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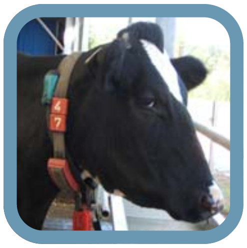
Serving Ontario through veterinary science, technology transfer, outbreak investigation and animal health surveillance



Contact: Ann Godkin, ann.godkin@ontario.ca
or
Janet Alsop, janet.alsop@ontario.ca

Ministry of Agriculture, Food and Rural Affairs

Ontario

Congratulations, Neil!

We are pleased to report that our own Neil Anderson was the recipient of the Ontario Veterinary Medical Association's (OVMA) Award of Merit at this year's OVMA conference in January.

The OVMA Award of Merit is designed to recognize individuals who the general public feels are deserving of recognition for their practice of, or contribution to, veterinary medicine. It is awarded for distinguished public service to the veterinary profession in any form, including volunteer work for OVMA or an animal health agency, guidance/mentorship to recent veterinary graduates, leadership he/she has shown in his/her local community, etc.

Neil was recognized for his dedication to improving beef and dairy production, the condition and comfort of dairy cows and the feeding of dairy calves.

Congratulations Neil on both your nomination and the award. You certainly deserve this recognition.

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OMAFRA, 1 Stone Road West, Guelph, ON N1G 4Y2
Food Safety and Environment Division

Assistant Deputy Minister/ Chief Veterinarian for Ontario—Deb Stark		(519) 826-4301

Animal Health and Welfare/
Office of the Chief Veterinarian for Ontario

Director—Tom Baker		(519) 826-3577

Veterinary Science and Policy Unit, OMAFRA
1 Stone Road West, Guelph, ON N1G 4Y2

Manager—David Alves		(519) 826-3127
Animal Health Coordinator	Katherine Hoffman	(519) 826-5072
Animal Health Coordinator	Jennifer Kidon	(519) 826-5128
Animal Health Coordinator—Preparedness	Lou D'Onofrio	(519) 826-4175
Coordinator – Laboratory Programs	Dave Colling	(519) 826-3725
	Bruce McNab	(519) 826-4178
Provincial Biosecurity	Paul Innes	(519) 826-4043

Unit 10, 6484 Wellington Road 7, Elora, ON N0B 1S0

Dairy & Beef Cattle	Ann Godkin	(519) 846-3409
Ruminants	Neil Anderson	(519) 846-3410
Small Ruminants & Beef	Jocelyn Jansen	(519) 846-3414
Surveillance Analyst	Kathy Zurbrigg	(519) 846-3418
Swine	Janet Alsop	(519) 846-3420
Swine	Tim Blackwell	(519) 846-3413

OVC, University of Guelph, Guelph, ON N1G 2W1

Poultry	Babak Sanei	(519) 824-4120

Veterinary Services Unit, OMAFRA
1 Stone Road West, Guelph, ON N1G 4Y2

Manager—Robert Vanderwoude		(519) 826-6364

322 Kent Street West, Lindsay, ON K9V 4T7

Veterinarian Chief Inspector	Bill Holley	(705) 324-5854

Biosecurity: Perception and Compliance

Tim Blackwell, Veterinary Science and Policy Unit, OMAFRA, and Christian Klopfenstein, Veterinarian, Centre de développement du porc du Québec inc.

On-farm biosecurity assessments seek to identify farm practices that increase the risk of introducing new infectious agents into livestock herds. Despite decades of emphasizing the importance of reducing the risk of disease transmission, significant deficiencies are commonly identified at the farm level. The question then is, why, after years of emphasizing the importance of good biosecurity practices, do so many producers still engage in risky practices that increase the risk of introducing new pathogens to their herds?

A possible explanation for this lack of implementation is the difficulty producers and veterinarians have grasping the concepts of risk and probability. Biosecurity is all about risk and probability. For example, let's imagine that Producer Pete ignores using a worthwhile biosecurity practice, such as washing and disinfecting his truck, before returning to his barn after visiting a facility with livestock. If he does

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this once a week, we can hypothesize that the risk of introducing a new disease to his herd from the unwashed truck is 10% for each year he engages in this risky behaviour. Pete continues this risky practice, week after week, year after year, because the risk is not obvious. With each week that Pete goes without a disease break, he becomes all the more convinced that washing the truck is not necessary.

