



# Cervid TB Testing using DPP

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WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION

May 31, 2023

# Who can TB Test in Wisconsin?

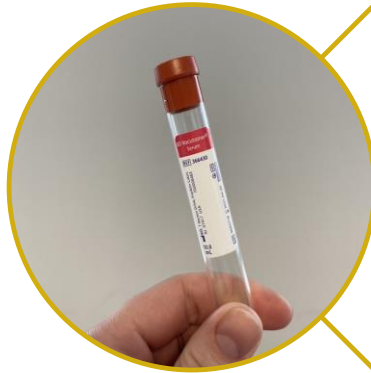
Veterinarians with a:

- DVM/VMD Degree
- Wisconsin Veterinary License
- USDA Accredited – Category 2

that have completed Tuberculosis Certification within the last 5 years.



# Additional Steps for Cervid TB Testing Certification



## Serologic TB Testing

- Self-complete this presentation



## Single Cervical TB Testing

- Schedule training with your District Veterinarian



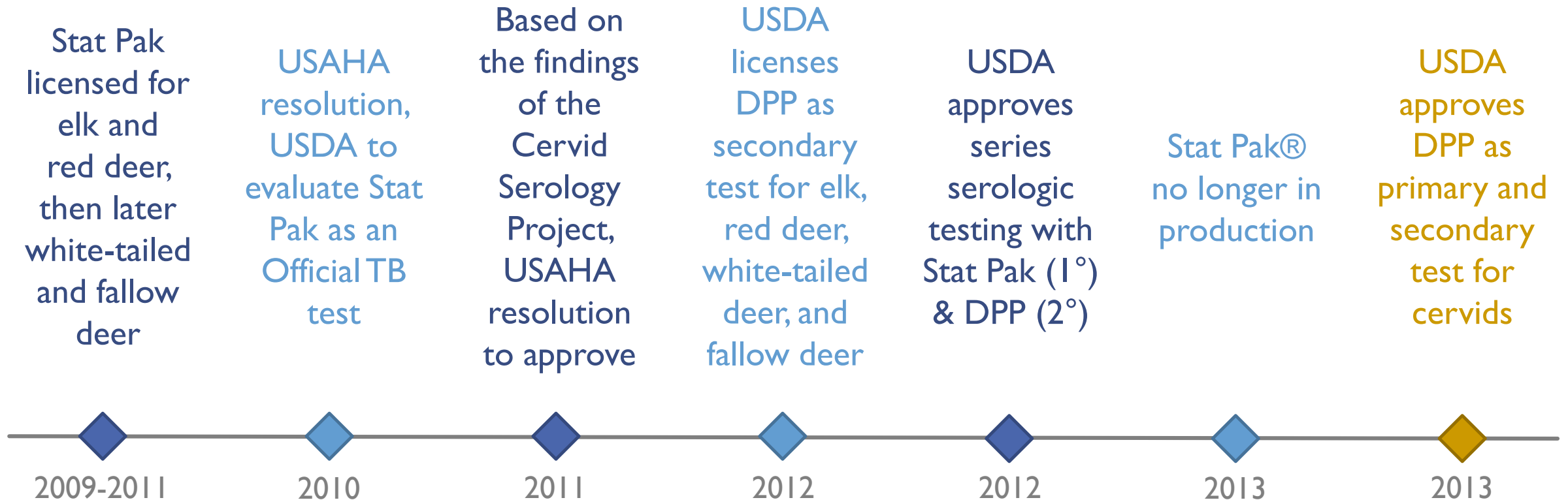
# Test Definitions

**Serologic Test:** A blood test to detect the presence of antibodies against an organism

**DPP:** Chembio DPP VetTB Assay for Cervids, current serologic TB test available



# Historical changes in approved serologic tests





# Cervid Serologic Project

*Research Article*

## **Evaluation of Serodiagnostic Assays for *Mycobacterium bovis* Infection in Elk, White-Tailed Deer, and Reindeer in the United States**

**Jeffrey T. Nelson,<sup>1</sup> Kathleen A. Orloski,<sup>2</sup> Audra L. Lloyd,<sup>1</sup> Mark Camacho,<sup>3</sup> Mark A. Schoenbaum,<sup>2</sup> Suelee Robbe-Austerman,<sup>1</sup> Bruce V. Thomsen,<sup>1</sup> and S. Mark Hall<sup>1</sup>**

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Received 6 February 2012; Accepted 11 April 2012

In 2011, the United States Department of Agriculture conducted a project in which elk (*Cervus elaphus* spp.), white-tailed deer (WTD) (*Odocoileus virginianus*), and reindeer (*Rangifer tarandus*) were evaluated for the presence of *Mycobacterium bovis* (M. bovis) using a variety of serologic assays.

