

In this issue:



- ▶ Cysticercus ovis risk factors survey..... 1-2
- ▶ On-Farm Food Safety Program ..... 3-4
- ▶ Emerging Livestock Diseases ..... 4
- ▶ Scrapie Canada ..... 5
- ▶ Bluetongue Virus Vaccines ..... 6
- ▶ Identification and Traceability ..... 7-9



# From the flock

MARCH 2009 • VOLUME 6 • ISSUE 3

MONTHLY NEWSLETTER FOR THE CANADIAN SHEEP INDUSTRY

## Cysticercus ovis risk factors survey

By Dr. Paula Menzies, University of Guelph

The Canadian Sheep Federation (CSF) in partnership with the University of Guelph, the Ontario Ministry of Agriculture Food and Rural Affairs, and the University of Saskatchewan, are submitting a funding application to survey the risk factors associated with condemnation of sheep carcasses due to *Cysticercus ovis* infection.

*Cysticercus ovis* is the intermediate stage of the dog tapeworm *Taenia ovis*. The disease in its intermediate host, sheep is termed “sheep measles” because of the bladder-like cysts found in the carcass of infected animals.

Goats may also serve as an intermediate host and both dogs and wild canids (e.g. coyotes, wolves and foxes) may serve as the definitive host. When sheep ingest the cestode egg, the larval tapeworm migrates to the skeletal muscles of the sheep. The most common sites of infection are the masseter muscle, the heart and diaphragm, as well as all skeletal muscles.

This disease is endemic in New Zealand where considerable effort has been made to educate producers on how to reduce the risk of infection.

Ovis Management Limited, a board associated with the Meat Industry Association of New Zealand, has as its mandate to educate producers on how to prevent transmission of the disease agent between dogs and sheep. Control in that country focuses on breaking the infection cycle by requiring that if a sheep carcass is to be fed to dogs, then the cysts must first be removed and then the meat must be either cooked to a minimum of 72°C, or frozen at a temperature less than - 10°C for a minimum of 7 days (Herrera, 2000). However, the epidemiology of the disease in New Zealand may be quite different to Canada as they do not have a wild canid population and their flocks are much closer together.

### Bluetongue Insurance

For more information in BT insurance please see [www.cansheep.ca](http://www.cansheep.ca) or call the CSF office at 1-888-684-7739

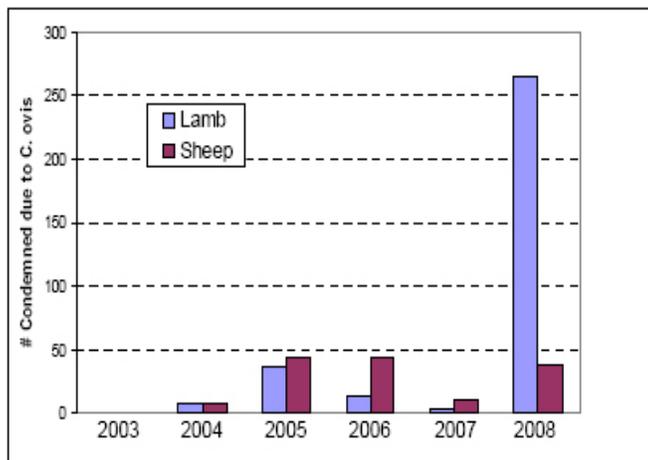
Policies for 2009 are only available until June.



## Cysticercus ovis continued

The recent literature has focused on the immunology of *C. ovis* with the intent of developing diagnostic tests as well as a vaccine. There is no available test for infection in sheep other than visual inspection of the carcass which can be confirmed by microscopic examination of the metacestode scolex. There is no commercial vaccine available at this time. Furthermore, there is little in the recent literature that investigates the epidemiology of the disease. Estimates of the prevalence of disease are based on the proportion of carcasses condemned annually due to *C. ovis* cysts.

In New Zealand the current prevalence is reported to be 0.41% (MIA Annual Report 2008). Data from Ontario abattoirs (provincial slaughter only) show a marked rise in numbers condemned over the last decade (see figure below). There is evidence that the situation has continued into 2009.