Note that when there is a 10% annual risk of disease introduction, it means that a disease break occurs in only half of the herds engaging in this risky behaviour after five years. The other half of the producers who do not wash their livestock trucks will go five years with no ill effects and have saved the time and money associated with cleaning the truck.

To make it worse, if Producer Pete's herd does break with a new disease in year five, he is unlikely to associate a subsequent disease outbreak with his lack of truck hygiene. After five years of not washing his truck, but still maintaining a healthy herd, his herd's disease outbreak is more likely to be blamed on something that occurred recently, such as last week's feed delivery or veterinary visit, rather than on his own longstanding poor truck hygiene. This human logic is a major obstacle to gaining good compliance in the implementation of effective biosecurity measures.

Another example of how perception influences compliance relates to differences in disease risk. All farms are not exposed to the same risk. Requirements for risk management procedures often vary according to location and farm-specific management practices. If a swine producer in a high density swine area implements letter-perfect biosecurity throughout the farm, the farm may nevertheless experience a disease outbreak due to aerosol or "area" spread. At the same time, a second swine farm in a low density hog area that ignores all recommended biosecurity practices may remain free of the same disease.

The effective level of biosecurity on any farm, in theory, should relate to the actual risk of disease exposure for that farm. However, quantifying such risk is difficult, if not impossible, and the risk likely changes over time. Unfortunately, when swine farmers hear about high biosecurity farms breaking with disease and low biosecurity farms remaining disease-free, they often conclude that biosecurity recommendations are ineffective instead of recognizing that the actual risk of exposure to disease is not equal across all farms.

The majority of effective biosecurity practices are not expensive to implement; however it is nearly impossible to prove their effectiveness. As long standing anti-smoking campaigns have demonstrated, changing people's perceptions of risk can be a tedious, slow process.

Update on the Ontario Johne's Education & Management Assistance Program

Nicole Perkins, Johne's Program Co-ordinator

The Ontario Johne's program began January 1, 2010. Since that time, producers in the first testing windows have been testing herds, and they and others across the province have been completing their RAMPs (Animal Health Risk Assessment and Management Plans) with their herd veterinarians.

Participation by veterinarians: An additional 16 veterinarians have completed training with OMAFRA veterinarians in 2010 as of April 1st. This means that 167 Ontario veterinarians are trained and ready to work with Ontario dairy producers.

Herd tests: Testing opportunities are scheduled. As of March 1st, three counties have had a chance to submit whole-herd tests if they desire. In total, 92 of the 157 potentially eligible herds have tested their cattle by submitting whole-herd samples of milk to CanWest DHI (DHI) or serum to the University of Guelph Animal Health Laboratory (AHL). The uptake of the testing portion of the program is approximately 60% of all herds and 85% of herds on DHI.

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Positive tests: Of the 6,264 milk samples tested for Johne's, 40 (which is 0.6% of the cows tested) have had positive test results. So far, 12% of herds have had at least one positive test result. These are encouraging results. Test-positive cows, in most cases, can be retained and managed as advised by the herd veterinarian.

Johne's Education and Management Assistance Program For Ontario Dairy Producers

High-titre (HT) cows: At the very highest level of the positive test category is the small, special group of cows that have results that are not only positive, but have test values so high they are classified as "HT cows". These cows have a test result of 1.0 or higher, and have a greater than 95% probability of being actively shedding the *Mycobacterium avium* subspecies *paratuberculosis* (MAP) bacteria (the cause of Johne's Disease) at the time of testing. So far only five herds out of the 92 tested have had at least one cow with a HT result. In total, eight cows (0.12%, or one in 780, of all cows tested so far in the program) have been HTs. Fortunately these cows remain rare in our Ontario population.

Permanent Removal of High-Titre Johne's Animals: Permanent removal of high-titre (shedding) cows immediately reduces Johne's spread within the herd. These shedding cows are actively contaminating the environment, bedding, feed, water, alleyways and pens with the MAP-laden manure they are producing. If they move to another herd, they introduce the disease there as well. No one wants to buy these cows for dairy or beef. It is an important feature of the Ontario program that we strongly encourage producers to permanently remove these problematic cows (to rendering, compost or burial).

