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Laboratory Services Division

### Animal Health Laboratory





# **AHL** Newsletter

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### In this issue:

General interest	
Keith Harron	23
PID update	23
Purolator labels	23
Small hive beetle	24
OAHN update	25
Ruminants OAHN Salmonella	
Dublin project	26
Mastitis outreach	26
Fecal oocyst count	26
Swine	
PRRSV RFLP patterns	27
Abortion workups	27
Avian/fur/exotic Small poultry flock	
training	28
Horses	
Myocardial fibrosis	29
Companion animals Transmissible venere-	
al tumor	30



Keith Harron was born and raised in Bruce County. After attending the Ontario Agricultural College, he continued to reside in Guelph. He worked for 2 years at the Ontario Veterinary College, then joined the Veterinary Services Branch of the Ontario Ministry of Agriculture and Food at the Guelph Laboratory. In 1997, he joined the newly created Animal Health Laboratory. He has worked serving the poultry industry of Ontario for much of his career in the role of Ontario Hatchery and Supply Flock technician as well as supporting the Avian Virology section as team lead. In 2012 he was named the Tech-

nical Supervisor of the Virology Section of the Animal Health Laboratory, where he successfully bridged Avian and Mammalian Virology into one cohesive unit.

Keith always made client service a priority, and realized the importance of the work performed at AHL to all of our clients. He had the ability to communicate with just about anyone regardless of age or personality and his smile as well as positive attitude illuminated every room he walked into. His reputation at the AHL was one of someone that would drop anything he was working on in order to help someone else. He was the recipient of the 2006 Poultry Industry Council Poultry Health Worker Award, and truly a gift to the AHL.

Away from work, Keith also had an interest in collecting anything from old bottles to vintage postcards, and liked to share his findings with co-workers at the AHL. He is missed dearly but his legacy lives on in the examples he set. *AHL* 

### Premises ID for farmed animal submissions Andrew Brooks, Melanie Barham, Jim Fairles

The AHL strongly encourages veterinary practices to include Premises Identification Numbers (PIDs) on submissions to the laboratory. The AHL can help veterinarians obtain and maintain their clients' PIDs in a practice database so that they can be easily retrieved for inclusion on submission forms. Suggestions from practitioners using PIDs include adding them to the client records (e.g., electronic records) and having a printed list of PIDs with the submission forms or in trucks as time-saving techniques. Using PIDs reduces errors in filing and finding lab results.

Dairy producers PIDs can be easily found on the certificate provided by the **Provincial Premises Registry**, the producer's "My Dashboard" page on the DFO website, or by calling the PPR at **1-855-MY-PPR-ID** (1-855-697-7743).

Most swine producers also have a PID assigned to their production unit.

**Registering a premises is easy and free** - visit the Ontario PPR website (www.ontarioppr.ca) for more details. Please also see AHL LabNote 48 at: http://www.guelphlabservices.com/AHL/LabNotes.aspx

### New Purolator process - final stages of transition! Jim Fairles

Overnight prepaid courier services offered by AHL is continuing with Purolator Express Return Labels.

AHL has traditionally offered a prepaid overnight courier service for Ontario clients through Purolator Courier. The good news! This is NOT changing. The method that is used to do this however IS changing. The prepaid collect AHL courier account number was retired on June 30, 2016, and has been replaced by Purolator Express Return Labels.

We will be using these return labels for all prepaid Purolator Courier packages destined for the AHL. Please email ahl.supplies@uoguelph.ca to order your Purolator Express Return Labels!

We are in the final stages of transition to these return waybills – if you have not converted please contact us immediately. See our AHL LabNote 46 for more details: http://www.guelphlabservices.com/AHL/LabNotes.aspx

## Small hive beetle - Greg Worley, Hugh Cai

The small hive beetle (SHB) is an emerging honeybee pest in Canada that is capable of damaging and stressing colonies in addition to causing honey spoilage. Although SHB has been reported in various parts of Canada including Ontario, it was the increase in reports of SHB in 2015 that led to the development of a provincial strategy for the management of SHB in order to limit its impact and spread. The University of Guelph's Animal Health Laboratory (AHL) with support from the Disease Surveillance Plan (DSP) has developed a substantive panel of tests for apiary pathogens (see callout box to the right). The partnership between the AHL and the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) is exemplified by the AHL's laboratory test for SHB.