- Evaluated ChemBio CervidTB DPP assay
- 1,783 cervids tested
  - White-tailed deer (WTD)
  - Elk
  - Reindeer

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3389722/>



# Compared Series Specificity

|                 | SCT/CCT (95% CI)          | Stat Pak/DPP (95% CI)     |
|-----------------|---------------------------|---------------------------|
| <b>Elk*</b>     | <b>90.4%</b> (87.4 –92.9) | <b>100%</b> (98.3 –100.0) |
| <b>WTD*</b>     | <b>87.1%</b> (84.5-89.4)  | <b>99.3%</b> (96.7 –99.3) |
| <b>Reindeer</b> | Not available             | <b>98.4%</b> (95.3 –99.7) |

*\*The Stat-Pak/DPP results are significantly different from the SCT/CCT results,  $p < 0.05$*



2013



Industry **concerns** with the number positive DPP tests

2014



**Cut-off points** based on optical density established

| Current species-specific OD cut-offs: |     |
|---------------------------------------|-----|
| White-tailed deer, red deer, and elk  | 500 |
| Reindeer and fallow deer              | 200 |
| Mule and sika deer*                   | 200 |

*\* pilot program participants only, not validated for these species*





# DPP VetTB Assay for Cervids



Tests conducted at National Veterinary Services Laboratory (NVSL) in Ames, IA

- Rapid immunochromatographic, lateral-flow
- Detects antibodies to *Mycobacterium bovis* and *Mycobacterium tuberculosis*
- **Gold-conjugated** antibody binding protein
- Can repeat > 30 days
- **Specificity: 99.8%, Sensitivity: 80%\***

\* at cutoff value = 500 for WTD



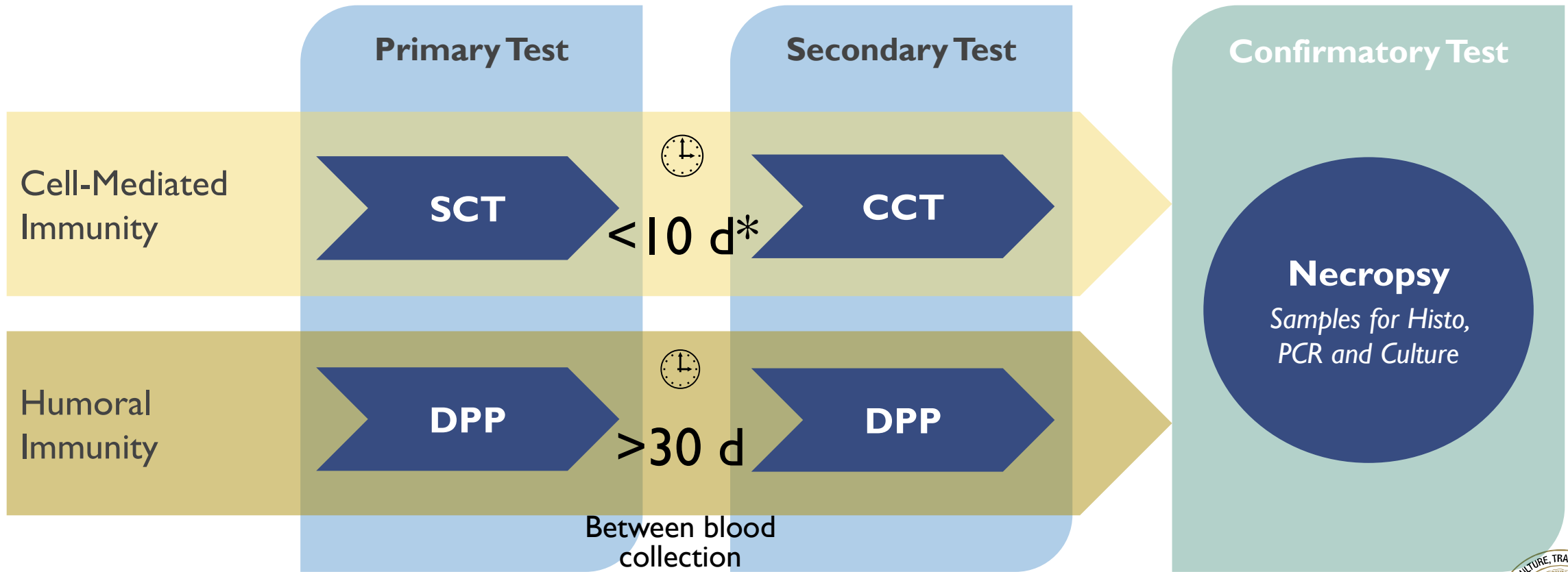
# Why Serologic Testing?

