

# Animal Health Monitor

JUNE 2015



## Articles of Interest:

- **CWHC 2015 AGM Highlights**
- **Biting Midge Flies**
- **Helcococcus ovis Update from the Bacteriology Lab**

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## Salmonella Enteritidis Outbreak

by Dr. Jane Pritchard



Numerous cases of *Salmonella* Enteritidis (SE) have been detected in both poultry and people handling poultry in Alberta (AB), British Columbia (BC), Saskatchewan (SK) and Manitoba (MB). At this time, it appears that all poultry involved in these cases were sourced from a common hatchery in AB. The Public Health Agency of Canada (PHAC) has activated their Outbreak Investigation Coordinating Committee (OICC) to coordinate information sharing between stakeholders in this outbreak.

In BC, the Ministry of Agriculture is leading in the Animal Health response and is partnered with BCCDC and Regional Health Authorities for the public health response.

The Animal Health response in BC is focused on testing birds that residents of BC received from the AB hatchery during the period the hatchery was known to be shipping baby poultry potentially infected with SE. These shipments of baby chicks included both layer chicks and broiler chicks. No BC commercial layer or broiler flocks received birds from the hatchery.

The hatchery has sent information letters to all clients who received chicks during the risk period. The BC Ministry of Agriculture has followed up with BC-specific information to these people and the offer to test the chicks for SE at no charge. Testing kits are prepared at the Abbotsford Animal Health Centre (AAHC) with specific instructions on collection of appropriate samples, handling and shipping of the samples to the AAHC.

Results of testing are sent directly to the submitter with the result being either positive for SE, negative for SE or positive for *Salmonella* that is NOT SE. An accompanying information sheet then describes the next steps (if any) for each of these results.

As of June 9<sup>th</sup>, approximately 350 test kits have been mailed and 40 received back from these contacts. Small flock owners are encouraged to consult with their local veterinarian on management of their flock including interpretation of their *Salmonella* environmental testing results.

According to the PHAC public health notice as of June 8, 2015, there are 47 human illness cases under investigation in 4 provinces: (AB =26, BC=16, SK=4 and MB=1). Eight people have been hospitalized.

All cases report exposure to live chicks prior to illness. Regional Health Authorities are lead in follow up on cases in BC.

The hatchery has posted information on their website on the outbreak, with advice for their customers.

The Abbotsford Animal Health Centre provides diagnostic poultry health services to small flocks. Environmental testing for *Salmonella* is routinely available. A Small Flock Poultry Health Manual is available at our website [http://www.agf.gov.bc.ca/ahc/poultry/small\\_flock\\_manual.pdf](http://www.agf.gov.bc.ca/ahc/poultry/small_flock_manual.pdf).

For more information, see the *Salmonella* Enteritidis Facts for Small Flock Owners available at the Ministry of Agriculture's website: [http://www.agf.gov.bc.ca/ahc/poultry/Salmon\\_Enteritidis\\_Facts\\_for\\_Small\\_Flock\\_Owners\\_BCGovt\\_May2015.pdf](http://www.agf.gov.bc.ca/ahc/poultry/Salmon_Enteritidis_Facts_for_Small_Flock_Owners_BCGovt_May2015.pdf)

For questions specific to your local area, including disposal options, please contact AgriService BC at 1-888-221-7141 or by email at [AgriServiceBC@gov.bc.ca](mailto:AgriServiceBC@gov.bc.ca).

## ***Helcococcus ovis*—An Update From the Bacteriology Lab**

**by Erin Zabek, Head of Bacteriology**

Since 2008, the Animal Health Centre's (AHC) Bacteriology Laboratory has seen a rise in the incidence of *Helcococcus ovis* in bovine submissions. *H. ovis* was first described in 1999 (1) when it was recovered from the lung, liver and spleen of a sheep with subclinical mastitis. At that time, the clinical significance of the organism was unknown. Since then, *H. ovis* has been identified as an emerging pathogen in cattle, and has been associated with a variety of conditions including mastitis, abortion, metritis, endocarditis, pneumonia, arthritis and pulmonary abscesses.