The AHL is able to provide rapid and accurate confirmation of SHB by comparing the genetic material of the submitted specimen against known positive SHB nucleic acid. This confirmatory testing of SHB specimens is an example of how the AHL assists the provincial government in responding to threats to the health of managed honeybees using the Ontario *Bees Act* regulation. Given this expertise, other provincial governments are now submitting suspected SHB samples to AHL for confirmatory testing. *AHL* 

#### AHL Newsletter

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Editor: Grant Maxie, DVM, PhD, Diplomate ACVP Editorial Assistants: Helen Oliver, April Nejedly

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Its mission is to inform AHL clients and partners about AHL current activities, and laboratory-based animal disease events and disease trends. All material is copyright 2016. Ideas and opinions expressed herein do not necessarily reflect the opinions of the University or the Editor.

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AHL bee pathogen and biomarker detection:
Viruses
Acute bee paralysis virus (ABPV)
Black queen cell virus (BQCV)
Chronic bee paralysis virus (CBPV)
Deformed wing virus (DWV)
Israeli acute paralysis virus (IAPV)
Kashmir bee virus (KBV)
Sacbrood virus (SBV)
Fungi - microsporidian
Nosema apis
Nosema cerenea
Mollicutes
Spiroplasma apis
Spiroplasma melliferum
Typanosomoid parasites
Crithida mellificae
Lotmaria passim
Insects
Apocephalus borealis (parasotoid phorid fly)
Tropilaelaps species (screening) (mite)
Varroa destructor mites (haplotyped)
Aethina tumida (small hive beetle)
Vitellogenin mRNA (a marker of overall honeybee health)
Bacteria - culture
Paenibacillus larvae ssp. Larvae (American foulbrood)
Melissococcus plutonius (European foulbrood)

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here in the 1st OAHN bee report!

SMALL RUMINANTS

The most recent small ruminant network call (July 25th) featured discussions on the drought conditions affecting much of Ontario and its impact on animal health and welfare, and reasons for condemnations of sheep and goats at slaughter in Ontario. Stay tuned for the coming reports.



BOVINE

Do you know about the OAHN Sal*monella* Dublin/calfhood mortality project? We are seeking submissions for the project for both bulk tank samples and calf post-mortems. For more info, please contact Ann Godkin ann.godkin@ontario.ca . For recent bovine reports, click here.



FISH

The OAHN fish network will be meeting in August. Interested in receiving reports about fish disease issues (farmed and wild)? Email us!

Influenza A typing, and erysipelas were top concerns last quarter. The next call will take place in August 2016. Newest info on Senecavirus A here.

#### **ALTERNATIVE SPECIES**

Mink, rabbits, etc. On these calls we discuss interesting cases with experts; any practitioner is welcome to join.

#### POULTRY

The O2 2016 conference call was held at the end of May. A top item of interest was the recent cases of runting and stunting caused by astrovirus and not diagnosed in Ontario previously.

#### Small flock corner:

2 cases of ILT were diagnosed in small flocks in late winter/spring, all with concurrent respiratory disease complex and secondary bacterial infections. \*New\* OAHN small flock poultry listserv is up and running. We are exploring a call for small flock veterinary case discussions also (interest dependent)- email us to join.

\*Free\*on-line course for small flock veterinarians (must be registered and signed in).

July. Report to follow soon. The Lyme/anaplasma serosurveyis underway, with no cost testing for eligible horses.

Also check out our new customizable owner report here- add in your logo and a personal comment and send!



We now have an OAHN wildlife network! The group includes OMNRF. OMAFRA, CWHC, OVC, and public health, and will focus on collaborating on emerging issues in the Ontario wildlife population.

**COMPANION ANIMALS** 

The OAHN companion animal network had its Q2 2016 conference call at the end of July. Main discussion items included ticks and giardiasis. Check out the handy leptospirosis infographic here.

Do you ask your clients for the Premises IDs? Check out how fast and easy it is to do by registering your vet clinic: https:// www.ontarioppr.com/home en.html

25

# AHL Lab Reports RUMINANTS



## OAHN bovine project- get involved!

As part of the OAHN bovine network, a 2-part bovine surveillance project is underway.

#### Part 1: Bulk tank samples

Bulk tank milk samples from enrolled herds will be tested once for antibody to *Salmonella* Dublin (a means of detecting carrier cows).





#### Part 2: Subsidized calf postmortems

Calf postmortems are subsidized so vets and producers can learn more about calf health and mortality. Participating practitioners will be reimbursed for postmortems performed on-farm, with a subset of testing performed at AHL at no charge OR calves can be submitted to the AHL for postmortem and the same subsidized testing.