Reimbursement for testing is paid to herd owners that have these HT cows once these HT cows are properly disposed of. When a HT cow is found on the program herd test, the herd owner receives a letter from the program co-ordinator advising them of their options. While we highly recommend that the producer remove these cows, they can choose to keep these cows if they wish. However, the herd then becomes ineligible for the $8 per cow test reimbursement. We strongly encourage producers to discuss disposal of these cows with their own veterinarian should one be found on the whole-herd test.

To assist producers, when a HT cow(s) is identified on program testing, the program provides a one-time $250 assistance per HT cow. These are herds with an active Johne's problem. The funds are provided to assist producers in making changes, as suggested by their veterinarian, to reduce the risk of MAP spread. Producers can use the funds as they and their veterinarians decide. They can be used for further testing, maternity-pen changes, calf-feeding changes, or whatever the veterinarian and producer feel will be helpful.

Financial assistance will be included in the testing reimbursement once **all** program requirements for that year are fulfilled. For reimbursement, a completed RAMP and proof of disposal of HT cows, by either on-farm burial or composting or by removal for rendering, must be received by the program co-ordinator.

The requirement for HT cow removal remains a much discussed and very important feature of the program. Note that only the HT cows are recommended for removal in the program (not all positive cows) and that removal remains voluntary. This is not a regulatory program but management assistance. Producers should discuss the importance of this element with their herd veterinarians if they have any questions about the degree of risk these cows pose.

RAMPs: A RAMP is to be done each year for four years under the program. For many herds the RAMPs will need to be done before testing has occurred, for laboratory logistical reasons. As of March 1st, 39 completed RAMPs have been received from herd veterinarians.

Funding: In January 2010 at the Dairy Farmers of Ontario Annual General Meeting, OMAFRA announced their contribution of $300,000 to the first year of the program. OMAFRA funds are assisting with testing, on-farm management changes and educational activities in the first year of the program.

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For more information and/or to contact us:
Information and forms are posted on the Johne's Program website at *www.johnes.ca*

Nicole Perkins, Johne's Program Co-ordinator—johnes@uoguelph.ca , (226) 979-1664

Ann Godkin, Industry Working Group Chair—ann.godkin@ontario.ca , (519) 846-3409

Milk Intake by Bottle-fed Calves at First Four Meals

Neil Anderson, Veterinary Science and Policy Unit, OMAFRA

Who would guess that half the calves on a farm drink nothing when offered milk 8 to 10 hours after their meal of colostrum?

That's what we found on a study farm, where a producer recorded colostrum and milk replacer consumption data for 91 heifer calves born between September 1, 2009 and mid-March 2010. Complete data were available for 86 calves. Standard practice was to give calves three to four litres of colostrum. From the records, the median amount consumed was four litres (with a range from a low of 2.75 litres to a high of seven litres) and 50 (of 88, 57%) calves drank four or more litres. Colostrum feeding method was by suckling, esophageal feeder or a combination of both methods for 48, 20 and 21 calves, respectively. At the next chore time after colostrum feeding, calves were offered two litres of milk replacer (a 20% protein:15% fat milk replacer, mixed at 180 grams of powder per litre of water) and thereafter twice daily, by nipple bottle. A few calves were offered more. The newborns were housed in hutches within a naturally-ventilated cold barn.

Figure 1 shows the amounts the calves consumed for the first four meals. The number of calves fed each meal varied because calves were being introduced to an automatic milk-replacer-feeder quickly. By three days of age, 64% of calves were on the automatic feeding and no longer in the bottle feeding group.

During the bottle-feeding stage, 45 calves drank nothing at their first milk-feeding following colostrum. By feeding two, 22 of the 45 calves still did not drink. Forty-one calves drank some milk at both the first and second feedings, with 21 of those consuming two litres at both meals.

Of the calves fed all or part of their colostrum by esophageal feeder (essentially force fed), 58.5% did not drink at their first meal compared to 39% for calves that suckled their colostrum. For this group of calves, the odds of not taking a first meal were 2.2 times greater for calves that were fed by esophageal feeder (Chi-sq=3.3, p=0.07). Calves that did not suckle their first milk meal were not fed by esophageal feeder. At the second meal, 48.9% of the calves that skipped the first meal chose again not to suckle (Odds Ratio = 6.0, Chi-sq=11.3, p=0.0008).

