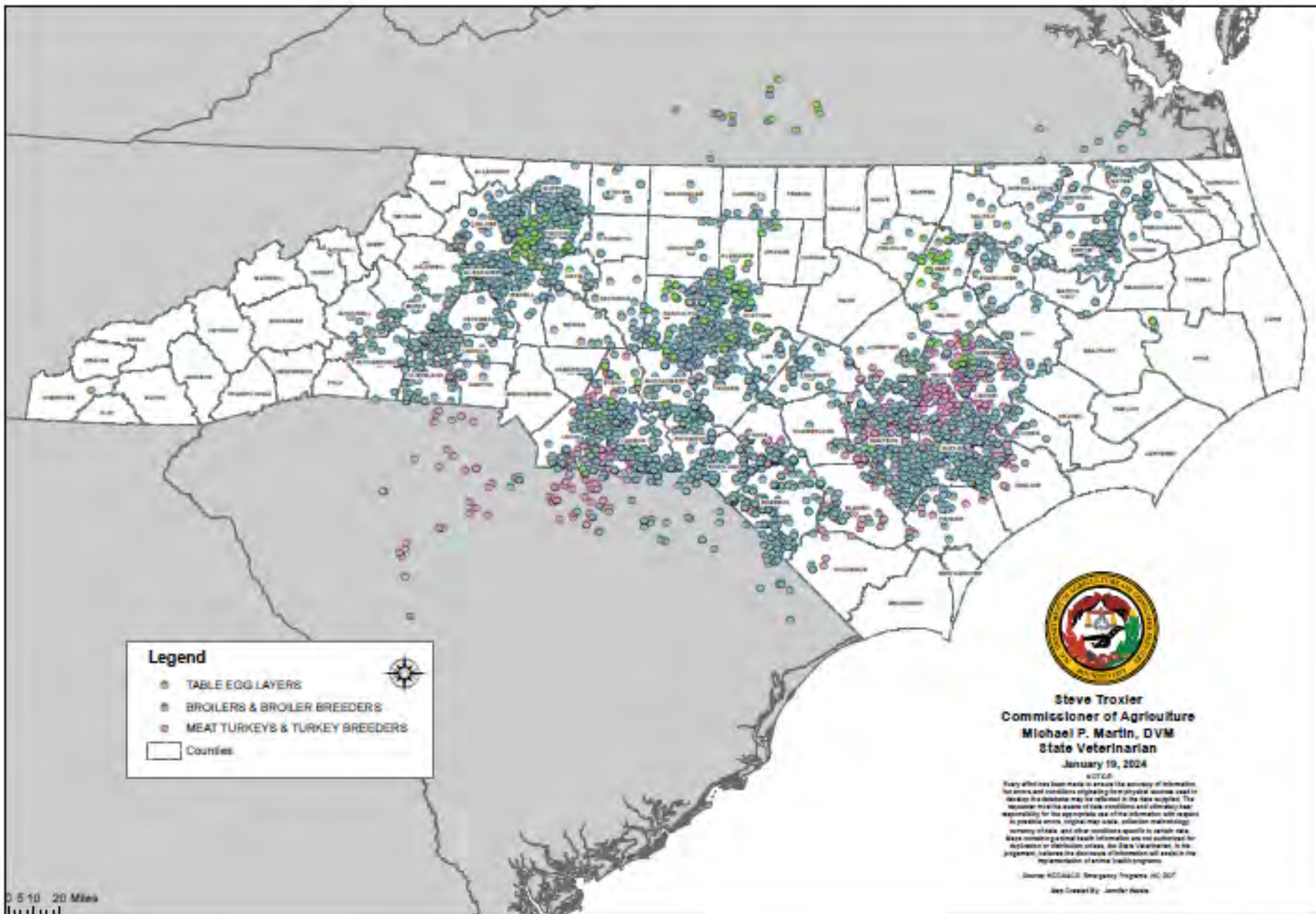
- **ad hoc group of 200+ poultry**
  - veterinarians, researchers, regulatory and animal health professionals,
  - mostly USA participants,
  - commercial production, trade associations, government, and allied industry
- **Goal: share current and relevant information relating to the epidemiology, diagnosis, pathogenesis, and control of aMPV in the US.**
- **History: late December 2023 upon the recognition of a fast-spreading respiratory disease of unknown etiology in North Carolina turkey flocks**
- **Within two weeks researchers confirmed aMPV Type B and by March virus isolates were confirmed from both chicken and turkey origins**
- **Now a list of labs offers diagnostics for aMPV**

# AMPV Impact: Respiratory Disease

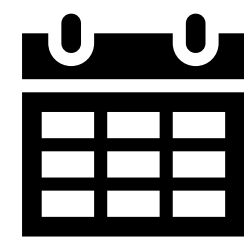


- **Turkeys** are the most significantly impacted:
  - **Breeders** are experiencing egg production declines ranging from 20% - 100%, lasting 2 - 4 weeks. This decrease in egg production is leading to a national shortage of poults
  - **Commercial** flocks, mortality rates can be severe, approaching 100%, with clinical disease persisting <3 weeks
- **Broiler breeders** show a moderate reduction in egg production of 5% to 10%
  - **Broiler** mortality is relatively mild, with recovery 7 - 10 days
- **Egg-laying chickens** is less severe and likely underdiagnosed
- Secondary infections, including *E. coli*, cholera, ORT, and MG, complications

# NORTH CAROLINA COMMERCIAL POULTRY FARMS



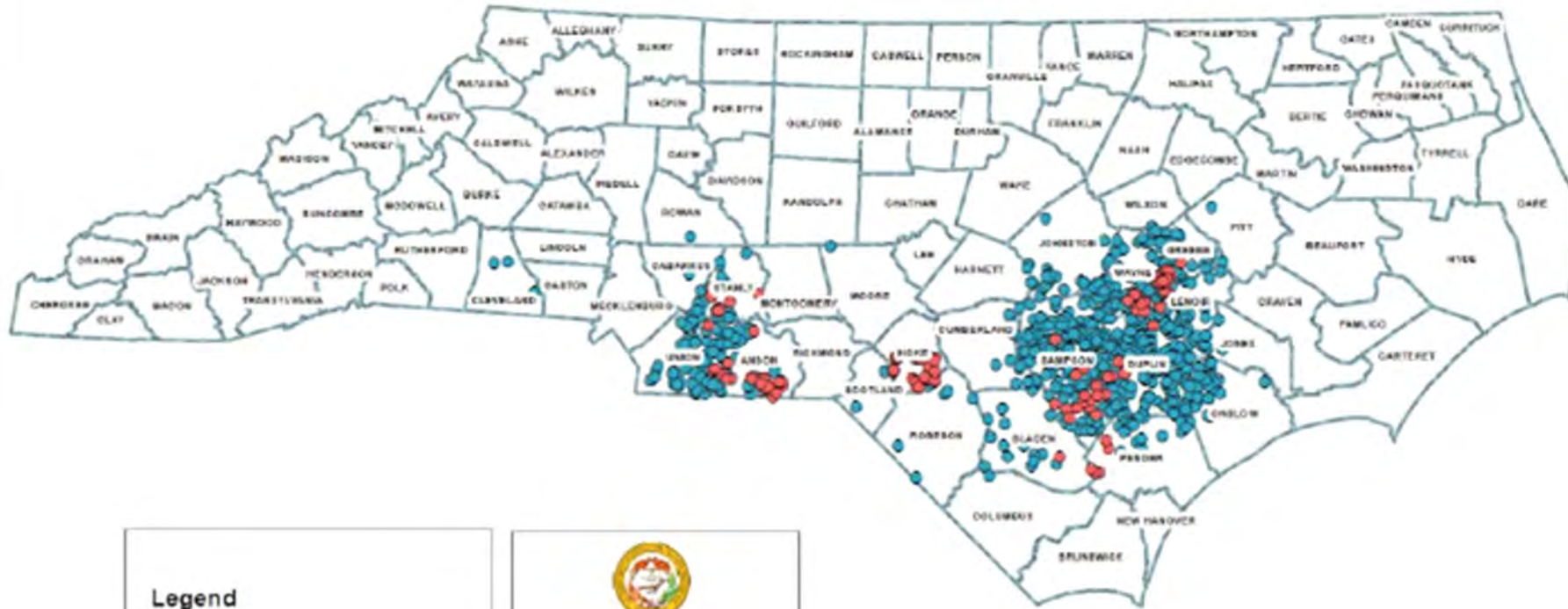
**“AMPV”**  
**Aug – Dec**  
**2023**



Credit: S. Clark, aMPV Working Group

# NORTH CAROLINA COMMERCIAL POULTRY FARMS

## NORTH CAROLINA TURKEY FARMS



### Legend

- MEAT TURKEYS
- TURKEY BREEDERS
- County



0 40 80 Miles



Steve Troxler  
Commissioner of Agriculture  
R. Douglas Macken, DVM  
State Veterinarian

NOTICE  
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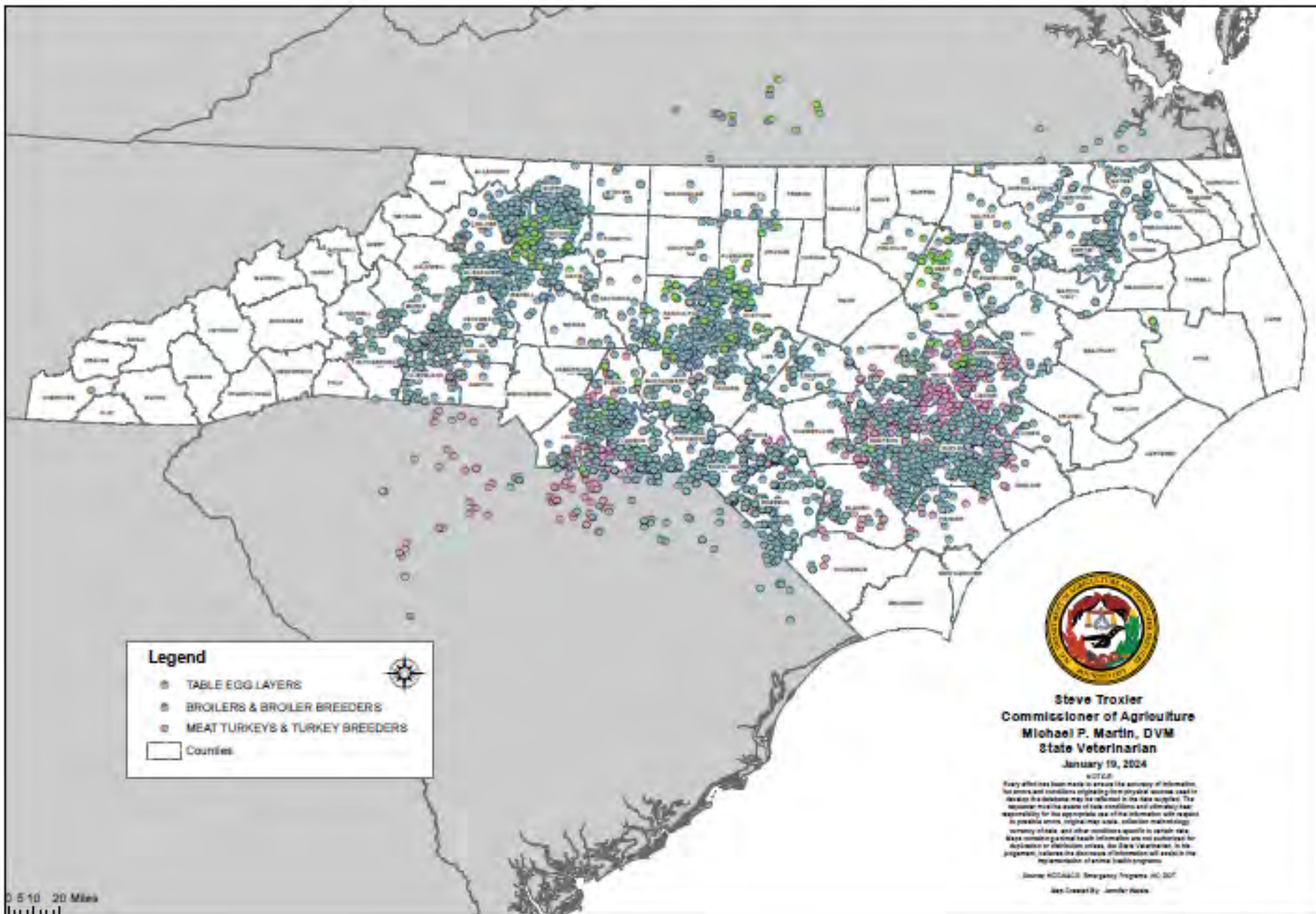
Source: USDA, 2010. National Turkey Producers Association.

Map prepared by  
Jillifer Wade

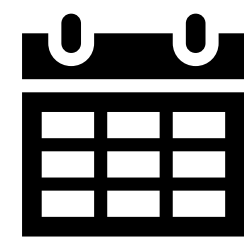
Credit: S. Clark, aMPV Working Group

Group

# NORTH CAROLINA COMMERCIAL POULTRY FARMS



**“AMPV”**  
**Aug – Dec**  
**2023**



Credit: S. Clark, aMPV Working Group



AG0000335. Note the accumulation of thick, white, mucoid to caseous exudate within the infraorbital sinuses. The sinus mucosa is also red and thickened (sinusitis).