Given the data above, it is clear that this is an emerging disease that can have severe economic consequences to producers and to the meat processing industry through the condemnation of affected carcasses. Because most lambs in Canada are not sent directly to slaughter, but through a salesbarn or broker, and because infections in sheep are subclinical, many producers may not be aware that the animals on their farm are infected. This means that control is more difficult and that the meat industry is often "on the hook" for absorbing the costs of the lost carcasses.

This project is part of an effort by the Canadian Sheep Federation to trace-back condemned carcasses to the farm of origin, but will additionally assess risk factors on these affected farms, as well as unaffected farms, with the intention of refining an education program intended to reduce or eliminate this disease.

### References:

- Manual on Meat Inspection for Developing Countries. (2000) <http://www.fao.org>
- Meat Industry Association of New Zealand Annual Report (2008). Pg 31.
- Veterinary Parasitology 3rd edition.

## Exporters scramble for sheep

Source: ProMed

Exporters may be forced to offer forward contracts for wethers up to six months out to keep up the supply of sheep for the live boat trade. Livecorp chief executive Cameron Hall confirmed there had been some discussions about contracts with tight supplies struggling to keep up with strong demand from the Middle East. Mr Hall said prices had been offered three to six months out before with mixed results. "I daresay some operators will continue to source stock from the spot market as well - both strategies can suit both buyer and seller," Mr Hall said.

Peter Hooper, a Samex livestock buyer based in Victoria, said forward contracts had been used in previous years, particularly to secure the supply of long tail ram lambs for the Middle East market. Mr Hooper said ships had been sourcing stock from the eastern States every four to five weeks in recent months and confirmed the frequency of shipments was well up on last year. But he has concerns about the supply of suitable sheep into the future. Mr Hooper said ships had been sourcing stock from the eastern states every four to five weeks in recent months and the frequency of shipments was well up on last year.

But he too questioned the security of supply of suitable sheep into the future. "Finding stock is getting harder," Mr Hooper said. "We are seeing younger wethers being sold to the trade nowadays. Years ago 90 per cent of the wethers going to the trade were older animals, now it would be 60pc."



## Communicating With the Media during a Crisis

By Lorraine Hall, National Coordinator On-Farm Food Safety

It could be a food recall, a food poisoning incident that results in illness or death, an environmental disaster, or a foreign animal disease outbreak – we've all seen stories about these kinds of incidents splashed across the media, and they would all be considered a crisis. A corporate crisis could be defined as “a business or organizational problem, exposed to media attention, which threatens your organization's reputation and ability to carry on its normal business.”

The agricultural industry could be hit with any number of crises, and the fact is that crises are inevitable and should be planned for by a business or organization. Recently, I had the opportunity to attend a crisis communication workshop given by Kevin Lennon of Trillium Corporate Communications Inc. The intent of the workshop was help participants understand the perspective of a reporter and provide participants with practical tips on successfully dealing with the media.

There are several things an organization can do in advance of a crisis to prepare for media bombardment once an emergency occurs. Find out which reporters are writing stories in your industry, such as food editors. Background information and prepared media kits that include photos can be distributed to the people who cover the industry. A media button on your website can also help direct reporters and give them positive information about your organization when they go looking for it. Finding the freelancers who are friendly to the industry and building positive business relationships with them can pay off dividends when your story needs to be told in a crisis situation.

In the event of a crisis, the media will want to know what happened, how did it happen, what you did when you discovered the problem, who is to blame, why wasn't the incident prevented, and how you will compensate those affected.

Until you know what's really going on in a particular situation, stand-by statements can be prepared and sent to all members of an organization, so that they too are prepared if the media contacts them. This standby statement should also go on an organization's webpage in a crisis situation.

When dealing with reporters, it is important to remember their background and where they are coming from. The average reporter has a liberal arts background, with little experience in science, business, or technology. They must translate what you are saying into non-technical language, they are in a hurry, and they want timely, controversial and interesting news. So speak plainly, and stay away from acronyms and industry jargon. Never tell a reporter something that you don't want to read the next day. A reporter may make inaccurate, finger pointing statements: “Is it true that this outbreak of foot and mouth disease could have been prevented if farmers from the UK had not toured Canadian sheep farms?” When you respond, do not repeat their misleading statement in your answer. Instead, you need to take control of the interview: “What I can tell you right now is that we have established a quarantine zone around the affected farms. We are controlling traffic going into and out of these areas, and in addition our executive is working on developing compensation package for producers who have been impacted”.