When compared to intradermal testing:

- Comparable sensitivity and specificity
- Minimizes need for recaptures
- Limits injuries related to restraint
- May have greater ability to detect TB-infected cervids
- Less cross-reactivity with other *Mycobacteria species*



# Separate Testing Series



\* CCT injection must occur within 10 days following SCT injection or more than 90 days following SCT injection.



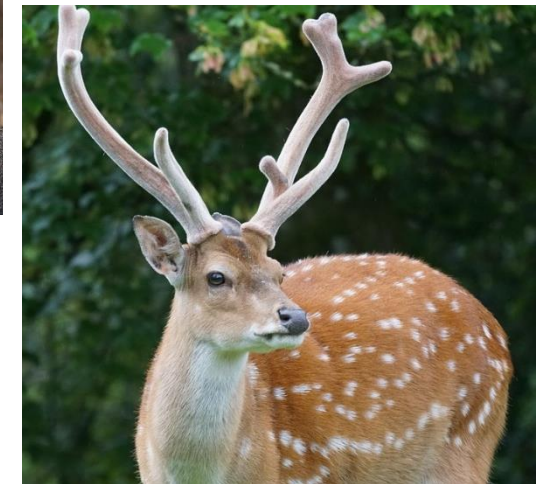
# DPP is validated for use in these species:

- Elk
- Red deer
- White-tailed deer
- Fallow deer
- Reindeer



# Pilot Project: Mule & Sika deer

- DPP not validated for these species
- USDA APHIS Veterinary Services pilot project
  - Evaluate the effectiveness of DPP testing in Mule deer and Sika deer
- Contact DATCP if interested in participating



[https://www.aphis.usda.gov/animal\\_health/animal\\_diseases/tuberculosis/downloads/announcement-dpp-for-mule-sika.pdf](https://www.aphis.usda.gov/animal_health/animal_diseases/tuberculosis/downloads/announcement-dpp-for-mule-sika.pdf)



# Before Collecting Samples

1. Review sample collection guidelines
2. Prepare shipping materials
3. Check with destination State
  - Not all states accept DPP results





# National Veterinary Services Laboratory

- Only approved laboratory for DPP testing
- Testing and supplies must be prepaid
- DPP Test: \$12/sample, no accession fee (2023)
- Set up an account or include a check

Accounts: (515) 337-6200

[NVSL\\_concerns@usda.gov](mailto:NVSL_concerns@usda.gov)

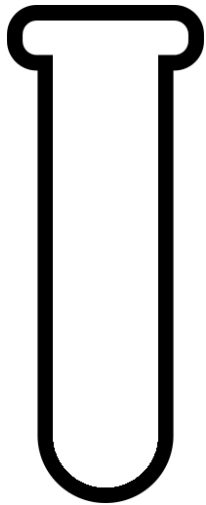


# DPP Serum Submission Kits

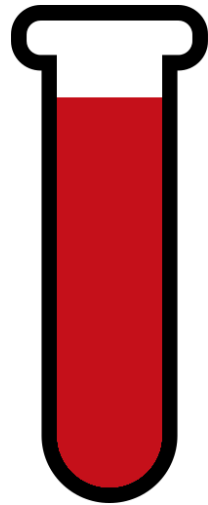
- NVSL offers submission kits
  - \$42.50 each
  - Includes shipping both directions
  - Or use your own shipping materials
- Kit Contains:
    - Shipping instructions
    - Ice pack
    - VS Forms 10-4 and 10-4A
    - Prepaid shipping label
    - Shipping container and materials
    - Tube boxes (holds a total of 80 10ml tubes)