Veterinary Diagnostic Pathology, LLC

Photo Credit: Dr. Dallas Clontz (2024)



# Company Wide Mortality (%) May 2023 – March 2024 (Turkeys, Commercial Toms and Hens, Conventional)



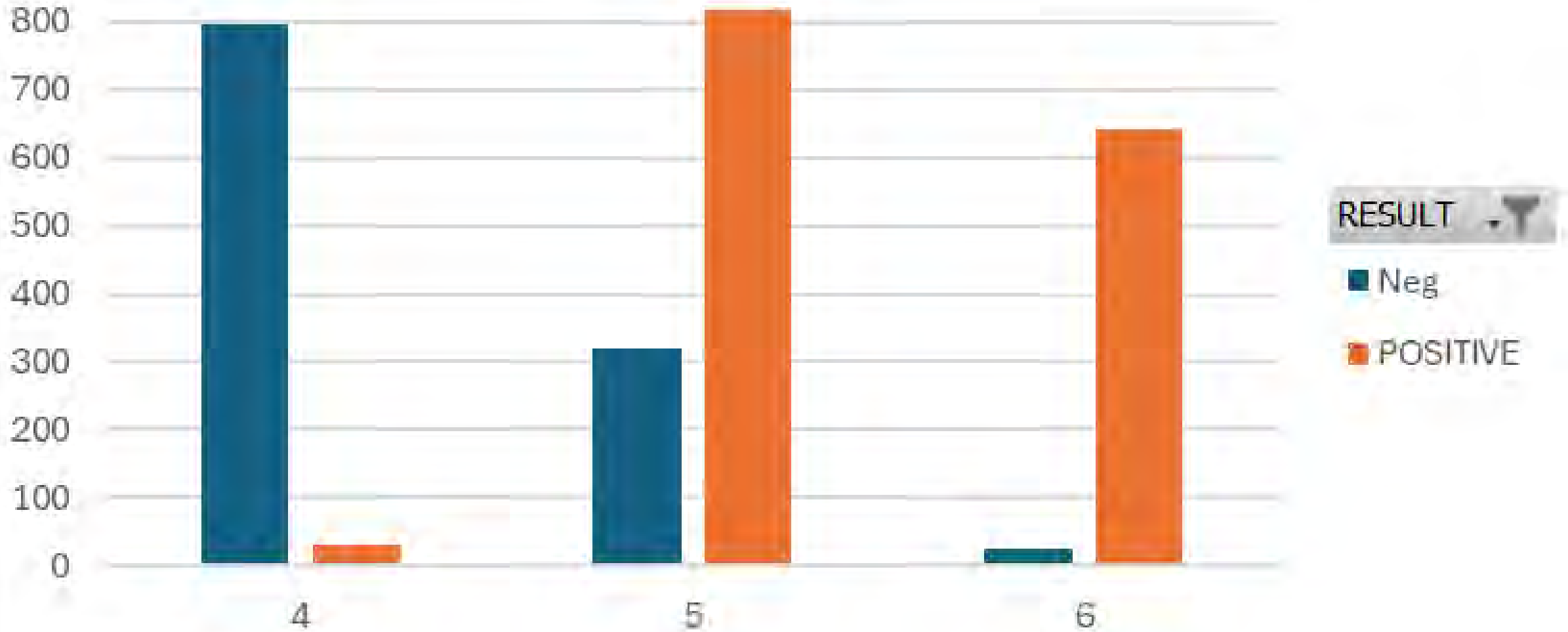
Company Wide % Mortality



Chart: ECTO, Inc., Atlanta, GA (March 2024)



# Minnesota Turkey Flock Mortality: April – June 2024

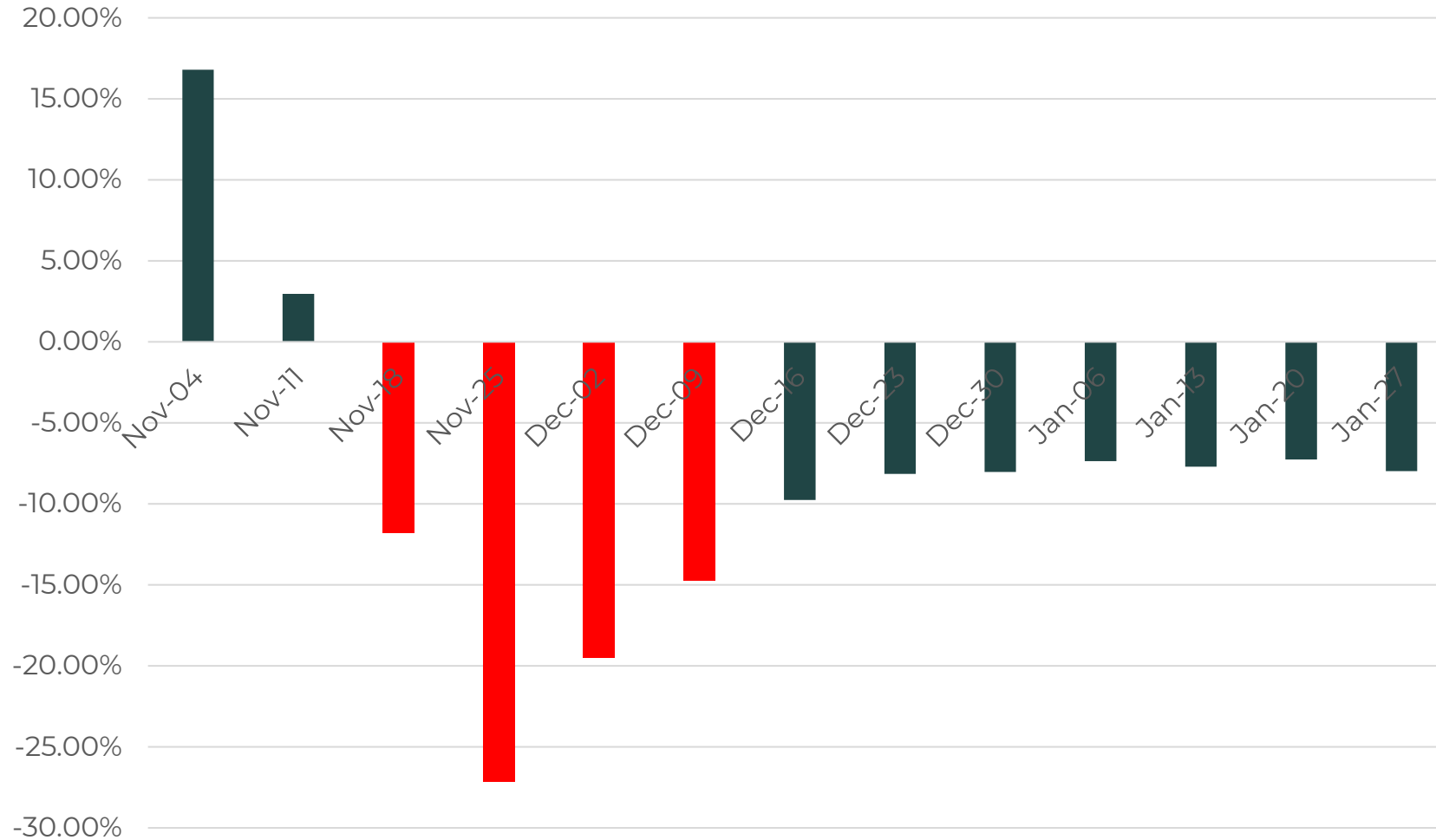


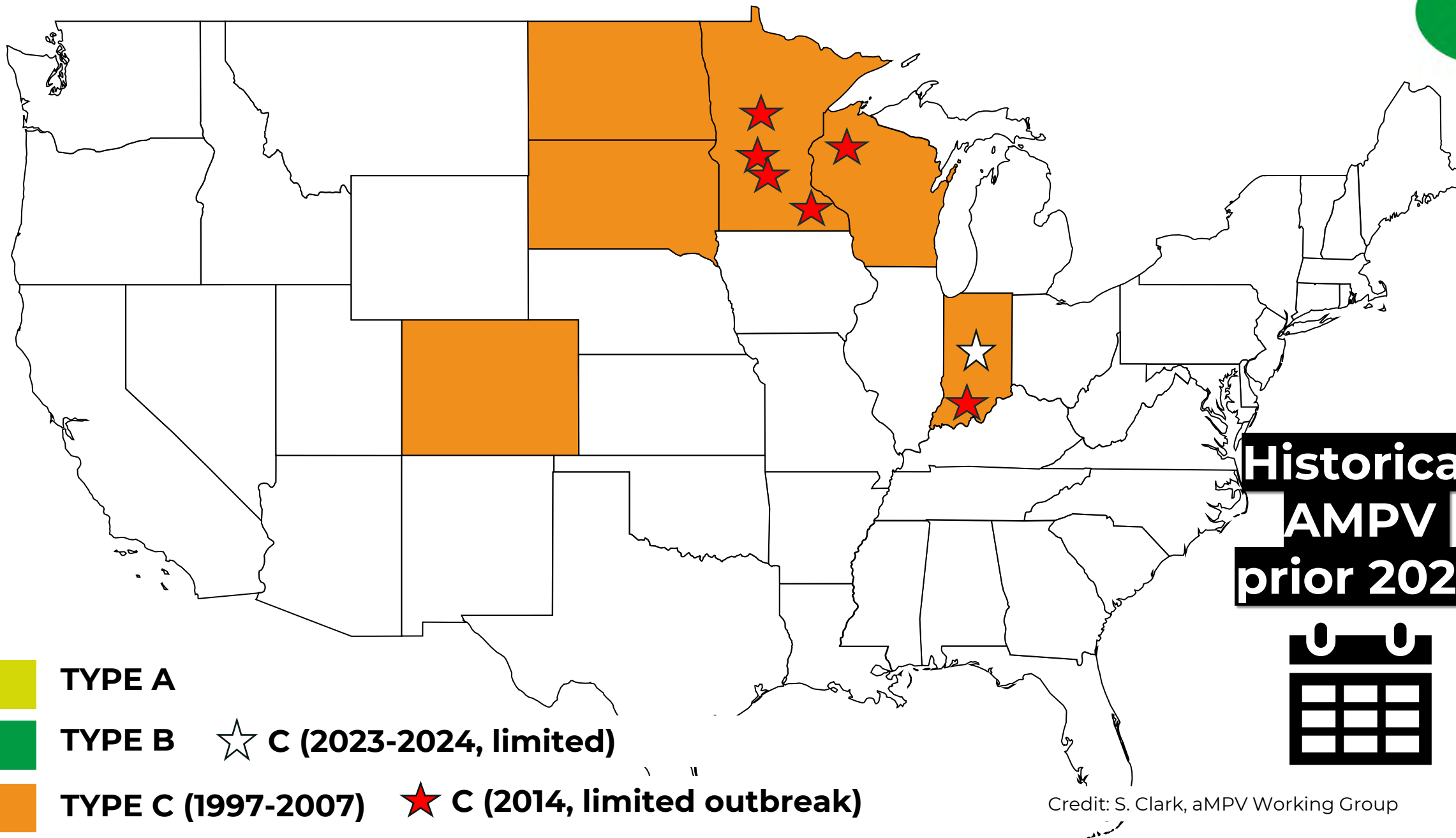
MONTH

AMPV Surveillance, MN, Turkeys, Serology (Credit: Dr. Jill Nezworski, 2024)