The AHC first reported the emergence of this organism in the Fraser Valley in the March 2012 edition of the Animal Health Monitor. Between March 1<sup>st</sup> and April 30<sup>th</sup> of this year, the Bacteriology Laboratory has recovered this organism from 7 bovine submissions. A summary of the submissions is provided in the table below.

*H. ovis* is a slow growing, fastidious organism requiring extra care and time in the laboratory to ensure detection. All suspect *H. ovis* cases are inoculated onto special agars and incubated under specific conditions. However, when present in high numbers, *H. ovis* may be detected on routine culture. *H. ovis* should be added to the differential diagnosis list for bovine pneumonia, mastitis, and other abscess-like infections, particularly when no other significant pathogens can be detected. Practitioners suspecting *H. ovis* infection should inform the laboratory to ensure additional detection methods are utilized.

### **Summary of *H. ovis* results from March 1–April 30, 2015—all bovine submissions:**

Submission Type	Specimen(s) Isolated From	Other Organisms Isolated
3.5 week Holstein calf	Liver abscess	None
1.5 week calf	Lung	<i>Trueperella pyogenes</i>
2 week Brown Swiss calf	Lung	<i>E. coli</i>
5 year old cow	Lung, Mammary Gland, Necrotic Tissue	<i>Pasteurella sp.</i> (from lung only)
3 month old calf	Lung	<i>E.coli</i> and <i>Pasteurella multocida</i>
Holstein of unknown age	Lung	<i>Trueperella pyogenes</i>
Holstein of unknown age	Milk	None

### References:

Collins, M. D., E. Falsen, G. Foster, L. R. Monasterio, L. Dominguez, and J. F. Fernandez-Garazabal. 1999. *Helcococcus ovis* sp. nov., a gram-positive organism from sheep. Int. J. Syst. Bacteriol. 49:1429-1432.

## ***Culicoides* spp.: The Tiny Biting Midges With a Large Impact** by Tracy Hueppelsheuser, Entomologist and Kathrin Sim, Plant Health Lab Assistant

Included in the irritating group commonly known as biting midges or no-see-ums, certain species of the genus *Culicoides* (Order Diptera) can be unnoticed vectors of livestock diseases and parasites due to their haematophagous lifestyle. These tiny blood feeders (1 - 5 mm) are abundant, widespread, and as of 2000, known vectors of greater than 50 livestock viruses<sup>1</sup>.

Only adult female biting midges have mouthparts capable of biting and blood feeding. Females require blood meals for egg development and often feed on multiple animals, potentially transmitting disease among livestock, throughout their adult life. Completion of the biting midge lifecycle typically requires an aquatic or semi-aquatic habitat, which results in the adults being associated with wet areas where they breed. Breeding sites can often be modified or destroyed through good management practices to reduce the numbers of adult biting midges<sup>2</sup>. The adults are poor fliers, but females may still disperse an average of 2 km in search of hosts. Host seeking activity is generally limited to the hours during dusk and/or dawn. Depending on the *Culicoides* species, stabling livestock in "midge-proof" dwellings during these peak feeding times may reduce the risk of animals being bitten.

Bites from infected females of pest *Culicoides* spp. can pose a serious risk to livestock health. In one study on sheep, the economically important bluetongue virus was transmitted with 80-100% efficiency through a single bite by an infected female midge<sup>4</sup>. Bluetongue is not considered to be endemic in Canada and is not believed to be capable of surviving the winter; however, it is present in the USA and there have been recorded incursions of this virus into Canada (see [CFIA Bluetongue factsheet](#)<sup>5</sup>). Canadian cases of bluetongue over the last 30 years have been isolated to the Okanagan Valley, and with changes to importation laws that no longer require testing for bluetongue in live animals, the risk of seasonal outbreaks may increase.