You can control the interview by sticking with your story, keeping the discussion on your track, and keeping the record straight. You can use bridging phrases such as “Well let me start by saying...”; “Well, I'm really here to talk about...”; “That's not correct. In fact...”. Also avoid speculating or commenting on rumours and speak on what you know right now. Stick to your message and keep it simple.



## Media Communication contined

You can't wait for a reporter to ask the perfect question, so you must take control of the interview and state your message up front: "It's important to remember that..." or "Let's put this into perspective first..." If possible, support your message with evidence, and restate your message at the end of the interview. Stress the local angle benefits to the community or sector. Use words to paint a picture so they can visualize what's happening. Also, talk about intent, not process details.

It also helps to prepare messages and answers before every interview, rehearse them by saying them out loud, and following up with a fax or email restating your key message. If the story is positive, do make mention of the name of your organization/products. The reverse applies if the story is negative. Don't say "no comment", lose your temper, or speak off the record. Don't speak on behalf of other organizations or express a personal point of view.

A few points to remember:

- Treat media interviews like important business meetings
- Prepare/rehearse your messages and answers before every interview
- Be accessible, polite, helpful, and above all careful
- Accentuate the positive
- Always tell the truth

In short, a media interview need not get out of control with some preparation ahead of time and sticking to the key messages that you want to be conveyed.

## New disease threats challenge European livestock

Source: [www.fwi.co.uk](http://www.fwi.co.uk)

The UK is threatened by a large number of emerging livestock diseases and controlling them will take a co-ordinated European and international approach. That was the view of Steve Dean, chief executive of the Vet Medicines Directorate, at a recent National Office of Animal Health conference. "Preventing the spread of disease from other parts of the world protects farmers and consumers in Europe as well as in areas that are already infected," he said. "The rapid spread of BT has demonstrated the problems emerging disease can cause. When they were not protected by vaccines some sheep owners in Europe were seeing mortality rates of up to 20% in flocks in 2007."

Mr Dean said new strains of BT are a threat, including new mutating strains. But there are also a number of others including classical swine fever, bird flu, peste des petits ruminants, West Nile Virus and Rift Valley Fever. The last of these is causing particular concern as it is can affect humans as well as livestock. It is spread by mosquitoes and was first discovered in Kenya. It has now spread to Egypt and the Middle East and the fear is that it could jump the Mediterranean and enter Europe. The VMD is part of the European Technology Platform for Global Animal Health which seeks to speed up the development and introduction of vaccines and medicines to combat diseases. A particular focus is on ensuring that legislation does not hold up the introduction of vaccines, particularly when a disease threat is imminent.

Mr Dean cited the introduction of the BTv8 vaccine as a good example of this with the product developed, approved and administered within two years compared to at least seven years for most vaccines. He also said the industry needs to develop a communication strategy to demonstrate the importance of using vaccines and preventative medicines. This will be particularly important when a new generation of products that have been developed using genetic modification come on to the market in the next few years.



# Scrapie Canada Update

By Courtney Denard, National Scrapie Coordinator

Although rectal biopsy (RB) is now being recognized as an effective option for screening scrapie, producers should know that testing a sample of brain tissue remains the gold standard. Similar to third eyelid sampling, RB involves collecting a sample of lymphoid tissue; however, it targets lymphoid tissue associated with the rectal-anal mucosa as opposed to lymphoid tissue associated with the third eyelid. Both sampling of the third eyelid and RB can be conducted on live animals.

RB was approved by the United States Department of Agriculture's Animal and Plant Health Inspection Service in January 2008 following a large-scale study conducted in 2007. The study evaluated RB as a means to collect lymphoid tissue for scrapie testing. Using live, high-risk sheep and goats, the study compared the test results from RB's and third eyelid biopsies to test results obtained postmortem from the same animals on brain-stem, lymph node, tonsil and rectal biopsy. The study found that RB testing is an effective option for detecting scrapie. However, producers will only want to consider using RB when testing the entire flock/herd. Similar to the third eyelid biopsy, false negative results can be reported from individual sheep in which the presence of the scrapie prion is restricted to brain tissue only, and is not present in the lymphoid tissue.