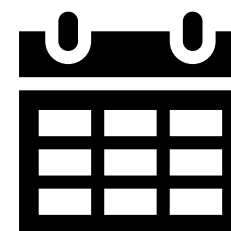







# Breeder Hens: Eggs Over/Under Projected (Weekly, Nov 2023 – Jan 2024)



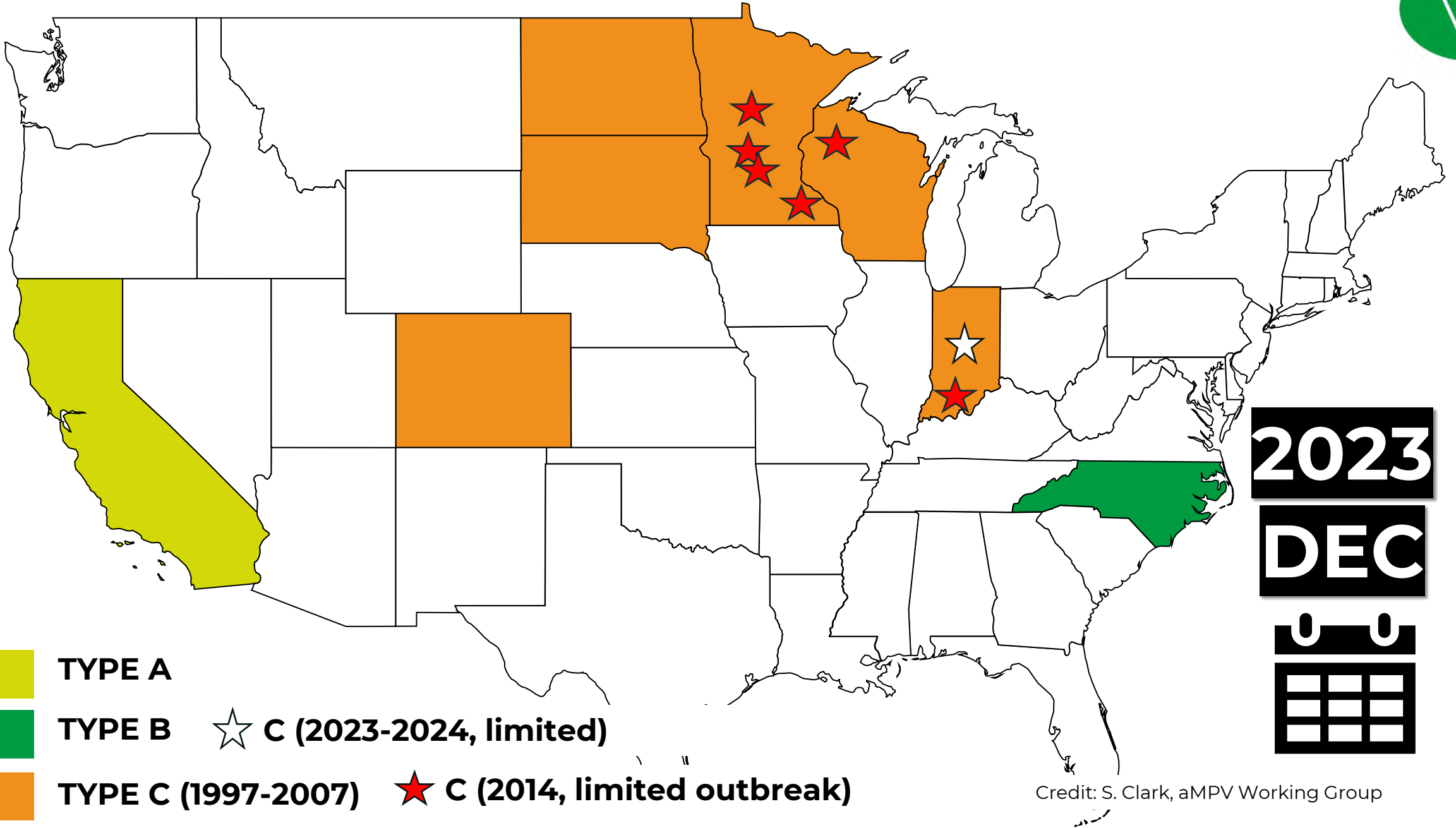







**Historical**  
**AMPV**  
**prior 2023**

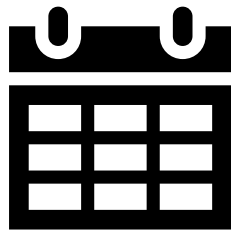


-  **TYPE A**
-  **TYPE B**     **C (2023-2024, limited)**
-  **TYPE C (1997-2007)**     **C (2014, limited outbreak)**

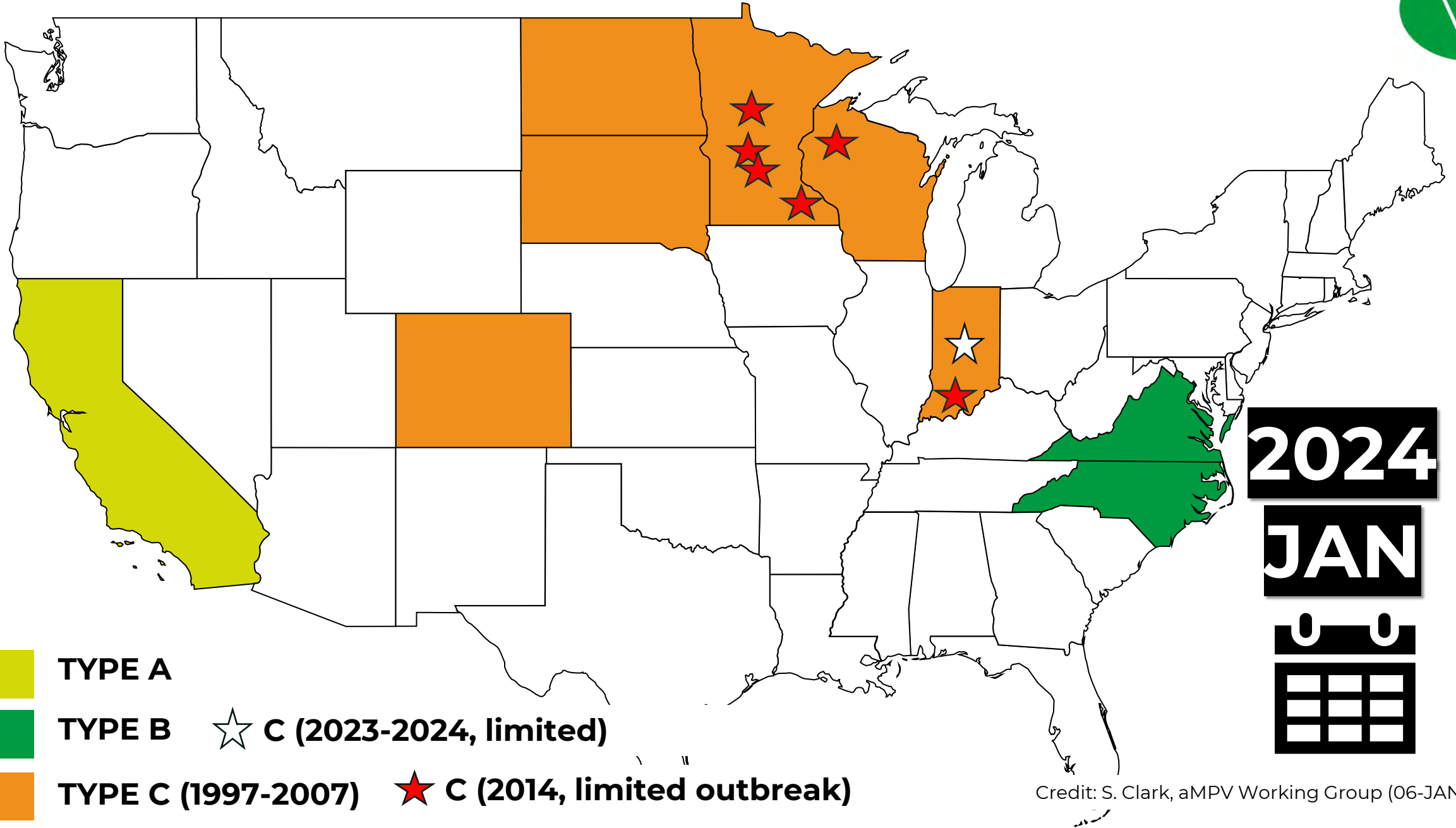
Credit: S. Clark, aMPV Working Group








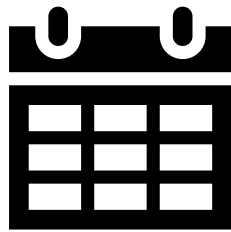
-  TYPE A
-  TYPE B
-  TYPE C (1997-2007)
-  C (2023-2024, limited)
-  C (2014, limited outbreak)

**2023**  
**DEC**  


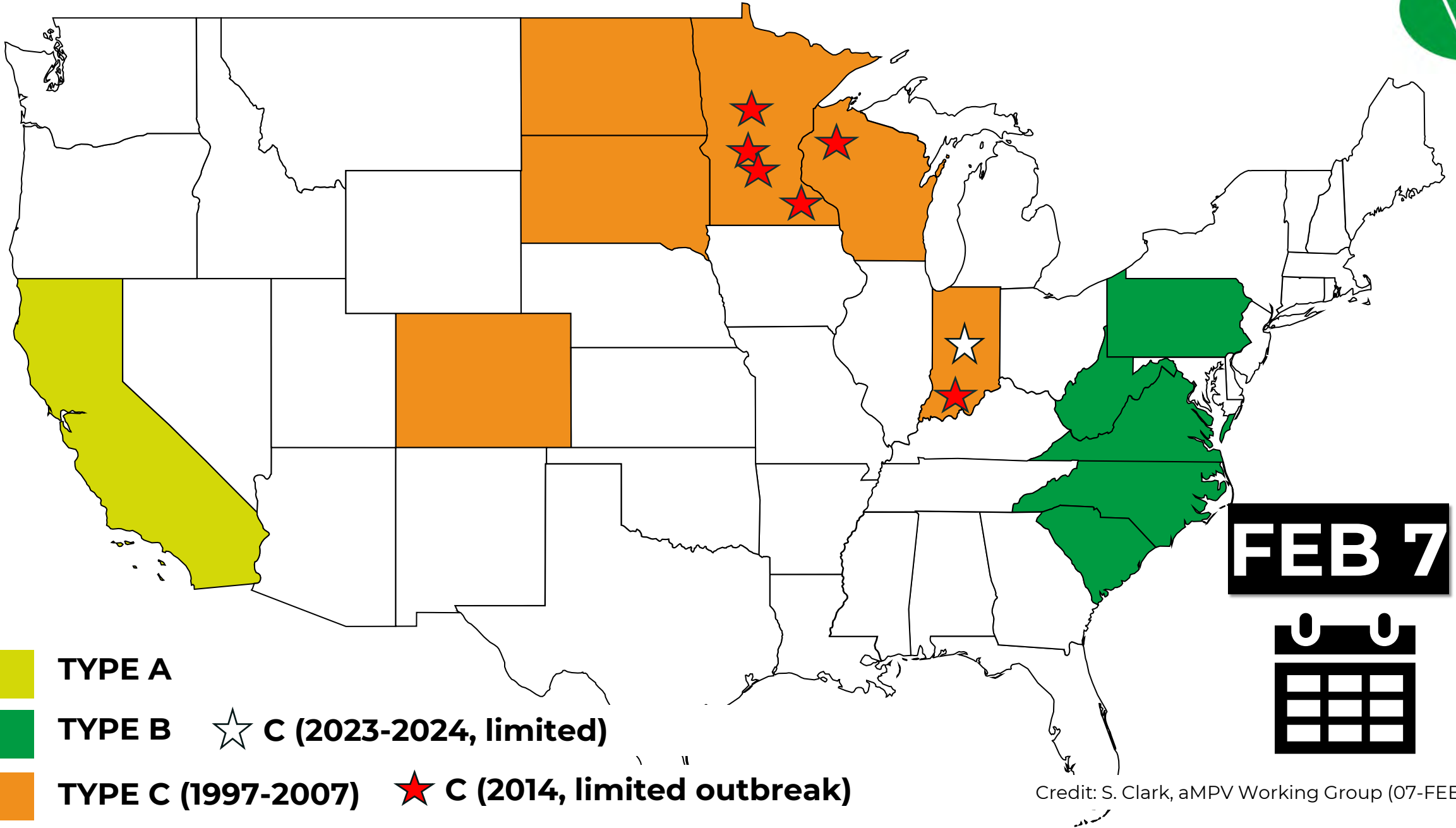
Credit: S. Clark, aMPV Working Group








-  TYPE A
-  TYPE B
-  TYPE C (1997-2007)
-  C (2023-2024, limited)
-  C (2014, limited outbreak)

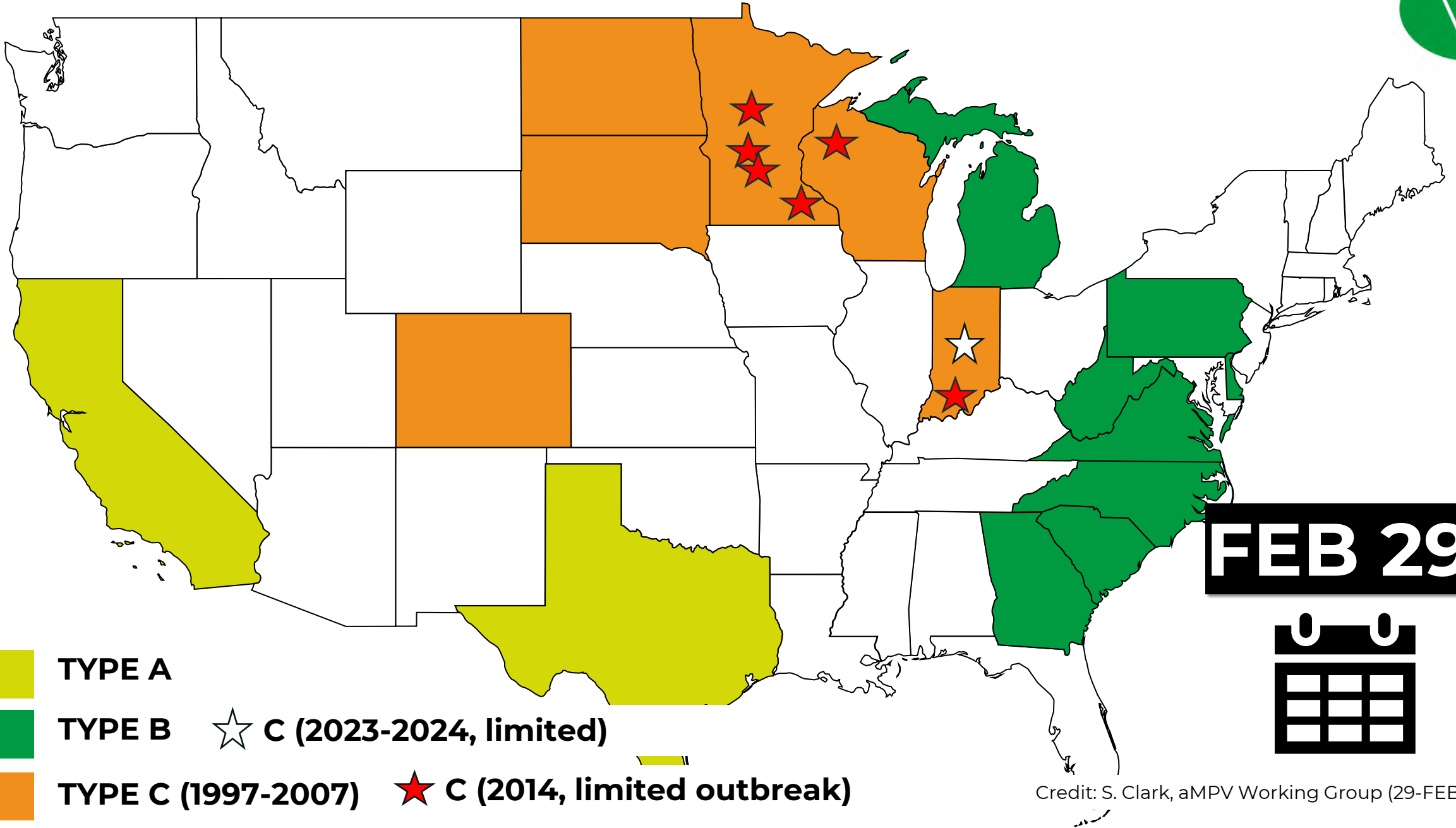
**2024**  
**JAN**  







Credit: S. Clark, aMPV Working Group (06-JAN-2024)