The data from this study farm showed that it is a toss-up to bet that calves that are fed by esophageal feeder will not suckle at the time of their first meal of milk replacer. However, it is noteworthy that many calves skipping their first meal will also skip the second. There is no doubt that the data will not be representative of other farms. When investigating calf-rearing problems, it may be useful to document actual intakes during the first few days of a newborn calf's life. For practical reasons, in the cold housing at this farm, reluctant-drinker calves may benefit from a calf-blanket or a heat lamp to help retain body heat and conserve energy until they resume regular feeding. For some calves, tube feeding might be necessary to prevent weight loss and the stress of hunger.

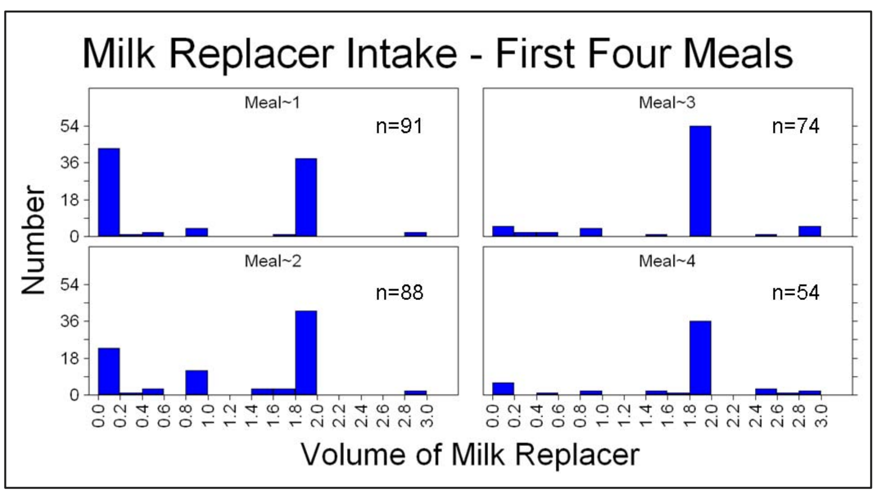

Figure 1. The volume of milk replacer consumed by calves at each of the first four post-colostrum meals.

Milk Intake for Calves Using an Automatic Feeder

Neil Anderson, Veterinary Science and Policy Unit, OMAFRA

For many, this writer included, the feeding behaviour of calves using automatic feeders is a mystery. Since some feeders do not store historical milk intake data, the path to enlightenment means manual record keeping. A willing producer, with pen and paper always at hand, shared the consumption data for 90 Holstein calves born between September 1, 2009 and mid-March, 2010, and kept in cold housing. These calves suckled more milk than is typically offered by automatic feeders.

After colostrum feeding (target amount of 3 to 4 litres, with a median of four litres consumed) and prior to introduction to the feeder, our study calves were offered two litres of milk replacer (20% protein:15% fat, mixed at 180 grams of powder per litre of water)by nipple bottle twice daily. The total volume consumed by bottle was divided by the number of bottle-feeding days to calculate their average daily intake (labelled "Bot" on the accompanying figures) during the pre-automatic feeder period. Calves were not bottle-fed on the day of introduction ("D0") to the feeder.

Seventy calves were introduced to the feeder by three days of age. The feeder was programmed to deliver eight litres on the day of introduction and to make available an additional litre of milk replacer per day thereafter to a maximum of 12 litres by day five after entry. The automatic feeder mixed 149 grams of powder into each litre of water. Calves could drink a maximum of two litres per visit to the feeder.

Figure 1 shows the average, and **figure 2** the minimum, median and maximum intakes for the feeding periods of interest. Average and median intakes were two litres during the bottle-feeding stage and less than four litres on the day of introduction to the feeder. From four to seven days of age, half the calves drank six or more litres of milk, to a maximum of 9 to 12 litres as was permitted by the programming of the feeder. By 11 days of age, half the calves were consuming 8 to 12 litres of milk.