The US is currently trying to integrate some form of live testing into their Scrapie Flock Certification Program, however, no details on how this will be done have been confirmed. The CFIA has implemented RB as an alternative live animal test to screen potential source flocks on confirmed scrapie infected premises. Canada's Voluntary Scrapie Flock Certification Program (SFCP) also incorporated RB in July 2008, making it part of Pathway 2.

Prior to this date, producers enrolled on Pathway 2 were only permitted to complete third eyelid testing on all sheep/ goats aged 12 months or older but changes were made to allow RB as an alternative to the third eyelid test. This offers producers another option to the somewhat challenging and often time consuming third-eyelid test.

Even though RB is pricey, it's slightly more cost-effective than the third eyelid test due to the fact that it takes less labour and time. Producer costs include bringing out a veterinarian who is trained to collect the sample, as well as laboratory testing fees. The lab will test the sample using immunohistochemistry, a method which demonstrates specific antigens in tissues by the use of markers that are either fluorescent dyes or enzymes. The test costs about \$60 per sample.

The OIE code currently lists conditions for an establishment to be recognized as free from scrapie. The current conditions are identical to those of Pathway 1 of the SFCP and they must be maintained for a total of seven years. Producers who wish to engage in international trade of live sheep are encouraged to participate in Pathway 1 of the program. Due to the possibility of false negatives when using lymphoid sampling, it is highly unlikely that any country (including Canada) will accept the test results from a lymphoid sample as proof of disease freedom for the purposes of trade. For more information about RB and/or scrapie, please contact Scrapie Canada at 1-866-534-1302 or [admin@scrapiecanada.ca](mailto:admin@scrapiecanada.ca).

## Reference

United States Department of Agriculture- Animal and Plant Health Inspection Service website: [www.aphis.usda.gov](http://www.aphis.usda.gov)



## Bluetongue Virus Vaccines: Solution or Part of the Problem?

Source: ProMed

Bluetongue (BT) is an insect-transmitted disease of ruminants caused by BT virus (BTV). The disease was 1st described after European settlers introduced their fine-wool breeds of sheep to Southern

Africa in the 17th century. BTV infection has since been described on all continents except Antarctica, coincident with the distribution of competent *Culicoides* vectors. Climate change is likely responsible for the remarkable recent expansion of BTV's global range, especially in Europe.

Modified live (MLV) BTV vaccines were 1st developed in South Africa. Embryonated egg propagated MLV vaccines developed in California were teratogenic [causing malformation of an embryo or birth defects] if used in pregnant sheep and were replaced by cell culture-propagated vaccines.

Phylogenetic analyses confirm that individual genes of field strains of BTV in California are identical to those of MLV vaccines, suggesting that vector insects naturally can acquire and transmit vaccine viruses (or reassortant viruses that include MLV genes), as also demonstrated recently in Italy.

The original MLV vaccine caused characteristic brain defects in congenitally infected progeny, defects that occur sporadically in regions where these vaccines are used. Significantly, until the emergence of BTV serotype 8 (BTV-8) in northern Europe, congenital BTV infection only was described in regions where MLV vaccines are used. The European strain of BTV-8 commonly causes teratogenic brain defects in the progeny of cattle infected during early gestation, defects that are identical to those caused by the original MLV vaccines, a fact that raises concerns regarding the origin/history of this strain of BTV-8.

Inactivated BTV vaccines have been developed because of the propensity of MLV vaccines to revert to virulence, their capacity to be acquired and transmitted by *Culicoides* insects, and because of the capacity of BTV to generate extensive genetic diversity through reassortment and genetic drift. However, inactivated vaccines also have inherent deficiencies, which have stimulated development of new generation vaccines including baculovirus-expressed virus-like particles and recombinant expression systems, most notably recombinant canarypox virus vectors that express immunogenic proteins of BTV and that induce sterilizing immunity in vaccinated ruminants.