Enrollment forms for bulk tank testing and calf postmortems are posted at <u>oabp.ca</u>. To participate or for more information, please contact Ann Godkin at ann.godkin@ontario.ca. *AHL* 

# AHL milk bacteriology in-clinic laboratory proficiency program Jim Fairles, Josie Given

The AHL is pleased to announce the addition of outreach services to our repertoire. As indicated last edition, Josie Given is leading this as Client Outreach Technician. Her position will focus on a voluntary pilot AHL milk bacteriology quality program. Her clinic visits will include preanalytical aspects of laboratory submissions - sample handling and shipping, electronic and customized submission forms, premises ID, and submission supplies. Josie will be able to assist in all areas of in-clinic laboratory quality assurance, including clinical pathology and parasitology. This support should help clinics provide the best possible results to their clients.

The purpose of the Milk Bacteriology In-Clinic Laboratory Proficiency Program is to provide an external quality assurance program for assessing and monitoring laboratory methods in veterinary practice laboratories for the diagnosis of bovine intramammary infections. This program will pro-

vide education and self-assessment for in-clinic staff. Laboratory quality assurance will ensure accurate and appropriate bovine mastitis diagnoses and improve client confidence.

To enroll in this voluntary program contact Josie. She will arrange an initial visit to your clinic. (jgiven@uoguelph.ca, ahlinfo@uoguelph.ca 519-824-4120 ext 54320 or 54530.) During the visit Josie will work with clinic laboratory staff to assess laboratory set up, record keeping, and protocols for milk bacteriology. These will be reviewed using standardized quality assurance protocols.

For the first year this is being funded by the Disease Surveillance program pillar associated with better tools for diagnosis.

Please see further information in our LabNote 47 - AHL Milk Bacteriology In-Clinic Laboratory Proficiency Program <u>http://www.guelphlabservices.com/AHL/</u> LabNotes.aspx AHL

# Fecal oocyst count, modified McMaster – new test in the AHL Parasitology Lab

#### Mary Lake, Hugh Cai

Set-up primarily for fecal *Eimeria* spp. counts for the **poultry** industry, this test can be selected for *Eimeria* spp. counts in **ruminants** as well. The modified McMaster allows for serial dilutions to be performed so a finite oocyst count can be achieved. This test is performed on feces only.

If batching or collecting feces from multiple sources, please make sure the fecal material is mixed well prior to submitting to AHL. Feces should be submitted in re-sealable bags or screw-top containers.

Please do not submit feces in gloves. This test is performed on 2-4 g of feces.

The test code is focmm, the fee is \$30.00 per sample, with a 3-5 day turnaround time. AHL



# SWINE



## Swine abortion/mummification/stillbirth diagnostic work-up - Josepha DeLay

A 3-fold increase in swine abortion / fetal mummification / stillbirth submissions from April-June 2016 has been identified at the AHL. For evaluation of these cases, **submission to the diagnostic laboratory of 3 fetuses and placentas from 3 separate litters is ideal**. Infectious agents or lesions may not be present in all fetuses, and evaluation of multiple fetuses from multiple litters increases the likelihood of reaching a useful diagnosis. Submission of live-born but weak neonates is also helpful.

**Serum samples** from 3-5 aborting / affected sows and an equal number of unaffected cohorts is also useful. Sera provide the best means for diagnosing leptospirosis and PRRSV-related abortions. In cases for which routine tests do not identify the cause of abortion, sera may be valuable in identifying new or emerging pathogens.

Bacterial culture, PCR for PRRSV/PCV-2/PPV, fetal

*Leptospira* serology, and histopathology will be carried out on pooled samples from the fetuses.

If sampling on-farm or in-clinic, both formalin-fixed and fresh (chilled) fetal tissue samples should be collected and forwarded to the diagnostic lab, as follows:

- Fresh samples (from each fetus for microbiology, including PRRSV, PCV-2, and PPV PCR; bacterial culture; leptospira serology): Thoracic fluid (aseptically aspirated), stomach content (aseptically aspirated), lung (2 samples), thymus.
- Samples in formalin (from each fetus for histopathology): eyelid (including conjunctival surface), tonsil, thymus, lung, thyroid gland, heart, liver, spleen, kidney, adrenal gland, colon, brain, placenta.
- Serum samples from affected sows and unaffected cohorts. *AHL*

27

# AVIAN/FUR/EXOTIC SPECIES





The OAHN team, together with AHL, OMAFRA, and Merck, were pleased to welcome 37 veterinarians from across the province to the small flock veterinary training course at the Animal Health Laboratory-Guelph on Saturday, May 7, 2016. Veterinarians unable to join in-person tuned in for our live, private YouTube streamed event, and many got together at clinics to take part. Participants were also given a free electronic poultry textbook courtesy of Merck Animal Health. The course was fully subsidized by DSP funding.