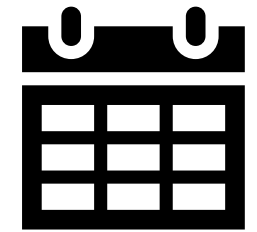
-  **TYPE A**
-  **TYPE B**     **C (2023-2024, limited)**
-  **TYPE C (1997-2007)**     **C (2014, limited outbreak)**

Credit: S. Clark, aMPV Working Group (07-FEB-2024)

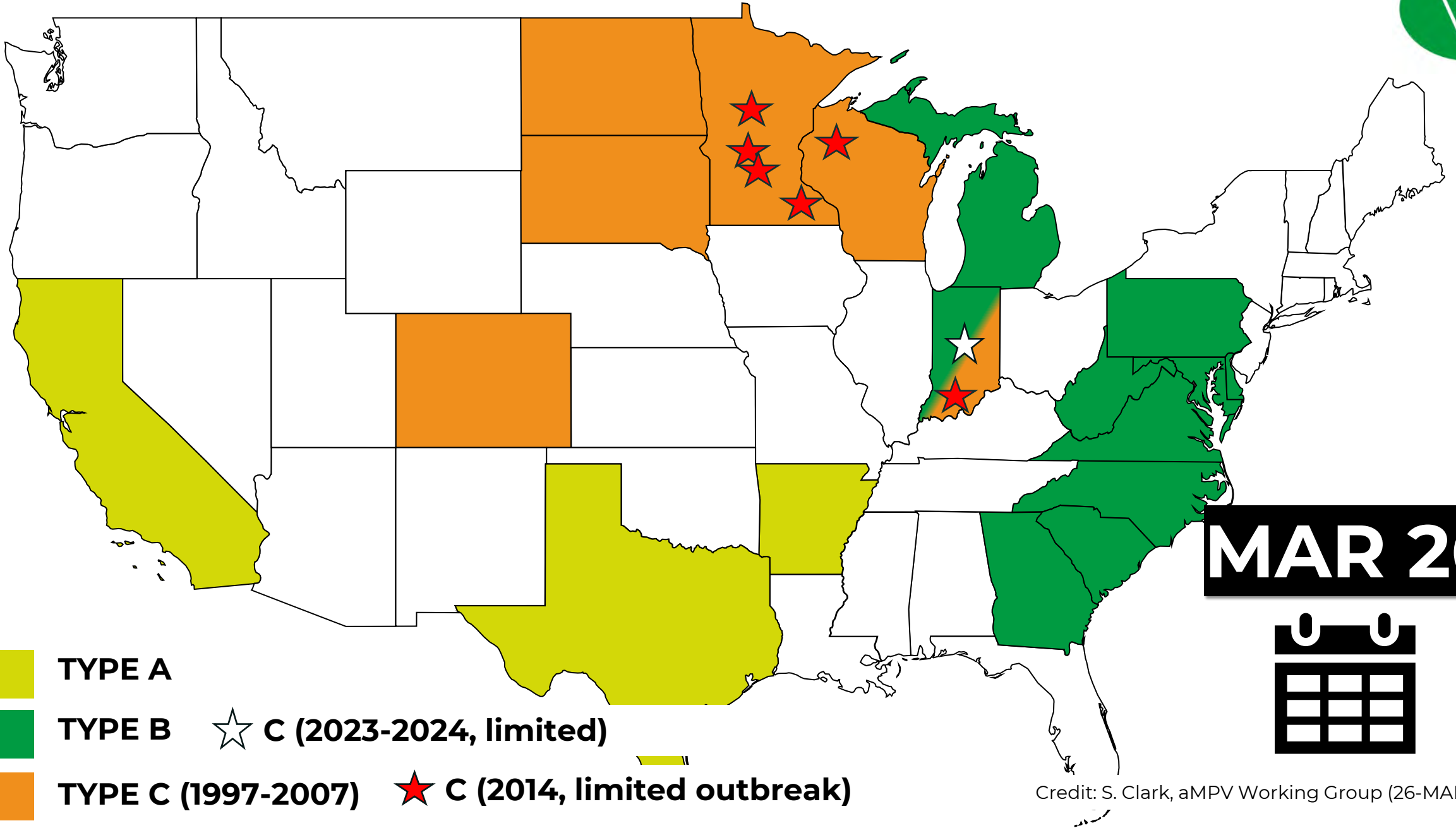







-  TYPE A
-  TYPE B
-  TYPE C (1997-2007)
-  C (2023-2024, limited)
-  C (2014, limited outbreak)

**FEB 29**

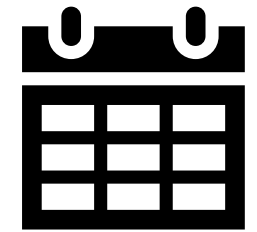


Credit: S. Clark, aMPV Working Group (29-FEB-2024)



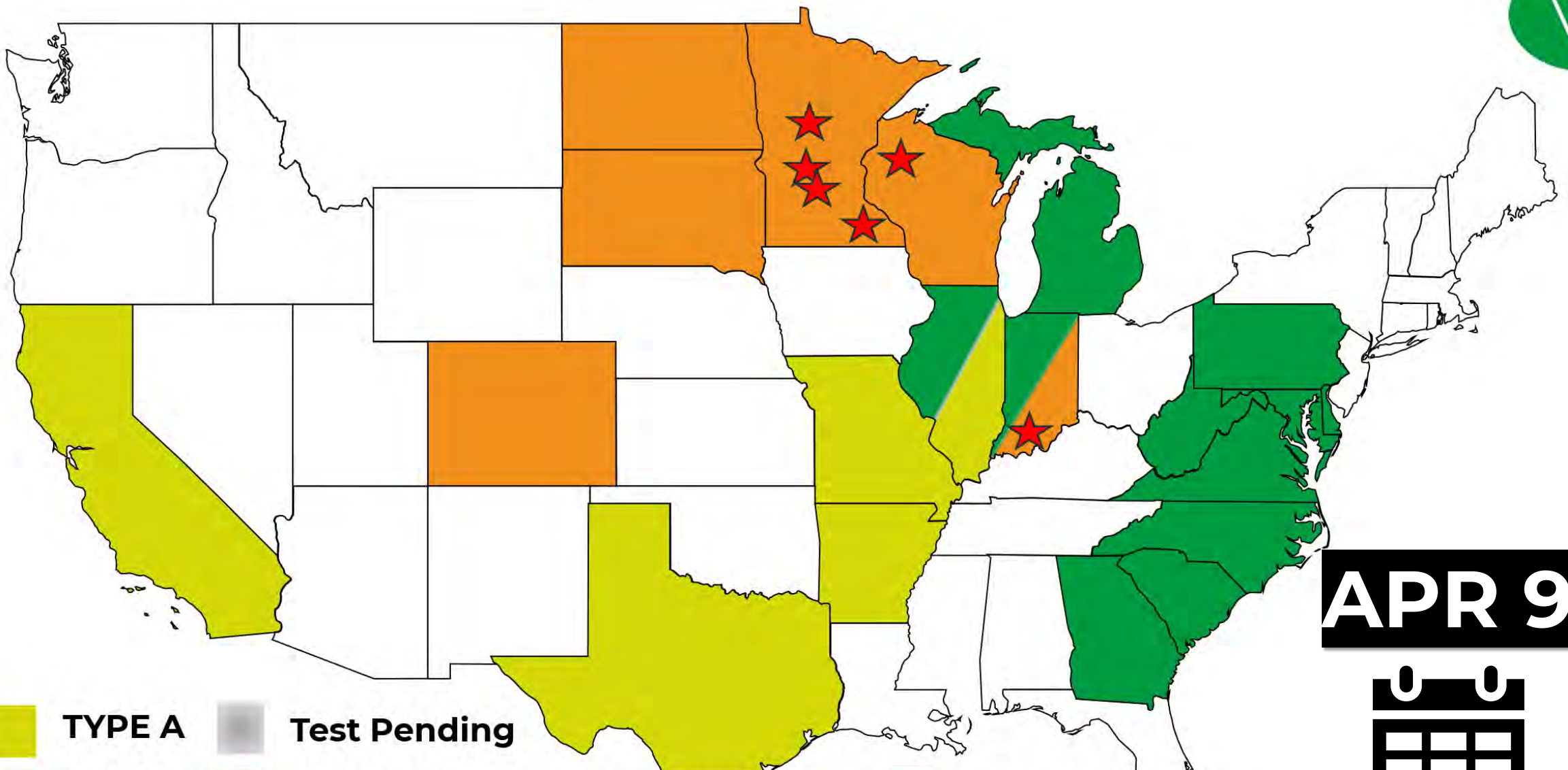
-  TYPE A
-  TYPE B
-  TYPE C (1997-2007)
-  C (2023-2024, limited)
-  C (2014, limited outbreak)

**MAR 26**



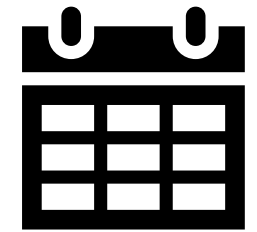
Credit: S. Clark, aMPV Working Group (26-MAR-2024)



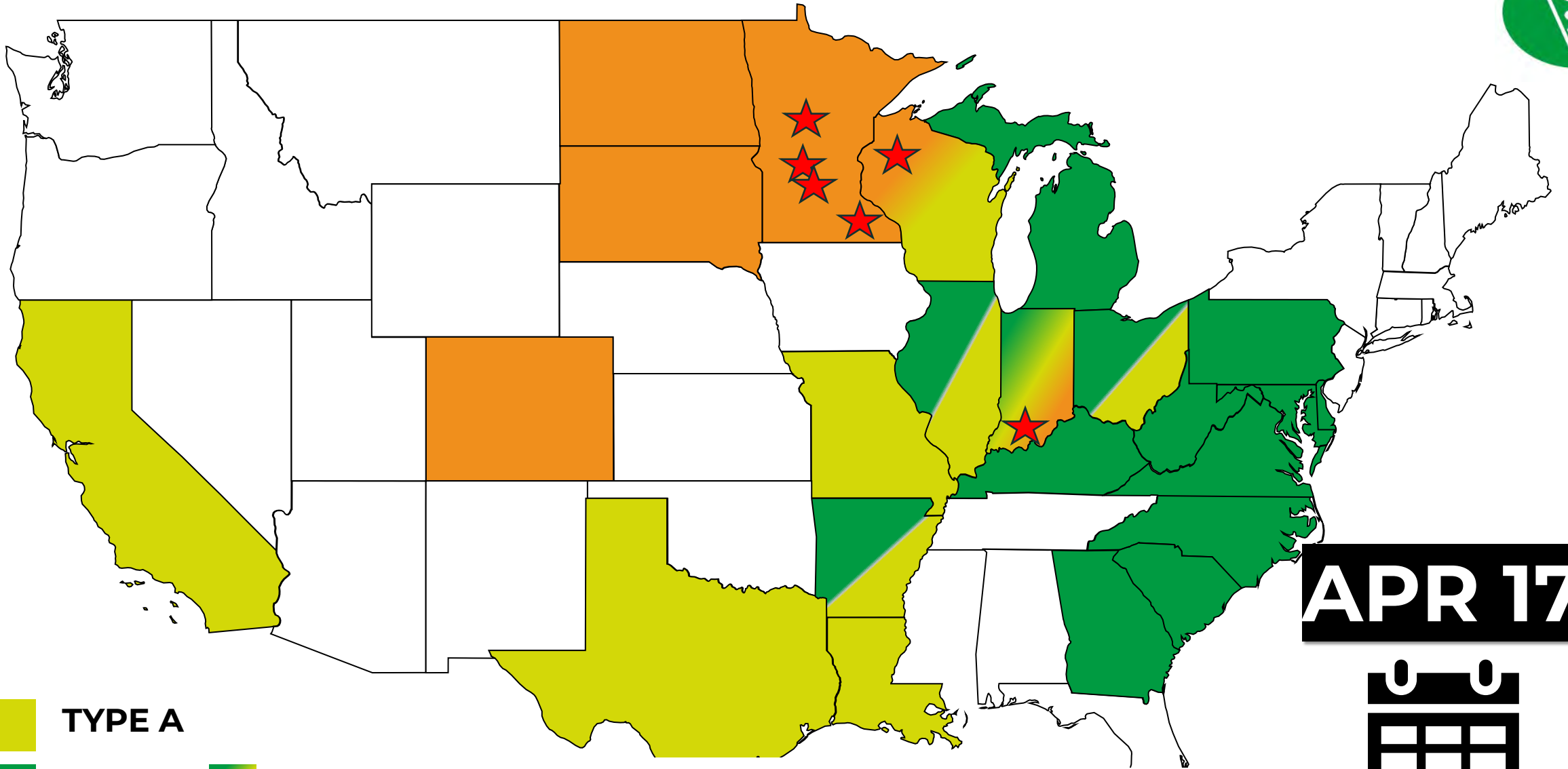







- TYPE A
- TYPE B
- TYPE C (1997-2007)
- Test Pending
- TYPE B (2023); TYPE C (2014, 2023)
- TYPE A; TYPE B
- TYPE C (2014, limited outbreak)