Some service and sales people program automatic feeders to deliver six litres of milk or milk replacer per day for the first 10 days that calves are on the feeder before increasing the daily allotment. If fed according to that schedule, half of our study calves would not have received the volume of milk they wanted or needed.

The owner of this automatic feeder credits the generous programming for the good growth and health of his calves.

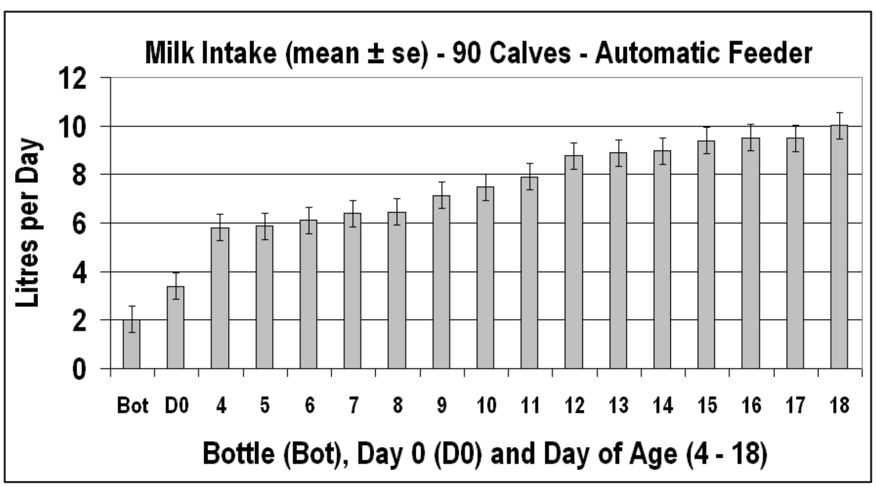

Figure 1. Average milk replacer intake during the bottle feeding stage (Bot), day of introduction to the feeder (D0) and days 4 to 18 of age.

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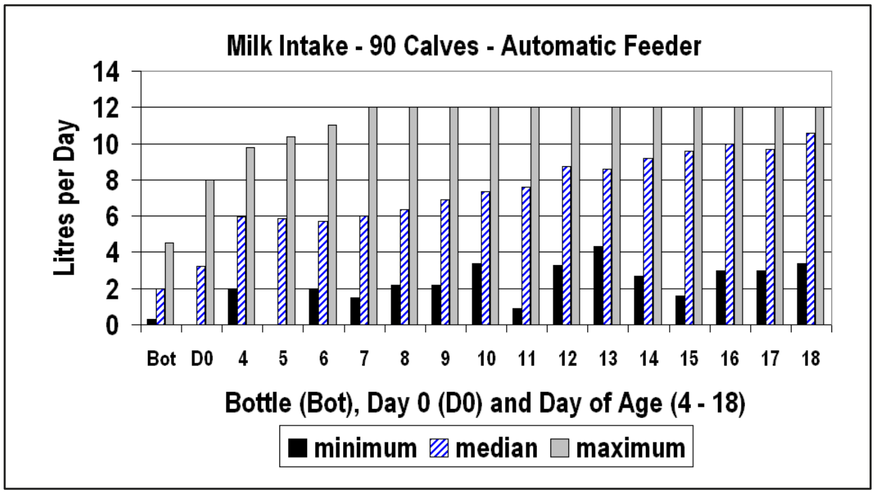

Figure 2. Minimum, median and maximum daily milk replacer intake during the bottle feeding stage (Bot), day of introduction to the feeder (D0) and days 4 to 18 of age.

Prototheca sp. Update—What's Happening in Ontario?

Ann Godkin, Veterinary Science and Policy Unit, OMAFRA, and

Durda Slavic and Bev McEwen, Animal Health Laboratory, University of Guelph

Prototheca sp. are algae that cause bovine mastitis. Historically, in Ontario, it has been of sporadic occurrence; rare enough that little tracking was done prior to 10 years ago. At that time, an increase in laboratory diagnoses suggested that the infection rate had increased.

The only information available for tracking provincial bovine mastitis pathogens in an ongoing basis is the data from routine mastitis diagnostics done by the Animal Health Laboratory (AHL), University of Guelph. Samples are submitted for bacterial culture by veterinarians and producers when mastitis-related, herd or cow problems are suspected. No active mastitis surveillance information has been collected in Ontario since 1997. The AHL data used in this project were from May 2007 to January 2010.