Topics included:

• Practical small flock biosecurity (Al Dam, OMAFRA)

• The role of OMAFRA in disease outbreaks and prevention (**Dr. Csaba Varga**, OMAFRA)

Euthanasia techniques (Dr. Mike Petrik)

• Management by the FLAWS principle: a practical, checklist approach to troubleshoot issues (**Dr. Lloyd Weber**)

• Vaccination and medication considerations for the small flock (**Dr. Elizabeth Black**)

- Diseases of small flock poultry (Dr. Lloyd Weber)
- Small flock research project, how to submit poultry to the laboratory (**Dr. Marina Brash**)



Dr. Mike Petrik shares euthanasia techniques

If you wanted to take the course but weren't able to join us, all the course materials are

posted online at: <u>http://oahn.ca/resources/poultry/</u> small-poultry-flock-workshop-for-veterinarianspresentations-live-video-and-resources/

Please note that you will need to create an OAHN account (available to all veterinarians in Canada and RVTs in Ontario.)

All of the handouts, slides, recorded video, and resources are available on this page. 90% of participants said they felt significantly more confident treating small flocks after taking the course.

If you do "take the course" on your own time, please do fill out an evaluation (link on the course page). As this is a new method of information sharing for OAHN, it is very

important for future events to continually improve or note successes.



Thank you to all of our sponsors, speakers, and organizing committee who helped make this day a success.

Interested in joining an email list for small flock poultry veterinarians to trade cases and information? We have a listserv started! Email <u>oahn@uoguelph.ca</u> and please also indicate if you would like to participate in a small flock case discussion call. *AHL* 





28

# HORSES

### Myocardial fibrosis in horses Ashley Lamond, Bruce Robinson, Murray Hazlett

When white streaking is seen on gross examination of horse hearts, rule-outs include fibrosis, myocarditis, and neoplasia (lymphoma). Myocardial fibrosis is sometimes regarded as an incidental finding, and sometimes as the cause of death depending on the amount of myocardium affected, clinical history and, in the case of unexpected death, the absence of other causes of death.

Recently, a 15 year-old Percheron gelding was presented with a 1-month history of weight loss, increased recumbency, tachycardia, and an abnormal gait. He was euthanized and a field postmortem revealed pericardial streaking with increased pericardial fluid and some streaking in the small intestine (Fig 1). Histology samples were submitted and the only lesion of significance was found in the sections of heart where there was **severe patchy interstitial myocardial atrophy and fibrosis** in several of the sections (Fig 2). This fit with the clinical signs seen, except perhaps for the abnormal gait.

The myocardial changes seen were of some duration. Rule-outs in horses with myocardial fibrosis include sublethal ionophore toxicosis with residual scarring or vitamin E selenium deficiency. This particular horse did not have access to cattle or other livestock feed. Box elder toxicosis was also considered as a possibility that could probably produce similar lesions if the horse survived the initial intoxication. Multifocal myocardial infarction with residual scarring could also be involved. *Strongylus vulgaris* infection has also been associated with this myocardial fibrosis. In most cases, a cause is not determined.

Myocardial fibrosis is sporadically diagnosed by pathologists, and a record search found **23 coded equine pathology cases since 2008.** In 13 of these cases, the pathologist felt the fibrosis was likely associated with death or the cause of euthanasia, perhaps being associated with an arrhythmia. A specific cause was not found in any of these 13 cases (Table 1). *AHL* 