**APR 9**

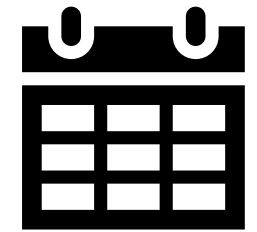


Credit: S. Clark, aMPV Working Group (08-Apr-24f)



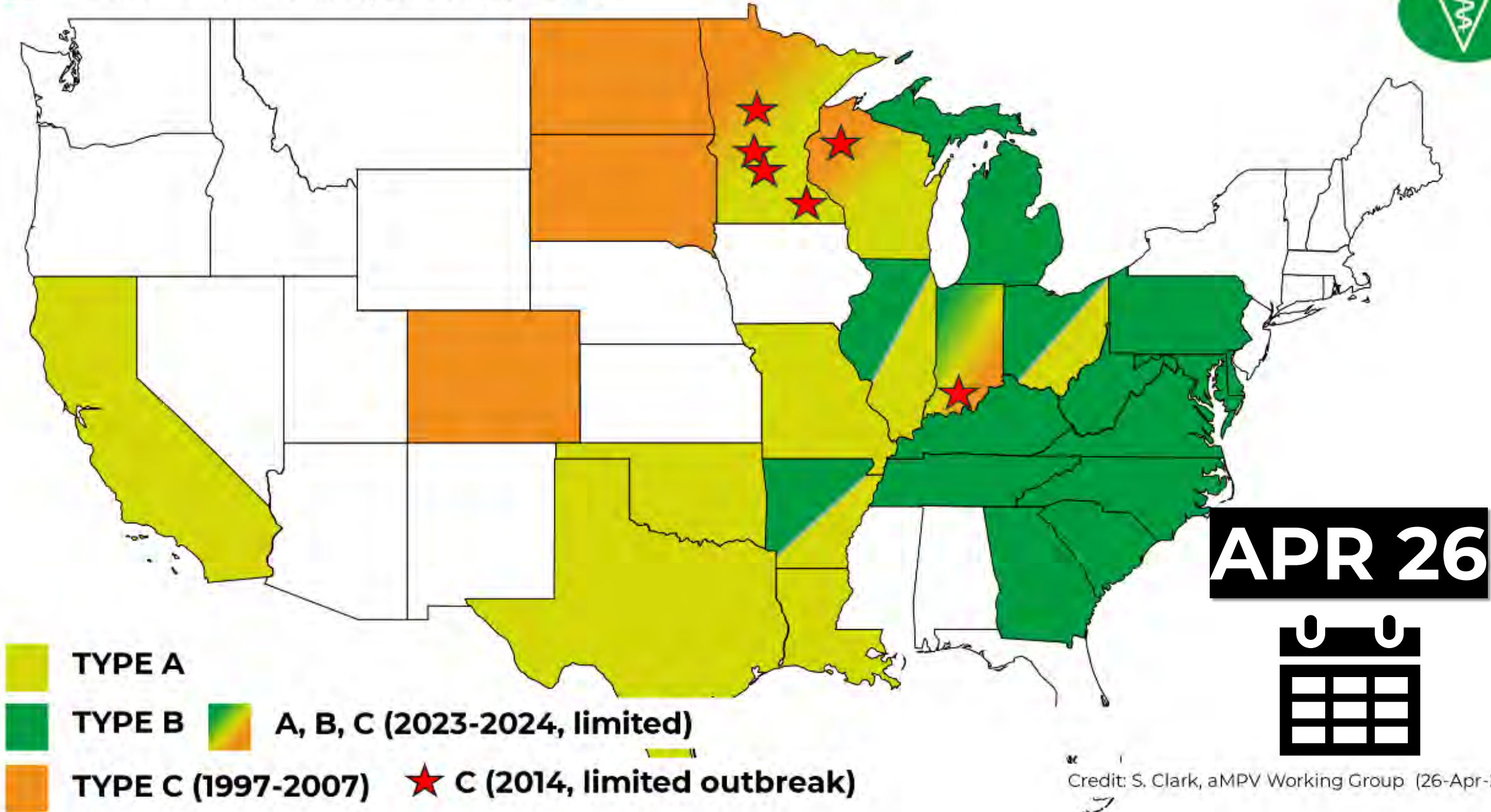
-  TYPE A
-  TYPE B
-  TYPE C (1997-2007)
-  A, B, C (2023-2024, limited)
-  C (2014, limited outbreak)

**APR 17**

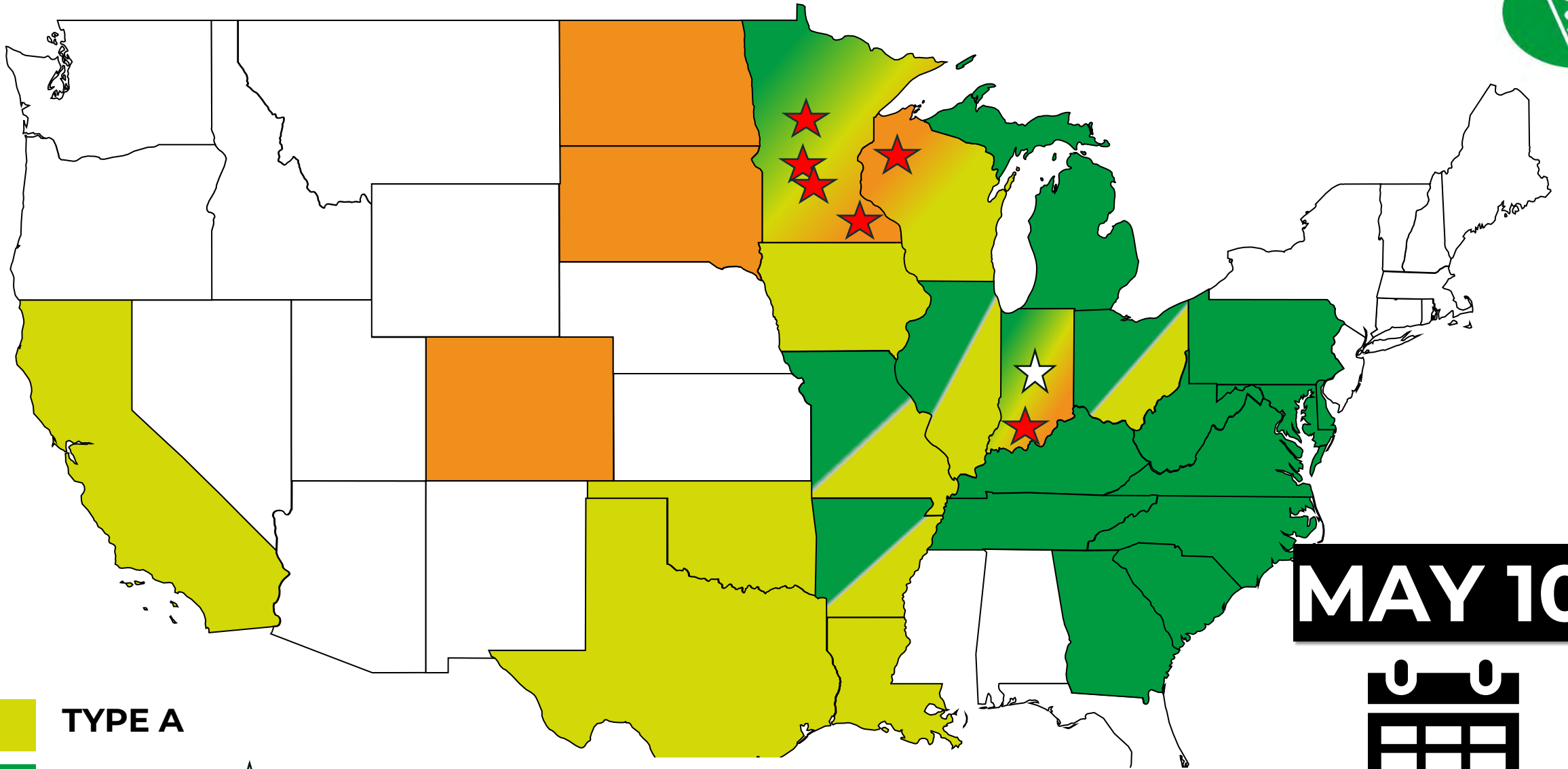


Credit: S. Clark, aMPV Working Group (17 -Apr-24h)

TYPE B confirmed in Ontario, Canada (April 2024)

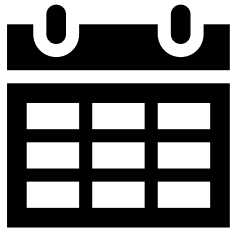


■ TYPE B confirmed in Ontario, Canada (April 2024)



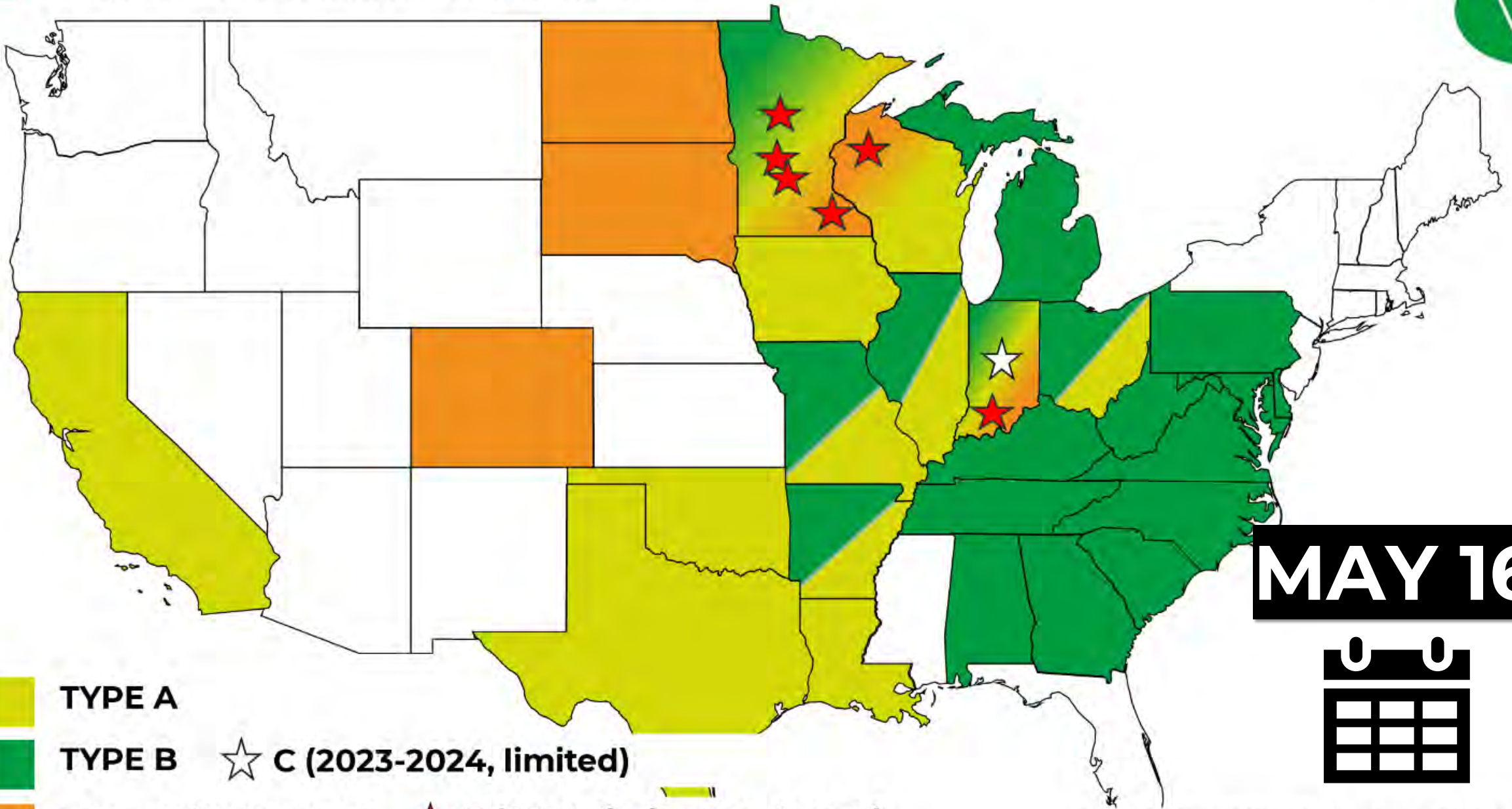
- TYPE A
- TYPE B    ☆ C (2023-2024, limited)
- TYPE C (1997-2007)    ★ C (2014, limited outbreak)