Since May 2007, 430 bovine milk samples were positive for Prototheca sp. A total of 140 herds had Prototheca sp. isolated from at least one milk sample. Multiple positive samples from herds were common. While 65 herds (46.4%) had only a single positive diagnosis recorded in the AHL database, the rest had multiple positive samples. Sixteen herds had more than five positive samples in the 32-month time period. Overall, a diagnosis of Prototheca sp. mastitis has been made in about 3% of Ontario herds since May 2007. Few herds have submitted whole herd cultures – thus the extent of infection in the affected herds cannot be evaluated.

A summary of the laboratory data is presented in three graphs. In the first graph (**Figure 1**), the number of samples positive for Prototheca sp. and the number of individual herd owners with a diagnosis of Prototheca sp. in their herd per month is summarized.

In the second graph (**Figure 2**), the number of herds newly identified each month with their first positive Prototheca sp. sample(s) is shown. On average 4.5 new herds were identified each month with Prototheca. The number of newly positive herds ranged from 0 to 9 herds per month. Interestingly, in both 2008 and 2009 the highest rate of new herds identified in each of those two years occurred in September. This may reflect an increase in submissions or an increase in Prototheca sp. occurrence and risk at that time. Overall, the addition of new herds with a positive diagnosis has occurred at a fairly consistent rate, as shown by the relatively straight line in graph three (**Figure 3**).

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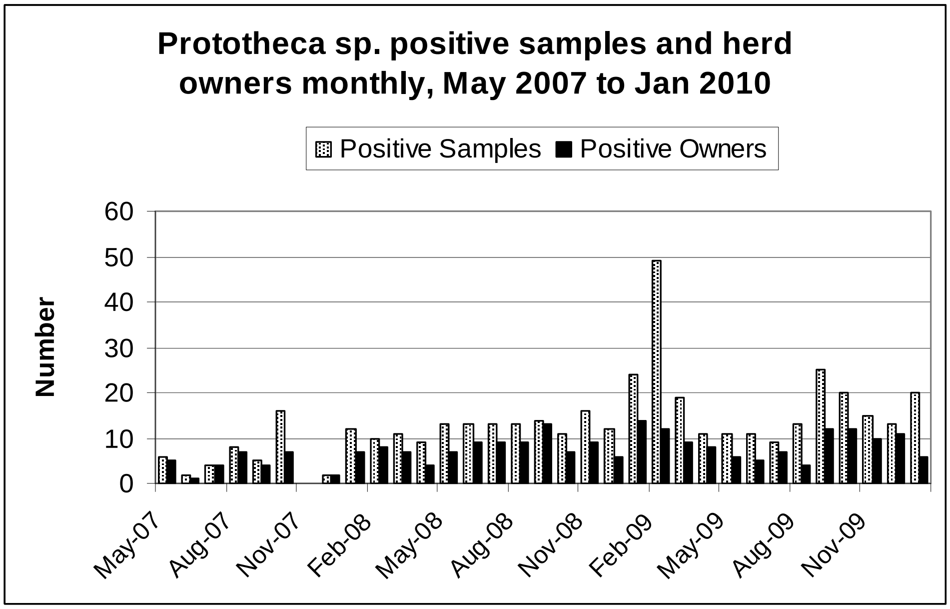

Figure 1. The number of samples positive for Prototheca and the number of individual herd owners with a diagnosis of Prototheca in their herd per month.