Breed	Sex	Age y	History	Histologic diagnosis
Standardbred	G	4	Dropped dead after jogging.	Subacute localized myocardial degeneration and fibrosis
Equine	G	10	Collapse on trail	Multifocal myocardial fibrosis with myofiber atrophy
Hanoverian	М	16	Sudden death	Myocardial degeneration and severe fibrosis
Standardbred	М	8	Poor performance	Multifocal fibrosis and epicardial fibrosis
Thoroughbred	F	4	Ventricular tachycardia	Myxomatous and fibrous connective tissue surrounding the sinoatrial node
Dutch Warmblood	G	22	Found dead, AV dissociation previously	Myocardial necrosis and fibrosis
Donkey	G	22	Died within 15 min looked like he had a seizure	e Mild multifocal interstitial myocardial fibrosis
Quarter Horse	G	15	Sudden death	Localized myocardial fibrosis
Equine	G	7	Died under exercise	Focal myocardial fibrosis - probable acute arrhythmic heart failure
Clydesdale	F	5	Died under exercise	Cardiomyopathy with multifocal interstitial myocardial fibrosis
Donkey	G	8	General weakness	Severe myocardial fibrosis and myocarditis
Oldenburg	G	16	Heart perivascular inflamma- tion and fibrosis	Chronic mild to moderate lymphoplasmacytic myocarditis and perivascu- litis with fibrosis
Percheron	G	15	1-month weight loss	Myocardial fibrosis



**Figure 1.** Pale streaking (arrows) in the heart of a15 year-old Percheron.

**Figure 2.** Myocardial fibrosis (arrows) in the heart in Fig. 1.



# **COMPANION ANIMALS**

## Transmissible venereal tumor in three dogs

Andrew Brooks, Kristiina Ruotsalo, Margaret Stalker

Three cases of transmissible venereal tumor (TVT) were diagnosed at the Animal Health Laboratory in the spring of 2016. Case 1 was a mixed-breed, female, spayed, 11-year-old dog with a 3-cm nodular mass on the mucosal surface of the vulva. The dog originated from Africa and may have been bred there prior to arriving in Ontario. Case 2 was a 6-year-old, female, mixed-breed dog with a 1.5-cm mass on the vulva. Case 3 was a 6-year-old neutered male Thai Ridgeback with a rapidly growing 5-cm mass on the prepuce and penile sheath. Cases 2 and 3 were from a rescue facility that housed dogs originating from Europe and Africa.

Cytologically the tumors contained a monomorphic population of individual round cells (Fig. 1). These cells exhibited a moderate nuclear-to-cytoplasmic ratio with centrally located, round nuclei. The nuclear chromatin was finely granular and contained evidence of 1-2, prominent, variably sized nucleoli. The cytoplasm was moderately abundant, devoid of granulation, and contained variable numbers of frequent punctate vacuoles, typically in a perinuclear location. Occasional mitotic figures were evident and a variable degree of inflammation was noted. Histologically the tumors were composed of round cells arranged in packets or solid areas (Fig. 2). The cells exhibited round-to-oval nuclei, 2fold anisokaryosis, 1 or 2 prominent nucleoli, moderate-toabundant eosinophilic cytoplasm, and some cells contained cytoplasmic vacuoles. The mitotic rate was generally high (2 -7 mitotic figures per high-power (400 X) field). The round cells were intermingled with a few small lymphocytes and occasional neutrophils and eosinophils.

TVT is a horizontally-transmissible round cell tumor of dogs that is endemic in warm temperate regions such as the Caribbean, Central and South America, parts of Africa, southern Europe, and Asia. A recent survey indicates the tumor is globally distributed and endemic in at least 90 countries.<sup>2</sup> The tumor is sexually transmitted by allogeneic transfer of neoplastic cells from one dog to another during coitus. The neoplastic cells are genetically distinct from the canine host and analysis of the tumor genome suggests the cancer arose from a canid somatic cell several thousand years ago.<sup>3</sup> TVT prevalence is high in free-roaming, sexually intact dogs in endemic regions. The tumor is rare or nonexistent in countries with established animal control programs.<sup>2</sup> The external genitalia are the most common primary sites of tumour formation but lesions may also develop in other locations such as the nose, mouth, and face. A bloody

or serosanguineous discharge often accompanies the tumors.<sup>1</sup>

A presumptive diagnosis may be indicated by tumor location, geographic origin, or travel history, but a definitive diagnosis requires cytologic and/or histologic examination. The prognosis and response to treatment are generally very good. The 3 dogs of this report all experienced tumor regression following vincristine therapy. *AHL* 



**Figure 1.** Transmissible venereal tumor cytology. Note the characteristic vacuoles in the cytoplasm of the neoplastic round cells.



**Figure 2.** Histopathology of the TVT from case 3. Note the packeting of undifferentiated round cells by thin septa of connective tissue, prominent nucleoli, and numerous mitotic figures.

AHL Newsletters and LabNotes are available on the Web at - http://ahl.uoguelph.ca