# National Identification and Traceability

By Sean McKenzie, National ID and Traceability Coordinator

Previously I've written articles about the economic principal of supply and demand, about the changes faced by agriculture in Canada and various other broad scale topics. As a change of pace I'm going to try to take this down to a single producer level and show some of the differences between tag options.

First of all, we are all aware that before any sheep, cattle and/or bison in Canada leave their farm of origin they must be tagged with official species identification tags as per the Health of Animals Act and corresponding regulations. For the Canadian Sheep Identification Program this means either a Ketchum Kurl-lock metal tag (pink), a pink Allflex Dangle Tag (panel), a Yellow Allflex RFID button/ Panel tag combination (electronic) or the new Shearwell Data SET tag (yellow). The minimum (i.e. lowest cost) requirement is the use of the metal Ketchum Kurl-lock tag. These tags are available from various locations depending on which province you live in. Ontario, PEI, and New Brunswick can purchase tags from the Canadian Cooperative of Wool Growers (CCWG), farm supply stores or directly from Ketchum Manufacturing Inc. (Kurl-lock tag only). Tags for producers in BC, Alberta, Manitoba, Newfoundland, and Nova Scotia are only available through the CCWG, whereas Saskatchewan producers must purchase their tags from the Saskatchewan Sheep Development Board. Finally, Quebec producers purchase their tags, which are limited to the Allflex RFID button/panel combination tag, through Agri-Traçabilité Québec (ATQ).

This is all well and good, however time and again the same questions/comment comes up:

- There is nothing in it for me so why should I use the more expensive RFID tag?
- Costs too much - "Putting a RFID tag in a lamb as it goes on the truck is no different than pinning a \$2 bill to each animal"
- The tags are causing infection or poor retention/ lost tags

While there is, in certain circumstances, some truth to these comments we must realize that animal identification is a necessary component of many animal health and disease surveillance programs and therefore a permanent addition to livestock production. With this being the case it seems prudent to look at how it might be a tool for our use rather than solely an expense. As with any addition to a farm, be it a new building, piece of equipment or even a computer the economics must be there; whatever the addition, the improved capacity of the farm to produce an income must at absolute minimum cover the expense of the addition, if not better and actually make money for the farm. This will not likely happen right away, but certainly over time this should be the case.

So that being said, how can we make animal identification pay? First, you'll have to decide which tag to use and why? What are the advantages/ disadvantages of choosing one over the other? Well with the above points in mind and to perhaps spark some interest/ discussion on the topic I'll offer a comparison of the cheapest and the most expensive options for animal identification and you can debate or discuss among yourselves.

## Ketchum Kurl-Lock tag;

This tag is an inexpensive option for visual identification. It provides a visual cue for inspectors, auction facility operators, and truckers that an animal has been identified and is therefore in compliance with the Health of Animal Regulations requiring sheep to be individually identified. The metal tags are not readable by any other form of technology beyond the human eye. Reading these tags while in animals requires the capture of the animal either manually or in some form of handling facility to allow the tag to be cleaned, and held still for reading. The use of these tags in traceback investigations is possible but is significantly limited by the need to handle each tag individually.



## ID and Traceability continued

**Kurl-Lock tag continued:** The reading of these tags can be excessively time consuming and very labour intensive for inspectors and/or producers. Also the opportunity for human error through misreading or transcription errors is significant. Being a metal tag with lacquer finish (pink paint) the tags depending on age and facility/farm type are subject to wear and numbers can become illegible over time. There is little or no opportunity for producers to use these tags for management purposes, as the numbers cannot be read from any distance, and the time commitment and transcription errors present a deterrent for use. Auction yard, slaughter facilities and carcass quality feedback are not available to producers using this type of tag as it is too costly and time consuming to read individual tags at these stages. Essentially for the price of the tag, producers gain the ability to send animals off farm, nothing more.