**MAY 10**



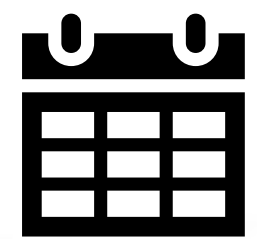
Credit: S. Clark, aMPV Working Group (10-May-24m)

TYPE B confirmed in Ontario, Canada (May 16, 2024)



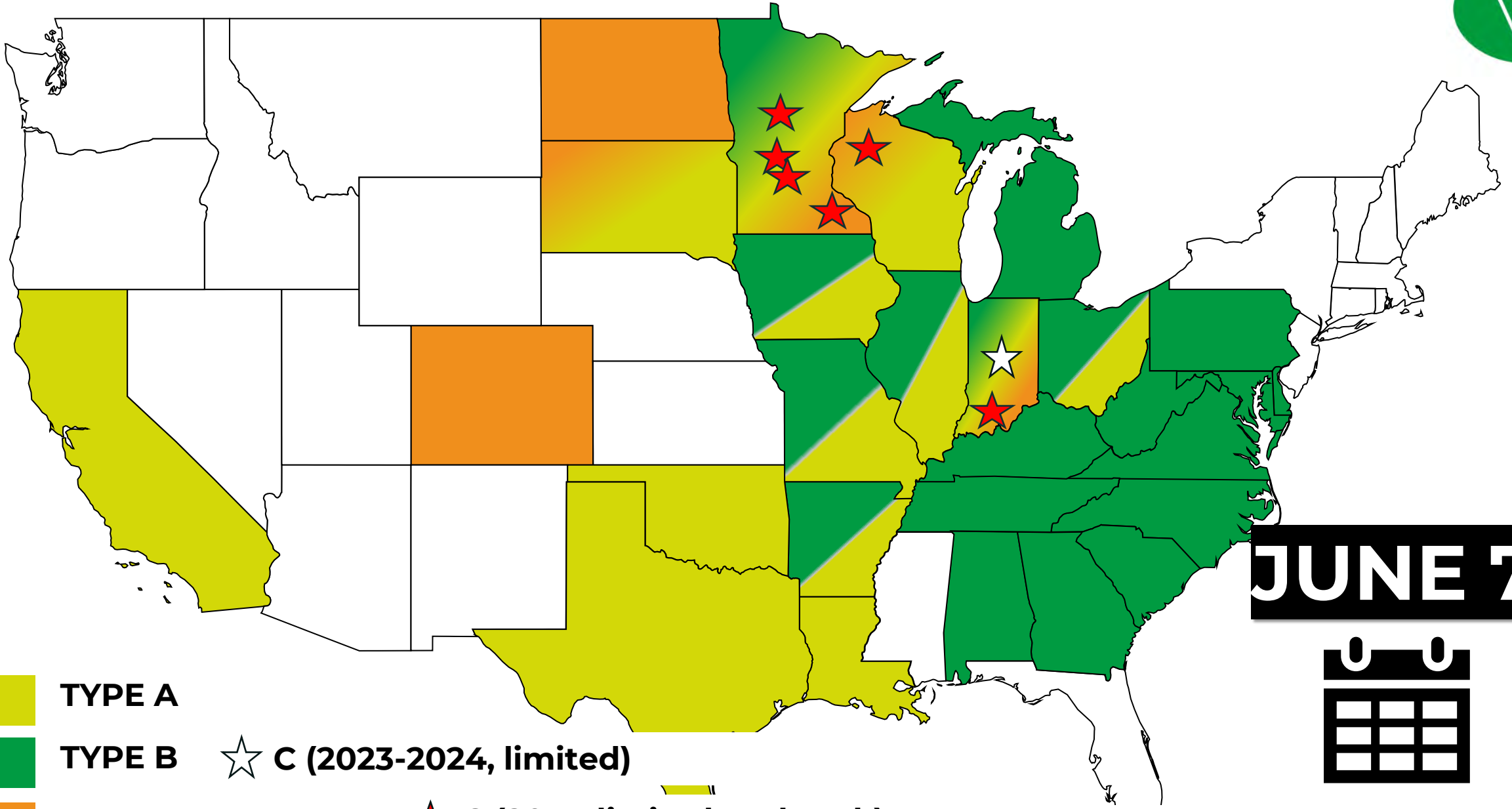
- TYPE A
- TYPE B ☆ C (2023-2024, limited)
- TYPE C (1997-2007) ★ C (2014, limited outbreak)






**MAY 16**



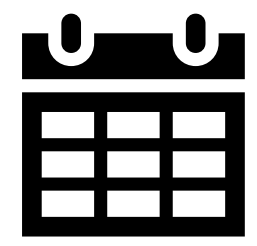
Credit: S. Clark, aMPV Working Group (16 -May-24mn)

TYPE A confirmed in Manitoba (May 2024) and both A and B confirmed in Ontario, Canada (May-June 2024)



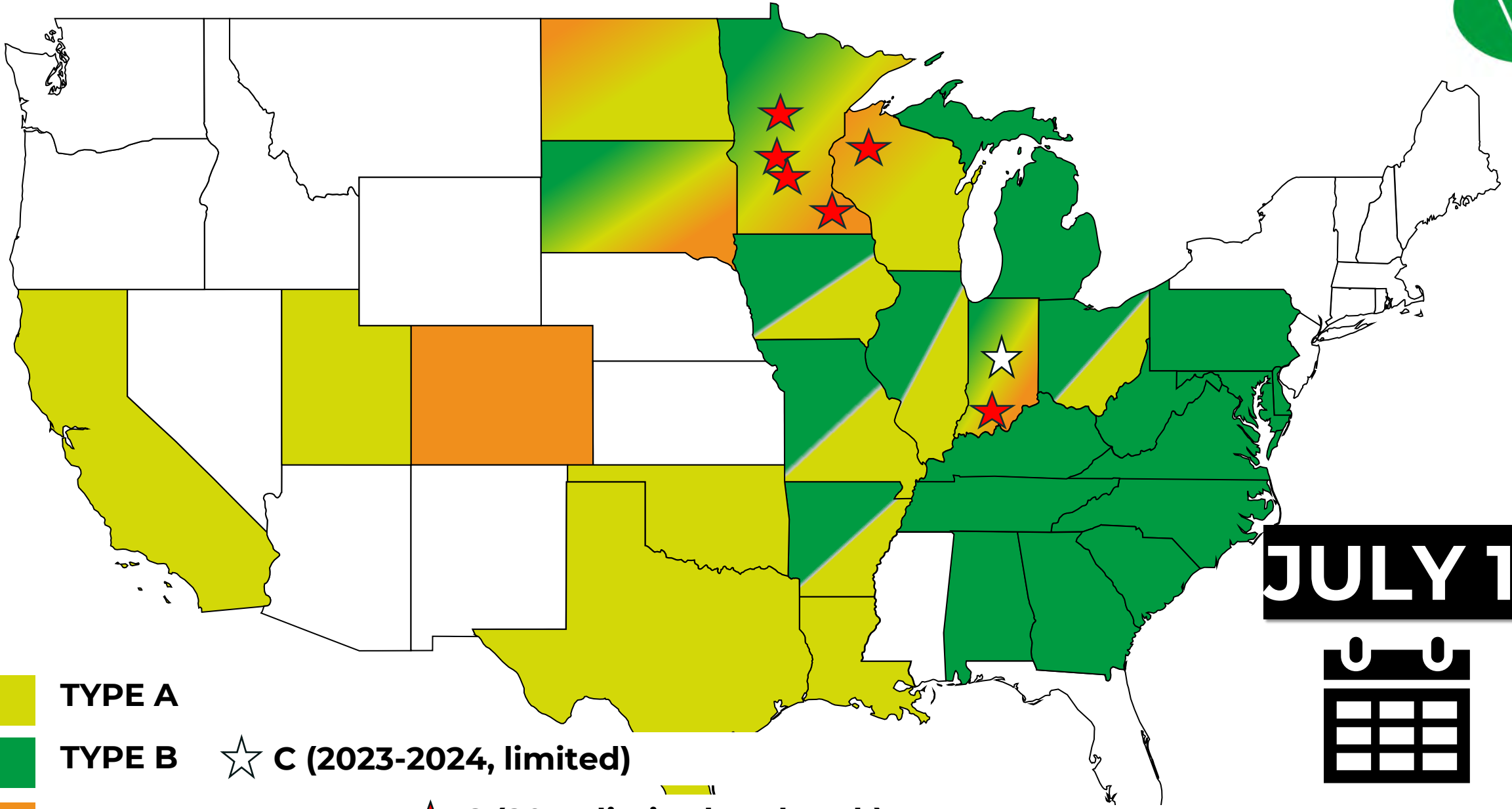
-  TYPE A
-  TYPE B
-  TYPE C (1997-2007)
-  C (2023-2024, limited)
-  C (2014, limited outbreak)

**JUNE 7**



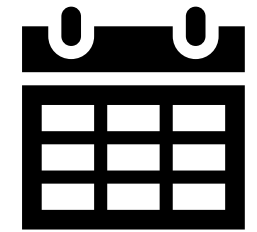
Credit: S. Clark, aMPV Working Group (07-JUN-2024q)

TYPE A confirmed in Manitoba (May 2024) and both A and B confirmed in Ontario, Canada (May-June 2024)



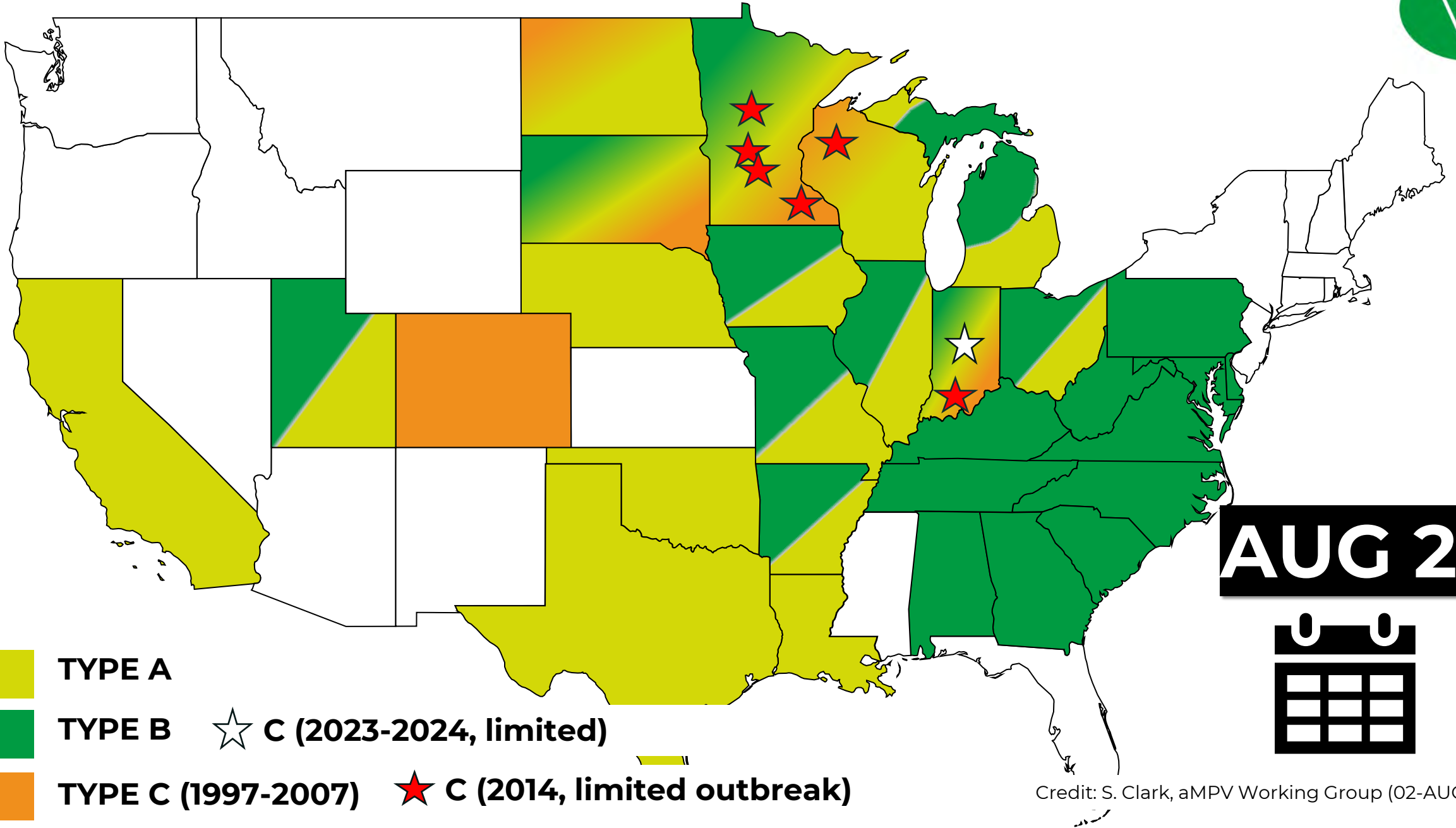
- TYPE A
- TYPE B
- TYPE C (1997-2007)
- C (2023-2024, limited)
- C (2014, limited outbreak)

**JULY 1**



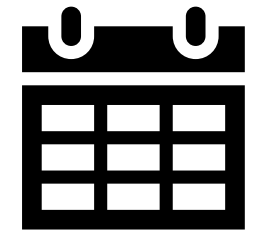
Credit: S. Clark, aMPV Working Group (01-JUL-2024)

TYPE A confirmed in Manitoba (May 2024) and both A and B confirmed in Ontario, Canada (May-June 2024)



- TYPE A
- TYPE B
- TYPE C (1997-2007)
- ☆ C (2023-2024, limited)
- ★ C (2014, limited outbreak)

AUG 2



Credit: S. Clark, aMPV Working Group (02-AUG-2024)





# aMPV Cases, by County, USA: Time-Lapse Animation by GPLN



- Invitation to participate
- Goal: Map USA Cases
- Maintained confidential
- Managed by GPLN
- Please send to [gis@gapf.org](mailto:gis@gapf.org)
  - Date, State, County
  - Chicken/Turkey
  - Subtype (A, B or C).
- Dr. Kathleen Sary or  
Dr. Louise Dufour-Zavala

# January 2024



NVSL (Dr. Torchetti)

In-house real-time RT-PCR (A,B,C); in-house ELISA (A,B,C); VI in support of control efforts, WGS for virus monitoring efforts

Purdue ADDL SIPAC (Drs. G. Burcham & G. Lossie)

Idexx ELISA; AMPV PCR

UMN (Drs. Porter & Voss)

RT-PCR (A,B,C), Idexx ELISA, In-house RT-PCR (C), In-house ELISA (C), Necropsy, Histo, VI, NGS

Whitbeck Lab

BioChek ELISA; Thermofischer RT-PCR (A,B,C)

Contact the specific lab for details.