A known vector species of bluetongue, *Culicoides sonorensis* (Wirth and Jones), is present in the South Okanagan<sup>6</sup>, but has not been found in the Fraser Valley. The main species of *Culicoides* in the Fraser Valley was identified as *C. obsoletus* (Meigen)<sup>7</sup>. Though *C. obsoletus* has not been identified as a

vector of bluetongue in North America, it has recently been identified as a vector in Europe<sup>8</sup>. Despite its non-vector status of bluetongue in North America, *C. obsoletus* is of medical importance as the saliva of this species is known to be a causative agent of irritation that results in the equine condition known as Sweet itch.

Only two studies have collected and identified species of *Culicoides* in the Fraser Valley. Contemporary collections are required to update species lists and estimate the risk of different livestock diseases. Current collections are underway by Tracy Hueppelsheuser and Kathrin Sim, BC Ministry of Agriculture, in collaboration with Dr. Aruna Ambagala of the CFIA in AB, at four sites from Surrey to Agassiz. Using hanging light traps, biting midges are being collected in areas around which livestock are housed. Though the light traps cannot inform us on the biting rate of *Culicoides*, they are effective at attracting and trapping a high diversity of biting midges for identification purposes. These collections will become part of an updated species list of *Culicoides* in western Canada. Survey work began in September 2014, and continues April 2015 through the summer.

<sup>1</sup>Mellor, P. S., Boorman, J., & Baylis, M. (2000). *Culicoides* biting midges: their role as arbovirus vectors. *Annual review of entomology*, 45(1), 307-340.

<sup>2</sup>Carpenter, S., Mellor, P. S., & Torr, S. J. (2008). Control techniques for *Culicoides* biting midges and their application in the UK and north-western Palaearctic. *Medical and veterinary entomology*, 22(3), 175-187.

<sup>3</sup>Baylis, M., Parkin, H., Kreppel, K., Carpenter, S., Mellor, P. S., & McIntyre, K. M. (2010). Evaluation of housing as a means to protect cattle from *Culicoides* biting midges, the vectors of bluetongue virus. *Medical and veterinary entomology*, 24(1), 38-45.

<sup>4</sup>Baylis, M., O'Connell, L., & Mellor, P. S. (2008). Rates of bluetongue virus transmission between *Culicoides sonorensis* and sheep. *Medical and veterinary entomology*, 22(3), 228-237.

<sup>5</sup>CFIA Bluetongue Factsheet. <http://www.inspection.gc.ca/animals/terrestrial-animals/diseases/reportable/bluetongue/fact-sheet/eng/1306116803992/1306121522520>

<sup>6</sup>McMullen, R. D. (1978). *Culicoides* (Diptera: Ceratopogonidae) of the south Okanagan area of British Columbia. *The Canadian Entomologist*, 110(10), 1053-1057.

<sup>7</sup>Costello, R. A. (1982). Light trap collections of *Culicoides* (Diptera: Ceratopogonidae) in the Fraser Valley of British Columbia. *Journal-Entomological Society of British Columbia*.

<sup>8</sup>Mehlhorn, H., Walldorf, V., Klimpel, S., Jahn, B., Jaeger, F., Eschweiler, J., Hoffmann, B., & Beer, M. (2007). First occurrence of *Culicoides obsoletus*-transmitted Bluetongue virus epidemic in Central Europe. *Parasitology research*, 101(1), 219-228.

## **Bats, Birds, *Batrachochytrium*, and Bridges: Summary of the Canadian Wildlife Health Cooperative 2015 Workshop**

*by Dr. Chelsea Himsworth and Dr. Michelle Coombe*

On April 23, 2015, the BC Node of the Canadian Wildlife Health Cooperative (CWHC) hosted a workshop in Abbotsford called “Building Bridges: Working Together to Improve Wildlife Health in BC and Canada”. For anyone unfamiliar with the organization, the CWHC is Canada’s national wildlife health surveillance network. This non-governmental organization is dedicated to generating knowledge needed to assess and manage wildlife health, and working with others to ensure that knowledge gets put to use in a timely fashion. The CWHC is based out of the five Canadian veterinary colleges and the Animal Health Centre in Abbotsford (which is the BC Node of the CWHC).

The theme of the workshop was “Building Bridges.” Specifically, the workshop focused on how communication and collaboration amongst wildlife health professionals, organizations, policy makers, and the public influences our ability to understand and promote wildlife health.