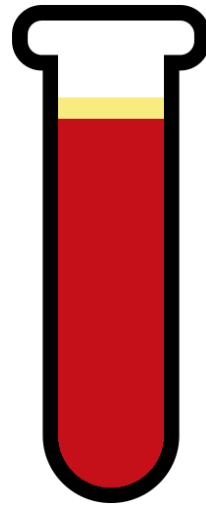
# Sample Collection



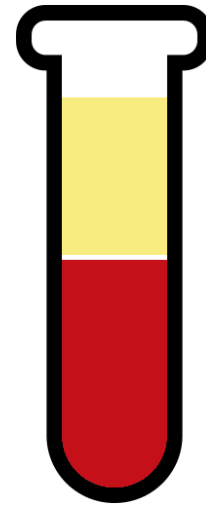
Use a blood collection tube without anticoagulant



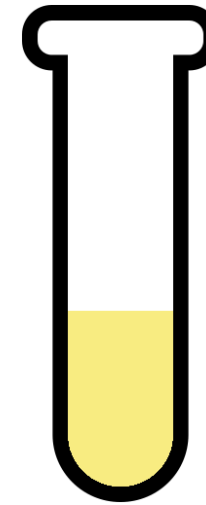
Collect whole blood  
~ 10 mL



Allow to clot at room temperature



Centrifuge and separate  
< 24 hrs 🕒



Refrigerate until shipping  
≥ 2 mL serum



# Issues with Sample Collection

- Excessive hemolysis may make samples untestable
- If also testing for Brucellosis you **MUST** collect an additional tube
  - Submitted to a separate laboratory



# Sample Submission

- Do NOT freeze
- Ship with cold pack
- Number and label tubes with Official ID
- Follow all guidelines for shipping biologic materials

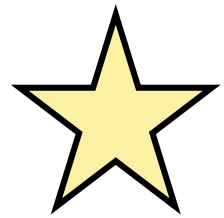


# Shipping

- Must ship **within 72 hours** of collection
- Overnight or next day delivery
- Cannot be received on a weekend or holiday
- Contact NVSL Serology prior to sending samples: **(515) 337-7563**







Samples must be received by NVSL



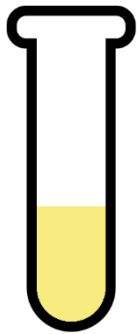
**within 5 days** of collection!

If samples arrive more than 5 days after collection, test results may

**NOT** be valid but *NVSL will still charge you* for testing.

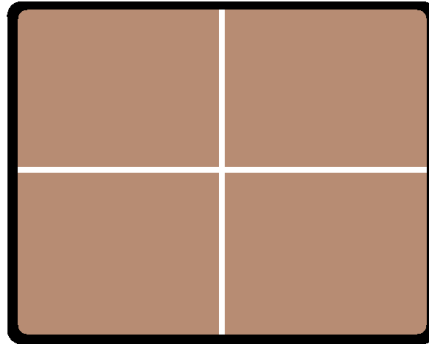


# Time Frame Post-Collection



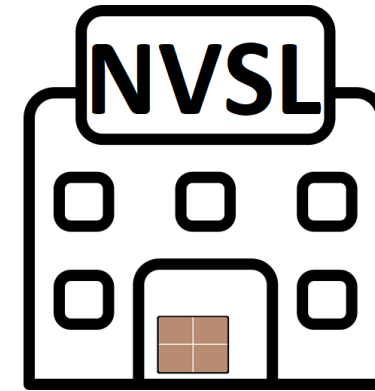
Centrifuge and Separate

< 24 hrs 



Ship

< 72 hrs 



Received by NVSL

< 5 days 



# Forms

## VS 10-4 +/- VS 10-4a: **Sample Submission Form**

- Accompanies sample submission to NVSL
- Official ID, species, age, sex
- If collecting over multiple days, one form per day