Necropsy, histopathology, bacteriology, lab investigation & external distribution for aMPV tests.

VI (Virus Isolation)

WGS (Whole Genome Sequencing)

In Situ Hybridization (ISH)

NGS (NextGen Sequencing)

Some labs suggest shipping the entire head, overnight, cold packs, not frozen.

Both, BioChek ART (aMPV) and Idexx ELISA detect A,B, and C.

aMPV Table of Diagnostic Labs and Services, ver. 071024 from aMPV Working Group (Clark)

# AMPV Diagnostics Available



AviServe (Dr. Milos Markis)	RT-qPCR (A,B,C,D); BioChek ELISA; VI
Ceva SSIU lab (Dr. Robert Beckstead)	VI and molecular capabilities
Clemson (Dr.s Lakshmi and Kakani)	Necropsy, Histopathology, RT-PCR (A,B,C), Idexx ELISA
GPLN Georgia (Dr. Louise Dufour-Zavala)	Idexx and BioChek ELISA serology, PCR
ISU (Drs. El-Gazzar & Sato)	Idexx ELISA; qPCR; NGS; VI; Necropsy & Histopathology
Mississippi State University PRDL (Dr. N. Manginsay)	Idexx ELISA serology, RT-PCR (A,B,C)
NCVDLS (Drs. Aziz & Wyss)	Necropsy, Histopathology, Sample Collection & Distribution
NVSL (Dr. Torchetti)	In-house real-time RT-PCR (A,B,C); in-house ELISA (A,B,C); VI in support of control efforts, WGS for virus monitoring efforts
Ohio ADDL (Anne E Parkinson)	Idexx ELISA; PCR
PA-DLS (Drs. Niel & Lighty)	Necropsy; Histopathology; Sample Collection & Distribution; PCR (A,B,C); Idexx ELISA
PDRC (Dr. Holly Sellers)	PCR (A,B,C); RT-PCR (A,B,C); Idexx; BioChek ELISA, VI, Necropsy, Histopathology, Bacteriology
Purdue ADDL SIPAC (Drs. G. Burcham & G. Lossie)	Idexx ELISA; AMPV PCR
SDSU (Dr. Sunil Mor and Tamer Sharafeldin)	Idexx RT-PCR (A,B,C,D); NGS; Necropsy; VI; Idexx ELISA; ISH
UMN (Drs. Porter & Voss)	RT-PCR (A,B,C), Idexx ELISA, In-house RT-PCR (C), In-house ELISA (C), Necropsy, Histo, VI, NGS
University Delaware ADDL (Dr. Ladman)	NVSL RT-PCR (A,B,C); rRT-PCR (A,B); VI
University of Missouri VMDL (Dr. Maria Dashek)	Idexx ELISA; Necropsy; Histopathology; Sample Collection and Distribution; PCR
USDA ARS (Drs. Spackman & Kapczynski)	PCR (A,B); VI
Veterinary Diagnostic Pathology (Drs. Hoerr & Clontz)	Necropsy; Histopathology; Sample Collection & Distribution; ISH
Virginia State Lab (Dr. Hailey Quercia)	Idexx ELISA; Necropsy, Histopathology; Sample Collection & Distribution
Whitbeck Lab	BioChek ELISA; Thermofischer RT-PCR (A,B,C)

# AMPV Successful Virus Isolation



AviServe (Dr. Milos Markis)	RT-qPCR (A,B,C,D); BioChek ELISA; VI
Ceva SSIU lab (Dr. Robert Beckstead)	VI and molecular capabilities
CANADA	VI
ISU (Drs. El-Gazzar & Sato)	Idexx ELISA; qPCR; NGS; VI; Necropsy & Histopathology
PDRC (Dr. Holly Sellers)	PCR (A,B,C); RT-PCR (A,B,C); Idexx; BioChek ELISA, VI, Necropsy, Histopathology, Bacteriology
SDSU (Dr. Sunil Mor and Tamer Sharafeldin)	Idexx RT-PCR (A,B,C,D); NGS; Necropsy; VI; Idexx ELISA; ISH
UMN (Drs. Porter & Voss)	RT-PCR (A,B,C), Idexx ELISA, In-house RT-PCR (C), In-house ELISA (C), Necropsy, Histo, VI, NGS
USDA ARS (Drs. Spackman & Kapczynski)	PCR (A,B); VI
TVMDL	VI

Contact the specific lab for details.

Necropsy, histopathology, bacteriology, lab investigation & external distribution for aMPV tests.

VI (Virus Isolation)

# January – February 2024



- On **January 23**, the National Veterinary Services Laboratories (NVSL) confirmed aMPV **subtype B** in samples from a National Animal Health Laboratory Network (NAHLN) laboratory. These samples originated from **turkeys** and **broilers** in **Virginia** and **North Carolina**.
- Animal & Plant Health Inspection Service (APHIS) also confirmed, on **February 1**, the presence of aMPV **subtype A** in **turkeys** in **California** from samples collected between **November** and **December 2023**.

March 2023  viruses



Article

Geographical Expansion of Avian Metapneumovirus Subtype B: First Detection and Molecular Characterization of Avian Metapneumovirus Subtype B in US Poultry



Article

# Geographical Expansion of Avian Metapneumovirus Subtype B: First Detection and Molecular Characterization of Avian Metapneumovirus Subtype B in US Poultry

Muhammad Luqman, Naveen Duhan , Gun Temeeyasen, Mohamed Selim, Sumit Jangra and Sunil Kumar Mor 


Animal Disease Research and Diagnostic Laboratory, Department of Veterinary and Biomedical Sciences, College of Agriculture, Food & Environmental Sciences, South Dakota State University, Brookings, SD 57007, USA; muhammad.luqman@sdstate.edu (M.L.); naveen.duhan@outlook.com (N.D.); gun.temeeyasen@sdstate.edu (G.T.); mohamed.selim@sdstate.edu (M.S.); sumit.jangra@sdstate.edu (S.J.)

\* Correspondence: sunil.mor@sdstate.edu



SOUTH DAKOTA  
STATE UNIVERSITY

**Abstract:** Avian metapneumovirus (aMPV), classified within the *Pneumoviridae* family, wreaks havoc on poultry health. It typically causes upper respiratory tract and reproductive tract infections, mainly in turkeys, chickens, and ducks. Four subtypes of AMPV (A, B, C, D) and two unclassified subtypes have been identified, of which subtypes A and B are widely distributed across the world. In January 2024, an outbreak of severe respiratory disease occurred on turkey and chicken farms across different states in the US. Metagenomics sequencing of selected tissue and swab samples confirmed the presence of aMPV subtype B. Subsequently, all samples were screened using an aMPV subtype A

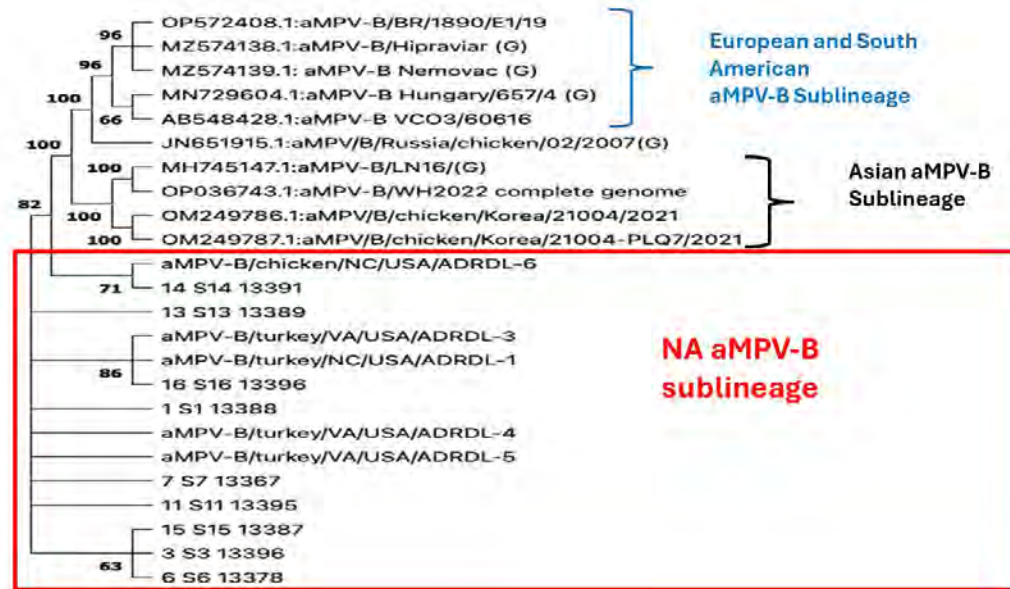
and Sunil Kumar Mor   
Department of Veterinary and Biomedical Sciences, College of Agriculture, Food & Environmental Sciences, South Dakota State University, Brookings, SD 57007, USA; gun.temeeyasen@sdstate.edu (G.T.);

*Pneumoviridae* family, wreaks havoc on poultry health. It typically causes upper respiratory tract infections, mainly in turkeys, chickens, and ducks. Four subtypes of AMPV (A, B, C, D) and two unclassified subtypes have been identified, of which subtypes A and B are widely distributed across the world. In January 2024, an outbreak of severe respiratory disease occurred on turkey and chicken farms across different states in the US. Metagenomics sequencing of selected tissue and swab samples confirmed the presence of aMPV subtype B. Subsequently, all samples were screened using an aMPV subtype A (6%) were found to be positive for aMPV. The genomes were assembled, five from the outbreak and one from the reference library. In addition, all six sequences were compared to the reference sequences. In addition, all six sequences were compared to these two reference strains, and the results showed a high degree of similarity across the genome, with maximum identity of 99.29% to 99.98% at position 1000. A change in polarity of the G protein may have occurred, which differentiated it from other subtypes. This study highlights the need for further research on the epidemiology, pathogenesis, and evolutionary dynamics of aMPV subtype B in US poultry.

