



The Work-Up

Diagnostic Services Unit | Issue 13 - May/June, 2024

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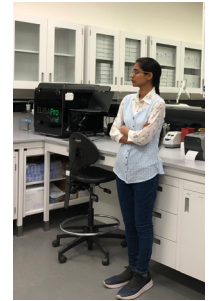
Victoria Day: Monday, May 20, 2024

Canada Day: Monday, July 1, 2024

The DSU Cytology Service is closed until September 2024. All cytology submissions will be sent out during this time.

SPOTLIGHT

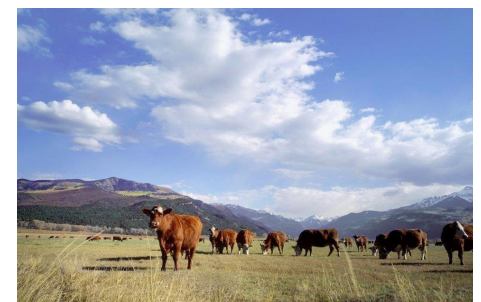
The DSU Serology Lab opened on October 16, 2023 ahead of anticipated schedule with support from the four Alberta poultry boards and the Government of Alberta for ongoing DSU expansion. At opening, the lab offered five avian tests: Avian Encephalomyelitis, Infectious Bursal Disease, Infectious Bronchitis Virus, Newcastle Disease Virus, and Avian Reovirus. Test offerings have since expanded to include small and large ruminant diseases: Johne's Disease, Bovine Leukemia Virus, *Neospora caninum*, and Small Ruminant Lentiviruses. Serology tests serum to determine the titre levels to a disease. We use ELISA tests at the DSU. Dr. Manga Devi is the lead technician within the serology lab and alongside lab supervisor, Dr. Ashish Gupta, continues to develop serology tests for to offer for additional species and diseases.



Manga graduated with a DVM in 2012 and completed a Master of Veterinary Microbiology from India in 2015. Her research project on canine and feline parvoviruses investigated their predominant strains by PCR and VP2 gene sequence phylogeny. She started her career as a Research Assistant at the National Institute of Veterinary Epidemiology and Disease Informatics (NIVEDI), India in 2016 and worked on a brucellosis network project. In 2017 she joined as an Assistant Professor in a multidisciplinary diagnostic laboratory in SV Veterinary University, India. Her prime responsibilities for this position included diagnosis of bacterial and viral diseases from clinical samples sourced from the veterinary teaching hospital and training field veterinarians in molecular diagnostics. She joined the Diagnostic Services Unit as a serology technician in 2023.

Neospora caninum was identified as the cause of abortion in a beef cow-calf operation. Serological monitoring of the cows and heifers was performed to inform breeding management. This protozoon is a common cause of abortion in both beef and dairy cattle worldwide. Transmission occurs horizontally with dogs and other canids acting as definitive hosts or vertically from an infected cow to developing fetus. Congenitally infected calves may have subclinical infections and if retained in the breeding herd can further infect their own calves. Calves may also be born weak or with neurologic signs. Diagnosis is through histopathology, IHC or PCR identification of the organism in affected tissues, and seropositivity of the dam. There is

no approved treatment for neosporosis in cattle and disease control relies on reducing transmission through environmental management or serological monitoring of the cow herd to inform management decisions.



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Diagnostic Services Unit

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DSU Team

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Dr. Ashish Gupta
Dr. Cameron Knight
Dr. Carolyn Legge
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Dr. Amy Warren
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Dr. Erin Zachar

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Dr. Catherine Wagg (*sabbatical*)
Dr. Amy Warren

Microbiologist:

Dr. Beverly Morrison

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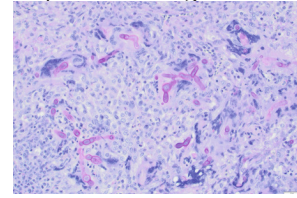
Bacterial endocarditis with secondary septic polyarthritis and acute respiratory distress syndrome (ARDS) were diagnosed in a 5-year-old, neutered male Golden Retriever. Observed clinical signs in the dog included a shifting limb lameness with development of acute respiratory distress and cardiac arrest. On postmortem exam, the right and left AV and aortic heart valves were all affected with severe valvular endocarditis. Histopathology confirmed severe synovitis and diffuse alveolar damage (indicative of ARDS). *Staphylococcus pseudintermedius* was identified in pure culture from multiple tissues. No original source of infection was determined in this case but typical causes include severe cystitis, dental disease, immune suppression, and previous damage to a heart valve.



Heart, dog. Bacterial endocarditis

Brooder pneumonia in chickens is very common in younger birds (1-4 weeks of age). The disease also occurs in older, immunosuppressed birds exposed to the spores present in contaminated litter, shavings, and feed. The usual etiologic agent is *Aspergillus fumigatus*, and rarely, *A. flavus*. The disease is spread by inhaling the spores from the contaminated environment of the hatchery and several batches processed on the same day will be affected. The incubation period is about 4-5 days and the infected chicks become listless, gasp for air, and exhibit neurological signs if the fungus has spread to the brain. Dead birds often have multifocal, yellow, nodular lesions in the lungs, heart, air sacs, and other organs. The disease can be diagnosed by gross examination coupled with histopathology and fungal culture. Since the disease spreads by inhalation of spores, eliminating the source of spores will help to control the disease.

Consult with your poultry veterinarian to plan cleaning and disinfection of the barn and optimization of ventilation and humidity conditions.



Granuloma, chicken. Special PAS stain highlights the fungal hyphae.

Staphylococcus hyicus infection led to high morbidity in preweaning piglets at a commercial pig farm. *S. hyicus* is the causative agent for Greasy Pig Disease or proliferative and exudative dermatitis, which usually occurs in piglets 6-60 days old. Clinical signs include depression, reddened skin, and anemia. Eventually the skin becomes thickened with non-pruritic macules that exude serum and sebum leading to the greasy skin. Morbidity is typically quite high with variable mortality, higher in younger piglets. On postmortem, the pigs have diffuse exudative and proliferative dermatitis. Culture of *S. hyicus* and histopathology can confirm the diagnosis and antimicrobial sensitivity testing informs antibiotic treatment.

Avian reovirus was identified in a juvenile male American Crow that was found dead and in very poor nutritional condition. Postmortem exam was suggestive of an underlying infection. Histopathology confirmed massive intestinal and splenic necrosis and severe changes in multiple other organs including air sacculitis and granulomatous pneumonia, indicating a systemic viral infection. PCR testing for avian influenza and West Nile Virus were negative. Virus isolation for avian reovirus was positive. This reovirus in crows causes necrotizing enteritis and splenitis and can result in large die-offs, known as winter mortality, although cases are seen in other seasons. This reovirus is also distinct from avian reoviruses found in domestic poultry and is not a threat to domestic flocks.

Tips & Tricks

Serum is the preferred sample for serology submissions. Collect in a red-top vacutainer and allow the blood to clot before separating off the serum. Hemolyzed samples should be avoided as much as possible as it can interfere with test results.