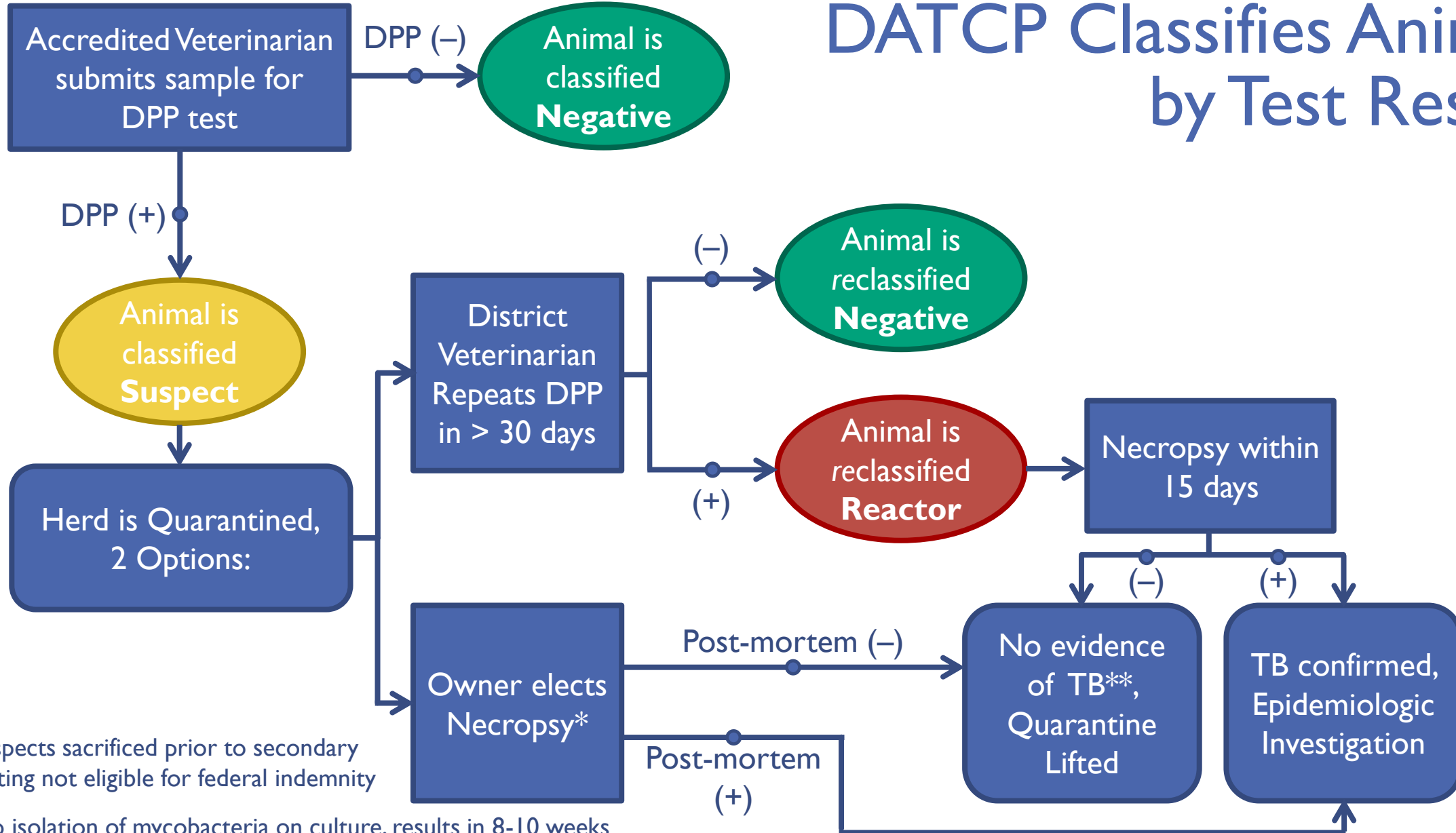
## VS 6-22: **Tuberculosis Test Record**

- Submitted to DATCP within 5 days of sample collection
- If collecting over multiple days, one form per day





# DATCP Classifies Animals by Test Results



\* Suspects sacrificed prior to secondary testing not eligible for federal indemnity

\*\* No isolation of mycobacteria on culture, results in 8-10 weeks



# KEY POINTS

1. Serologic tests are accurate and minimize cervid handling
2. Review shipping protocols prior to sample collection
3. DPP is utilized as both the primary and secondary test
4. Confirm testing method is valid for species and purpose of test