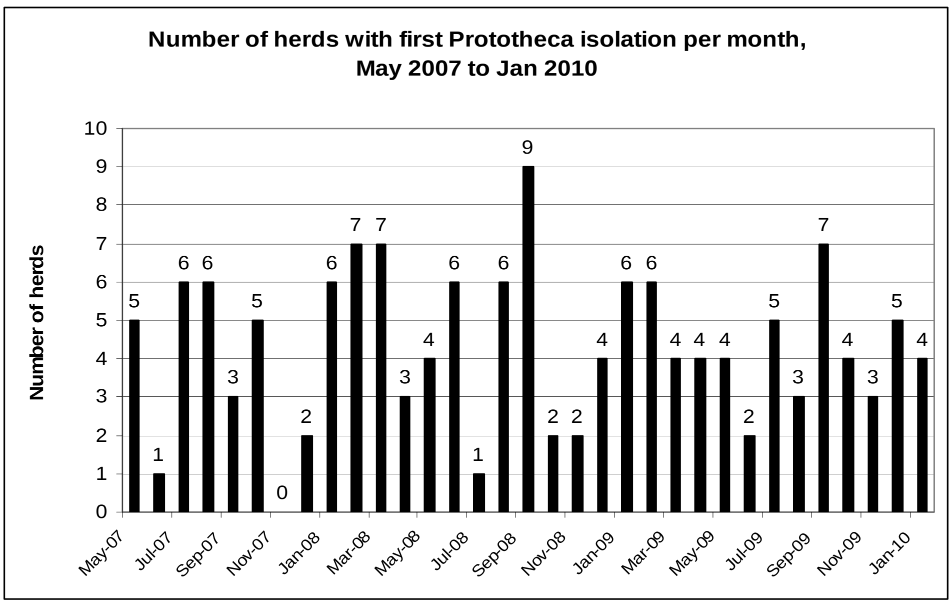

Figure 2. Number of herds newly identified each month with their first positive Prototheca sp. sample(s).

The increased, but constant, rate of identification of Prototheca sp. in laboratory-submitted milk samples shows that this pathogen has gone from being a rare sporadic problem to being an endemic mastitis infection in Ontario. Reports from other jurisdictions have documented the same change. Given the occurrence of multiple isolations per herd over time, as more herds experience their first diagnosis, presumably there is an ongoing accumulation of herds in Ontario at risk of future cases.

Prototheca sp. is an organism that inhabits soil and the cow environment. Intramammary infection in dairy cows is characterized by acute or chronic granulomatous mastitis, leading to reduced milk production and udder atresia. Infection is persistent and shedding of the organism in milk can be constant or intermittent. Prototheca sp. most likely should be classified as an environmental mastitis pathogen, although, given the clustering of cases in

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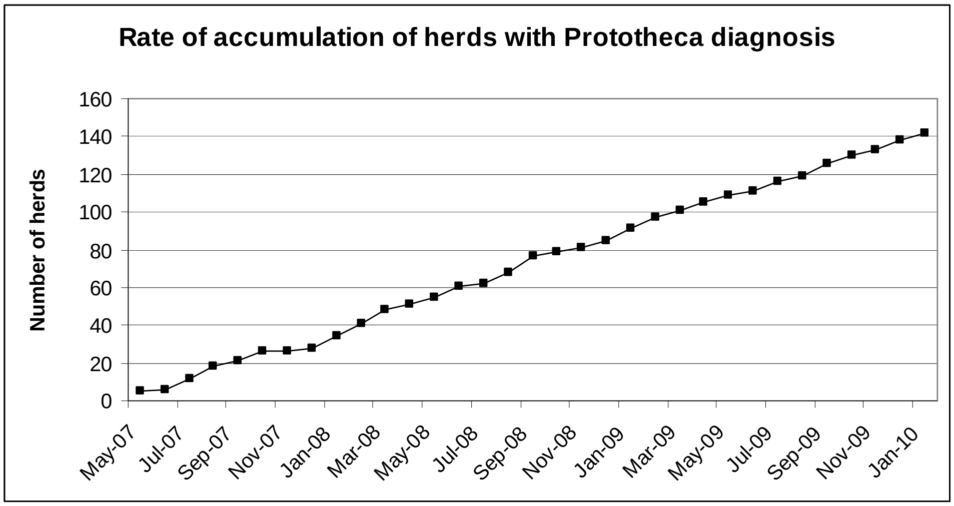

Figure 3. The monthly addition of new herds with a positive diagnosis.

50% of the laboratory-identified Ontario herds, it would seem prudent to segregate culture-positive cows to protect their herd mates.

Dairy herds in Canada have not been studied to determine the pattern of Prototheca sp. mastitis most likely to occur, nor has there been any identification of specific management or housing risk factors. Elsewhere, poor environmental and milking hygiene practices have been found to be important predisposing factors for herd outbreaks. Research in other countries has also shown that Prototheca sp. can be commonly isolated from areas of the farm where cow manure is found. While Prototheca sp. is an algae, visible water is not necessary for its persistence or spread. Warm, moist, humid conditions, such as those in stall bedding, alleyways and pens contaminated by manure, will suffice.