Keywords: avian metapneumovirus; respiratory disease; poultry; NGS; phylogeny



# Detailed analysis of aMPV-B sequences from current outbreak in US poultry with commercially available vaccines and field strains across the world (Sunil Mohr, et al, 2024)

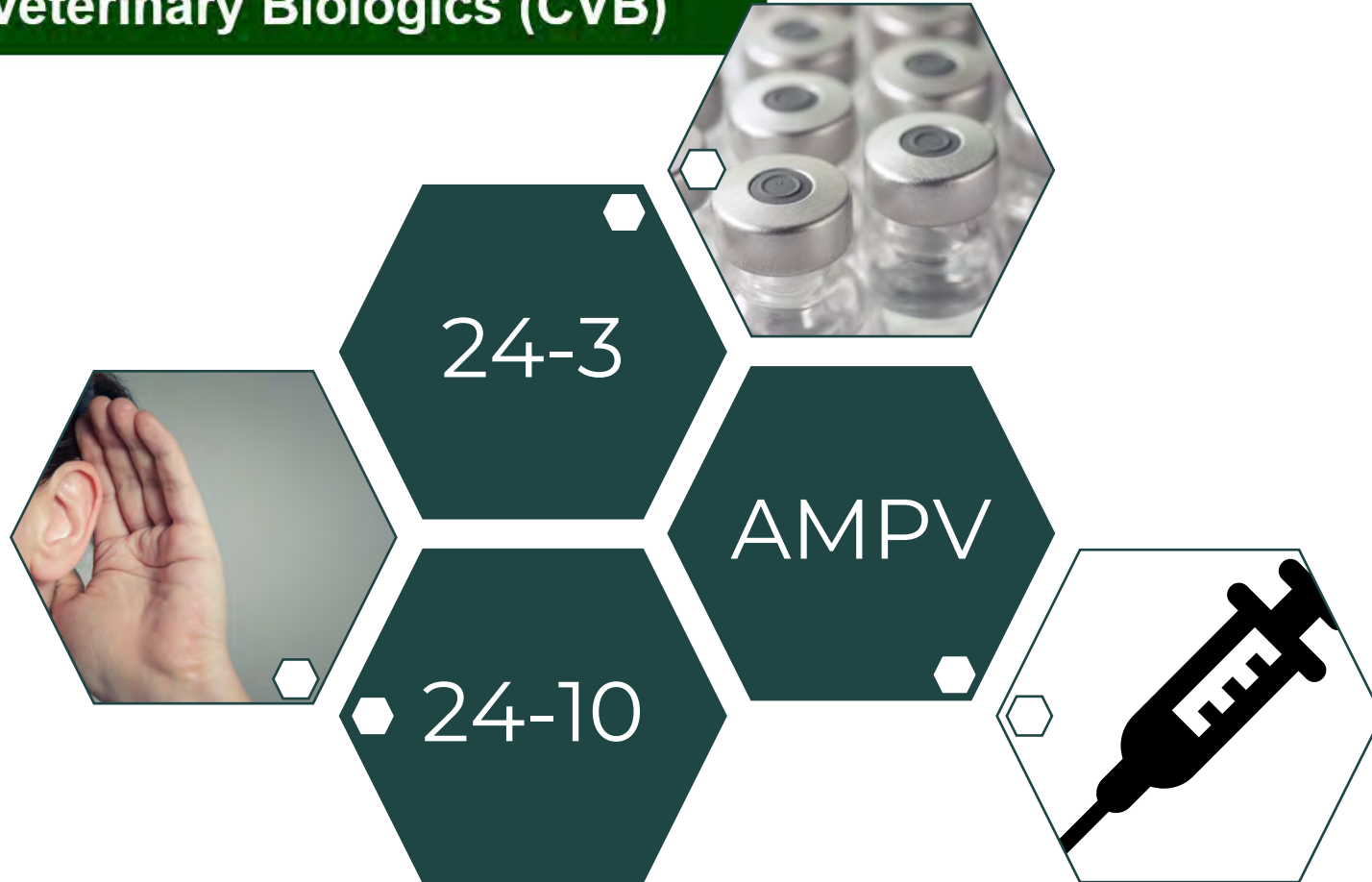


	G protein identity %		Amino acid substitutions
	nucleotide	Amino acids	
Hungary	97	94.6	24
VCO 60616	97	94.6	24
VCO/50 (Vaccine)	97	94.6	26
Nemovac (Vaccine)	97	94.2	25
Hipraviar (Vaccine)	96	93.2	26
Russia	97	94	27
China	96	91.7	36
Korea	95	90	44





Center for Veterinary Biologics (CVB)





# (Feb 5, 2024) USDA-CVB notice #24-03: CVB Notice: Veterinary Vaccines and Veterinary Diagnostic Products Targeting Avian Metapneumovirus (all subtypes)



United States Department of Agriculture

Animal and Plant  
Health Inspection  
Service

Veterinary Services

Center for Veterinary  
Biologics

1920 Dayton Avenue  
PO Box 844  
Ames, IA 50010

(515) 337-6100

## CENTER FOR VETERINARY BIOLOGICS NOTICE NO. 24-03

**TO:** Biologics Licensees, Permittees, and Applicants  
Directors, Center for Veterinary Biologics  
Veterinary Services Leadership Team

**FROM:** Geetha Srinivas  
Director

**GEETHA  
SRINIVAS**

Digitally signed by  
GEETHA SRINIVAS  
Date: 2024.02.05  
16:41:28 -06'00'

**SUBJECT:** Veterinary Vaccines and Veterinary Diagnostic Products Targeting  
Avian Metapneumovirus (all subtypes)

### I. PURPOSE

The purpose of this Notice is to inform interested parties that the Center for Veterinary Biologics (CVB) is accepting veterinary biologics product license and import permit applications for veterinary biological products used to vaccinate for avian metapneumovirus (aMPV) and veterinary diagnostic products for aMPV. Products targeting subtypes A and B are of greatest interest but given the current status of aMPV in the United States, CVB will accept information related to all

# (Jun 11, 2024) CVB Notice No. 24-10



United States Department of Agriculture

## CENTER FOR VETERINARY BIOLOGICS NOTICE NO. 24-10

Animal and Plant  
Health Inspection  
Service

Veterinary Services

Center for Veterinary  
Biologics

1920 Dayton Avenue  
PO Box 844  
Ames, IA 50010

(515) 337-6100

**TO:**

Biologics Licensees, Permittees, and Applicants  
Directors, Center for Veterinary Biologics  
Veterinary Services Leadership Team

**FROM:**

Geetha B. Srinivas, DVM, PhD.  
Director, Center for Veterinary Biologics

**SUBJECT:**

Veterinary Vaccines and Veterinary Diagnostic Products Targeting  
Avian Metapneumovirus (all subtypes)

**GEETHA  
SRINIVAS**

Digitally signed by  
GEETHA SRINIVAS  
Date: 2024.06.11  
13:20:18 -0500

### I. PURPOSE

This Notice supersedes Notice 24-03. The purpose of this Notice is to inform interested parties that the Center for Veterinary Biologics (CVB) is accepting biologics product license and import permit applications limited to two vaccine products/developmental materials:

These are defined as domestically produced, similar to autogenous products and strains. However,

26-July



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## Avian Metapneumovirus vaccine Special Import Permit

HIPRA is a European biotechnological pharmaceutical company focused on prevention for animal and human health, offering a broad range of highly innovative vaccines. HIPRA has a solid international presence in more than 40 countries (including Canada and Mexico) with its own subsidiaries.

Thanks to the experience acquired over more than 50 years working in the field of vaccines, HIPRA has a portfolio of 108 vaccines based on different technological platforms. The R&D teams are engaged in research involving more than 300 different pathogens.

HIPRA performs and monitors all the production stages of its services and biological products in its own facilities. In the last 10 years, HIPRA has launched more vaccines for animal health than any other company in Europe, with a total of 21 vaccines.

veterinary industry developing vaccines for

Coccidiosis,

Due to the emergency in the **United States**, the **CVB-USDA** has granted a **Special Import Permit for the HIPRA vaccine against Avian Metapneumovirus: HIPRAVIAR® TRT** on July 26<sup>th</sup>, 2024 (No. VB-283390).

In the poultry industry, Avian Metapneumovirus, Salmonella, over the last 16 years, HIPRA has been providing them worldwide without interruption. In live birds, EVALON® has been used in the Avian Metapneumovirus. This disease gained from 15-20% worldwide (both live and dead) MPV vaccine, sized

[www.aphis.usda.gov/veterinary-biologics/avian-metapneumovirus-questions-answers](https://www.aphis.usda.gov/veterinary-biologics/avian-metapneumovirus-questions-answers)



## Latest News – August 20, 2024

### Popular Topics section added to CVB site

A new section named "Popular Topics" is now available on the CVB site (<https://www.aphis.usda.gov/veterinary-biologics>) – see screen below.

This section includes links to:

- [Newly Published Information](#)
- [Avian Metapneumovirus \(aMPV\) frequently asked questions page \(FAQ\)](#).

# USDA CVB: Avian Metapneumovirus Questions and Answers

Last Modified: August 20, 2024



## Avian Metapneumovirus Questions and Answers

*Last Modified: August 20, 2024*

- There is an immediate need in the field. How will CVB Notice 24-10 speed the process for getting aMPV products in the field?

The notice allows CVB to use a risk-based approach to meet an emergent need in the field. For the first time, CVB is authorizing the use of experimental autogenous vaccine (inactivated) to expedite product availability. The CVB is allowing import of Master Seed (aMPV virus) and Master Cell Stock (cells) for domestic production of live products to speed manufacturing. CVB will perform concurrent testing of Master Seeds and Master Cell Stocks to save time on product availability. May also provide some flexibility on using some existing data to speed up the licensure process.

# USDA CVB: Avian Metapneumovirus Questions and Answers



Last Modified: August 20, 2024

- Flocks with aMPV have secondary infections causing morbidity and mortality and some flocks are experiencing drops in egg production. Has CVB considered import of live vaccines?

Historically, CVB has not allowed import of live vaccines due to the risk, especially for poultry. For aMPV, CVB performed a thorough risk assessment for live vaccines manufactured in other countries, which is a first for CVB. To date, CVB has not issued any import permits for live vaccines.

# USAHA Oct 10-17, 2024



## UNITED STATES ANIMAL HEALTH ASSOCIATION [October 10-17, 2024]; [Nashville, Tennessee]

RESOLUTION NUMBER:

SOURCE:

SUBJECT MATTER: Avian Metapneumovirus (aMPV) Live Vaccine for Poultry

### BACKGROUND INFORMATION:

Avian Metapneumovirus (aMPV) – also known as Turkey Rhinotracheitis, Avian Pneumovirus, Avian Rhinotracheitis, or Swollen Head Syndrome – is an acute respiratory virus of turkeys, meat chickens, egg-laying chickens, breeding stock. It can cause a respiratory infection which may result in high mortality in flocks, as well as reproductive disorders potentially causing a permanent decrease in egg production. Since its identification in Fall 2023, the disease has spread to 29 states, and has had a major impact on poultry production in the United States.

The United States poultry industry has an urgent need for modified-live subtype A or B vaccines for both chickens and turkeys. Published peer-reviewed scientific studies demonstrate the cross-protection using either A and B subtype modified-live vaccines. Importation of internationally approved commercial modified-live vaccines via CVB Notice No. 24-03 would help fill this urgent need of the poultry industry. Inactivated vaccines alone are impractical and not suitable for all types of production. Some United States laboratories have isolated subtype B virus in turkeys and chickens, but the necessary regulatory pathway to develop a vaccine will require 4 to 6 years.

USAHA urges USDA CVB approve  
Avian Metapneumovirus



# Introduction and Spread of Avian Metapneumovirus in the United States

## Impact on Poultry

- AMPV is affecting **all** categories of poultry, including turkeys, broiler chickens, egg layers, and breeder poultry. Among these, **turkeys are the most significantly impacted.**
- **Turkey breeders** are experiencing egg production declines ranging from **20% to 100%**, lasting 2 to 4 weeks. This decrease in egg production is leading to a national shortage of poults. In **commercial** turkey flocks, mortality rates can be severe, approaching **100%**, with clinical disease persisting for up to three weeks.
- **Broiler breeders** show a moderate reduction in egg production of **5% to 10%**, while **broiler** mortality is relatively **mild**, with recovery occurring within 7 to 10 days.
- The disease in **egg-laying** chickens is less severe and likely **underdiagnosed.**
- **Secondary** infections, including *Escherichia coli*, cholera, and *Mycoplasma gallisepticum*, complicate the clinical disease in all poultry species.



# Needs: Vaccination



**The poultry industry urgently requires both live and inactivated vaccines for Avian metapneumovirus (aMPV) subtypes A and B for both chickens and turkeys.**

Inactivated vaccine usage is limited to the protection of breeders and egg laying flocks against disease resulting in poor egg quality and decreased egg production.

For optimum protection, global studies and experience has shown that inactivated vaccines must be primed with live vaccine administration.

Inactivated vaccines are not practical or effective for commercial meat turkeys or broilers.

There is documented cross-protection using either A or B subtype vaccines.



## USAHA

## NAHLN/NVSL

- “Emerging/re-emerging diseases ... Industry suggests that **wild bird samples already collected** for HPAI surveillance be used to look for other possible emerging diseases, such as **aMPV**, to elucidate virus introduction and possible epi links.”

# Needs Recognized by aMPV Working Group



USDA needs to appreciate the rapid spread of AMPV throughout the USA, both A and B subtypes were confirmed in California and NC in January 2024 and since spread to most all poultry producing states in 4-months! Within the past 1-week states and one country confirmed include, Tennessee, Kentucky and Minnesota, Oklahoma, and Canada. It has quickly spread infecting turkeys and broiler chickens and egg layer chickens and breeder poultry.

Urgent need for both live and killed, subtype A and B, both chicken and turkey, vaccines! The quickest opportunity appears to be the importation of ex-US commercial vaccines via CVB Notice No. 24-03. Killed vaccines alone are not practical or suitable for commercial turkey and broiler chicken birds. US labs have isolated subtype B virus from turkeys and chickens, but the necessary passages and regulatory path will require 4 to 6 years for a USDA approved live vaccine. Killed autogenous vaccines can be made available in a shorter timeline but will be limited to protecting broiler breeders and turkey breeders and egg layers from egg production losses and bird mortality. Meat birds urgently need live vaccine options too.

The quickest opportunity [was] to be the importation of ex-US commercial vaccines via CVB Notice No. 24-03 [until it was superceded by CVB Notice No. 24-10 and denying the importation of any live vaccines].

**Wild bird surveillance:** the introduction of AMPV has not been confirmed. Wild birds might be a source of spread of infection or might represent the introduction of the first A and B commercial poultry infections. USDA National Wildlife Services has systematically been collecting samples of hunter harvested waterfowl to monitor for HPAI. It's understood that these historic samples are archived and available for research. Proposals could be accepted to evaluate these samples for AMPV by date and location. Also recently announced that National Wildlife Services Advisory Committee: Intent To Reestablish.



Photo Credit: Summer Lanier (2024)



***Thank you to the aMPV  
Working Group!***