Division of Animal Health  
(608) 224 - 4872





# RESOURCES

## **USDA APHIS Guidance Document – Serologic TB Testing in Cervids**

6701.4: [https://www.aphis.usda.gov/animal\\_health/animal\\_diseases/tuberculosis/downloads/vsg6701.4-primary-secondary-serological-test-for-tb.pdf](https://www.aphis.usda.gov/animal_health/animal_diseases/tuberculosis/downloads/vsg6701.4-primary-secondary-serological-test-for-tb.pdf)

FAQs: [https://www.aphis.usda.gov/animal\\_health/animal\\_diseases/cwd/downloads/faqs\\_for\\_cervid\\_tb\\_dpp\\_testing.pdf](https://www.aphis.usda.gov/animal_health/animal_diseases/cwd/downloads/faqs_for_cervid_tb_dpp_testing.pdf)

## **Tuberculosis**

DATCP: [https://datcp.wi.gov/Pages/Programs\\_Services/Tuberculosis.aspx](https://datcp.wi.gov/Pages/Programs_Services/Tuberculosis.aspx)

USDA: <https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information>

Instructions for completing VS-Form 6-22: [https://www.aphis.usda.gov/animal\\_health/vet\\_accreditation/downloads/appendix-d-forms.pdf](https://www.aphis.usda.gov/animal_health/vet_accreditation/downloads/appendix-d-forms.pdf)

USDA Veterinary Accreditation Manual: <https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/nvap/NVAP-Reference-Guide/Control-and-Eradication/Tuberculosis>

## **Law and Policy**

Code of Federal Regulations: <https://www.ecfr.gov/>

Wisconsin Statutes / Rules: [https://docs.legis.wisconsin.gov/code/admin\\_code/atcp](https://docs.legis.wisconsin.gov/code/admin_code/atcp)

Uniform Methods and Rules: [https://www.aphis.usda.gov/animal\\_health/animal\\_diseases/tuberculosis/downloads/tb-umr.pdf](https://www.aphis.usda.gov/animal_health/animal_diseases/tuberculosis/downloads/tb-umr.pdf)

# SUPPLIES

## Forms

VS 6-22: Tuberculosis Test Records: <https://datcp.wi.gov/Documents/OrderFormRequestForm.pdf>

## Fillable/Printable Forms

VS 10-4: Specimen Submission: [https://www.aphis.usda.gov/library/forms/pdf/VS\\_Form10\\_4.pdf](https://www.aphis.usda.gov/library/forms/pdf/VS_Form10_4.pdf)

VS 10-4a: Continuation Sheet: [https://www.aphis.usda.gov/library/forms/pdf/VS\\_Form10\\_4a.pdf](https://www.aphis.usda.gov/library/forms/pdf/VS_Form10_4a.pdf)

## National Veterinary Services Laboratory (NVSL)

[https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/lab-info-services/sa\\_about\\_nvsl/ct\\_about\\_nvsl](https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/lab-info-services/sa_about_nvsl/ct_about_nvsl)

Serology Department: (515) 337-7563

Accounts and Ordering: (515) 337-6200 or [NVSL\\_concerns@usda.gov](mailto:NVSL_concerns@usda.gov)

**USDA Field Offices by State:** [https://www.aphis.usda.gov/animal\\_health/contacts/field-operations-districts.pdf](https://www.aphis.usda.gov/animal_health/contacts/field-operations-districts.pdf)

# Abbreviations

- APHIS:** Animal and Plant Health Inspection Service
- ATCP:** Agriculture, Trade and Consumer Protection (WI Administrative Code)
- CCT:** Comparative Cervical Tuberculin
- CEAH:** Center for Epidemiology and Animal Health
- CFR:** Code of Federal Regulations
- DAH:** Division of Animal Health
- DATCP:** Department of Agriculture, Trade and Consumer Protection
- DPP:** Dual Path Platform, Chembio DPP VetTB Assay for Cervids
- NVSL:** National Veterinary Services Laboratory



# Abbreviations

**SCT:** Single Cervical Test

**Stat Pak:** Cervid TB Stat-Pak® antibody test

**TB:** Tuberculosis

**UM&R:** Uniform Methods and Rules

**USAHA:** United States Animal Health Association

**USDA:** United States Department of Agriculture

**VS:** Veterinary Services

**WTD:** White-tailed Deer



# CONTACT

WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION

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WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION (DATCP)

5/31/2023



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# IMAGE CREDITS

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