The day was kicked off with a bang by a keynote address highlighting some of the challenges faced by wildlife health professionals, which were presented by the executive director of the CWHC, Dr. Craig Stephen. The ensuing talks were grouped into three sessions: Population Health Management, Aquatic Health, and the Human-Wildlife Interface. Speakers touched on a wide range of collaborative wildlife health projects occurring within BC, including those pertaining to bats, fish, caribou, and coyotes. The day culminated in a focused session on how digital technologies (e.g., social media) can be used to effectively disseminate wildlife health knowledge to a broad audience.



*(Photo: CWHC Meeting at Ramada Conference Centre Abbotsford, courtesy of Kevin Brown, CWHC National Office, Saskatoon)*

The workshop was attended by 70 wildlife health professionals, including: veterinarians, veterinary technicians, wildlife biologists, and wildlife rehabilitators. The workshop provided inspiration for utilizing different strategies to communicate and collaborate with other wildlife professionals and stakeholders. It also provided a unique opportunity for networking among wildlife health professionals in the province. If you would like to know more about the CWHC BC, please join our listserv by emailing [Michelle.Coombe@gov.bc.ca](mailto:Michelle.Coombe@gov.bc.ca).

We are greatly indebted to our fabulous speakers for donating their time and expertise to the CWHC for providing the framework for discourse, as well as to *Growing Forward 2*, a federal-provincial-territorial initiative, for funding the workshop.

## Introduction to Beekeeping Webinars *by Paul van Westendorp, Apiculture Specialist*

The Ministry's Apiculture Program primary function is to ensure the ongoing viability and health of the province's honey bee population which is so vitally important to the agriculture sector.

To realize this goal, the Apiculture Program has been administering its services under the auspices of the *Bee Act* since the 1940s. Legislative changes in the early 2000s led to the repeal of the *Bee Act* without ratification. All the provisions of the *Bee Act* were temporarily placed under the *Animal Disease Control Act (ADCA)*. Since then, the ADCA with bee-related regulations have been replaced by the *Animal Health Act (2015)*.

The new legislation is less regulatory and instead, provides a framework of conditions and actions under which

producers must operate to prevent, control or mitigate the impact of honey bee diseases and pests. Compliance to the legislation is in large measure accomplished when beekeepers apply "best management practices" (BMPs). Educational opportunities for beekeepers to acquire the skills of BMPs have been limited, especially for those living outside the Fraser Valley. To improve training opportunities and enhance the knowledge base of beekeepers, the Apiculture Program has placed great emphasis on seminars, courses, and field days in the last 10 years. Producer training has become even more important as more people than ever want to become involved in beekeeping.

The Ministry has offered an annual beginner beekeeping course in the

Fraser Valley for many years. Similar courses were offered occasionally in other parts of the province, beekeepers in many parts of the province didn't enjoy the same opportunities. It was decided to offer the beginner beekeeping course in a condensed version through a series of webinars in the spring of 2015.

The response to the webinar series of the Introduction to Beekeeping has been overwhelming with 156 registrants from BC, Alberta and even as far as Newfoundland. Technical glitches caused initial delays in the delivery of seminars and caused some registrants to cancel their enrollment. Nonetheless, the overall enthusiastic response to this free course was compelling enough that it will be offered again in 2016.

## Bees and Honeydew in Abbotsford *by Paul van Westendorp, Apiculture Specialist*

During the last days of May, a few concerned residents of Abbotsford called to mention that large numbers of bees were visiting and nesting in their cedar hedges. The bees were not nesting, but were foraging on the sugary exudate of aphids that were feeding on the cedar juices.