### **AllFlex RFID/Panel Combination set:**

Currently these tags are the more expensive option for producers as it includes Radio Frequency Identification (RFID) chip and a second non-electronic panel tag. As the technology develops and greater acceptance is achieved in the marketplace these tags have become more economical and hopefully will continue to do so in the future. RFID technology is limited by its requirement for a handheld or panel RFID reader which can be costly. These readers are necessary though to take full advantage of the electronic tags. Specific computer software is not a necessity as the readers will generally interface with common spreadsheet formats, nor is having a dedicated computer for the system as the handheld readers have the capacity to read and store information (tag numbers) within the unit. The actual size of memory (number of tag reads/records) depends on the individual unit. The benefits to the RFID technology include those of the Ketchum tag; meaning they provide a visual cue that an animal has been identified and can therefore be moved

off its farm of origin and sold either at auction, to slaughter or to another producer. The benefits of the larger panel tag is that there is both a visual id component making it easier for the producer or whomever to read a management number from at least a short distance without having to catch the animal. Having a double tag system also provides a backup should the animal loose one tag, the second can be cross referenced and the animal can still be identified. As the chances of more than one animal losing both identification tags at the same time is statistically quite low, this means the chances of mistaking one animal for another is also quite low.

Use of the RFID technology provides a number of management and surveillance benefits as well. Direct benefits to the producer are in labour savings. This stands true for auction and slaughter facilities and has potential for use in creating trucking manifests as well. Either a panel or a handheld reader allow animal identification numbers to be collected without having to capture the animal, reducing stress to both the animal and producer alike. This information can then be associated with breeding information (ram/ewe pairings, number of lambs born/weaned etc.) or to sort animals into management groups for market, breeding or whatever. Another insurance if you'll call it that is there are no transcription errors as the reader can transfer the identification numbers directly into the computer either wirelessly or when plugged into the computer. This has the potential to greatly improve the speed with which animals can be handled and sorted all while reducing the amount of labour involved. As an example when separating ewes into breeding groups, the software can be pre-programmed to watch for specific numbers and alert the individual on the gate that the animal passing through the chute is to be separated off or treated.



## ID and Traceability continued

Further development of the technology stands to benefit the producers in less direct ways as well. Since the electronic tags can be read without slowing the process at an auction yard and without transcription or reading errors that can happen when read by the eye, auction facilities are able to scan and print off animal identification numbers with the corresponding prices that those lambs sold for, thus providing the producer with an assurance that the lambs that he or she sold are actually his or her lambs. Going one step further, slaughter facilities can not currently keep records on a non-RFID ear tag number as the amount of labour and time involved to read and record the number manually slows the process and involves too much added labour to be cost efficient. If RFID tags are in place with the corresponding support software, the abattoir would be able to record the animal identification number, the carcass quality report and provide this back to the producer as a tool for improving carcass quality and consistency. None of this is available without electronic tags, and it should be mentioned as well that there is no requirement for the producer to own a RFID reader to access these last benefits. RFID readers could be incorporated into points in the chain where large volumes of animals are handled and thus spread the cost/ewe out over a larger proportion of the flock.

Of course there is a major downside to the RFID system and that would be the fact that technology occasionally fails and can do unexpected things – almost always at the worst possible time. That said though, there is the old saying that goes, you can't make an omelette without breaking a few eggs. Overall there are measurably more benefits directly to the producer from use of an RFID system than use of a basic metal tag. Granted the purchase cost of the metal vs. electronic is lower, however factoring in the savings in labour, the improvement in record keeping, the assurance that you're being paid for your animals, and ability to receive carcass quality records all provide value that can make the RFID tag cheaper by comparison.

## Norway's 1st bluetongue case reported

Source: ProMed

The Norwegian Food Safety Authority says the country's 1st cases of bluetongue infection have been detected in 2 cattle herds. The bluetongue virus does not spread between animals but is carried by tiny flies called midges [culicoides]. It infects cows, sheep, and other ruminants, and its symptoms vary. The cases were found in routine checks in southern Norway. The disease was once confined to Mediterranean areas but has been spreading north since 2006.

Though no further details are available, it may be assumed that the animals, detected now as infected, are either imported animals or local animals infected during the previous season -- namely between June and November 2008, and that the virus involved is BTV-8. This is not a current outbreak.

## Contact Us



30 Malcolm Road  
Guelph, Ontario  
N1K 1B1

**Tel:** (519) 824-4120  
**Toll Free:** 1-888-684-7739  
**Fax:** 1-866-909-5360

**Email**  
jennifer@cansheep.ca

**Website**  
www.cansheep.ca