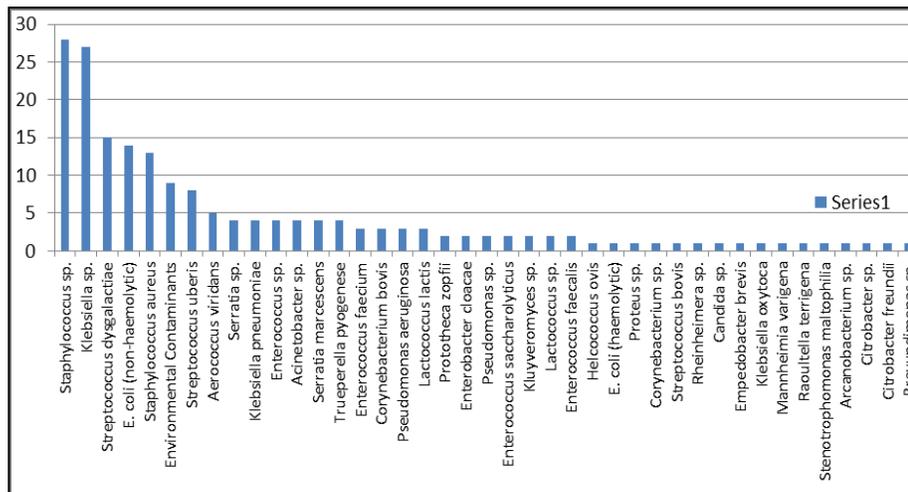
Warm and humid weather conditions can cause aphid populations to expand exponentially in a matter of a few days. The aphids will release a sugary exudate of oligosaccharides that bees, wasps and ants collect as a carbohydrate energy source. Enzymatic action in the bee's honey sac will invert the exudate into simple sugars, while worker bees in the colony will further reduce the water content to less than 19%. The resulting honey is not a true honey since it has no floral origin, but is called "honeydew".



A similar phenomenon occurs in the Black Forest of Germany where beekeepers place their colonies in the forest to take advantage of the annual "honeydew" flow. Due to its unique origin and limited volume, honeydew honeys traditionally fetch premium prices.

## Milk Culture Results by Dr. Jane Pritchard

January 1-May 31, 2015 - Results of milk cultures sorted by frequency of isolation.



Between January 1 and May 31, 2015, 251 milk samples (72 submissions) were received for culture and sensitivity at the Plant and Animal Health Centre. Out of the 251 samples submitted, no bacteria was isolated in 94 samples.

Resistance by Isolate	amp	kf	ob	e	xnl	p10	pyr	sxt	tet	# of isolates tested
Staphylococcus sp.	21%	0%	7%	11%	4%	21%	18%	4%	14%	28
Klebsiella sp.	85%	11%	85%	85%	7%	85%	85%	4%	22%	27
Streptococcus dysgalactiae	0%	0%	0%	0%	0%	0%	20%	27%	60%	15
E. coli (non-haemolytic)	64%	50%	79%	71%	0%	79%	79%	7%	21%	14
Staphylococcus aureus	8%	0%	0%	0%	0%	8%	15%	0%	0%	13

amp - ampicillin	ob - cloxacillin	xnl - excenel	pyr - pirlimycin	sxt - sulfamethoxazole/ trimethoprim
kf - cephalothin	e - erythromycin	p10 - penicillin	tet - tetracycline	

**Staff Profile: Dr. Michelle Coombe, Veterinarian**

Dr. Michelle Coombe began her term at the Ministry of Agriculture in January 2015 as the assistant regional director of the BC node of the Canadian Wildlife Health Cooperative. In this position, she is delighted to be involved in numerous wildlife endeavours, including managing the Avian Influenza sediment sampling project, partially funded under *Growing Forward 2*, a federal-provincial-territorial initiative.

Her passion for wildlife and all things ecological started during her Bachelors of Science in Ecology at the University of Calgary. She then went on to study veterinary medicine at the Western College of Veterinary Medicine in Saskatoon, Saskatchewan.

After working in clinical practice for three years with furry, feathered, and scaly pets, she decided to focus her career on combining both her ecology and medical training through the field of epidemiology.

She is very excited to be starting her Masters of Science at the School of Population and Public Health at the University of British Columbia in the fall of 2015.

When she is not wandering in her hip waders collecting mud for the Avian Influenza sediment study, Michelle can be found hiking, skiing, and climbing in the picturesque surroundings of the Coast Mountains.



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<http://www.agf.gov.bc.ca/ahc/AHMonitor/index.html>

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