Prototheca sp. bovine mastitis remains untreatable as it is not susceptible to antibiotics. Some researchers have suggested that the increased use of antibiotics for treatment in some herds may be selecting for a variety of inherently resistant pathogens such as Prototheca sp.. The only effective control method for Prototheca sp. in use currently is elimination of infected cows.

In about half of the Ontario herds with a first case since 2007, further Prototheca sp. isolations followed the first positive culture.

This suggests enhancement of Prototheca sp. prevention is warranted in herds when a case is found as there is a substantial risk that multiple cases will occur. In herds where Prototheca sp. mastitis has been diagnosed, samples from cases of mastitis should be routinely cultured to provide early identification of new cases. Known infected cows should be segregated until removed. Milking hygiene, especially teat preparation and post-milking disinfection, should be improved. Although specific risk factors have not been identified, it would be prudent to improve maintenance of the cow housing environment to reduce the reservoir of Prototheca sp. and minimize cow exposure. Bedding volume, management and type should be considered. Ventilation should be improved to dry the cow environment. Both lactating and dry cows are believed to be susceptible to becoming newly infected with Prototheca sp.

Prototheca sp. mastitis remains a concern because of:

- its increasing incidence in, and prevalence among, Ontario herds since 2007
- its emergence as a significant environmental bovine mastitis pathogen
- our inability to change the course of infection once it occurs
- its potential threat as a zoonotic pathogen.

Staphylococcus aureus Mastitis in Problem Herds—Fixing the Hock Problem

Ann Godkin, Veterinary Science and Policy Unit, OMAFRA

New techniques are being used to identify strains of bacteria ("bacterial fingerprints") and hone mastitis investigations to learn more about mastitis epidemiology.

In a recent study, Swedish researchers used pulsed-field gel electrophoresis (PFGE) to type strains of *Staphylococcus aureus* (HS) to better understand the sources of the bacteria in five herds with ongoing HS problems. Milk samples from cows were cultured and the strains of HS found were identified. The results were compared to those from samples collected from multiple cow and calf body sites and from a wide variety of environmental sites. The hocks of all lactating cows were scored for evidence of hair loss and wounds.

Among the five herds, 9 to 52% of lactating cows were found to have HS mastitis. Each herd had a predominant HS strain identified. Sometimes one or two much less prominent ones were also found. A variety of cow body sites were found to have the herd's predominant strain – 103 of 988 samples from teat skin, groin, vagina, nares/muzzle, hock skin and skin wounds were positive. From 510 cow environmental sites, 45 cultures (from stabling, water cups, under rubber mats, feed and bedding) were positive for the predominant strain.

For the lactating cows, 47% of all cows had at least one positive body site. The highest rate of positive cultures from any site for three of the five herds was from samples collected from the skin surfaces of the cow hocks. For each of the five herds, the number of hock samples positive, compared to number of lactating cows with a positive body site, was 22 of 26, 14 of 17, 26 of 29, 0 of 0 and 0 of 0, respectively.

For the other cattle groups on the farms, HS was isolated in at least one body site from 31% of dry cows (hocks still predominated), 29% of heifers in late pregnancy (all positive isolates were from hocks), 8% of young heifers (hocks were all negative) and 29% of heifer calves (other skin wounds predominated, hocks were all negative).

In this study, 37% of all lactating-cow, hock-skin samples were positive for HS. Visible hock lesions (hair loss, wounds or both) were present in 54% of all lactating cows, ranging from 42 to 74% of cows per herd. The presence of HS in the milk samples was strongly associated with the presence of HS in the hock samples ($p = 0.006$). The risk of finding HS in hock samples was 3.3 times higher when cows also had HS in the milk.

The presence of HS on hock skin was associated with the presence of hock lesions ($p = 0.01$). HS was 2.7 times more likely to be found on the hock skin when cows had hock lesions (hair loss alone or hair loss and wounds). There was no association between hock lesions and HS mastitis.

The presence of HS on the hock skin of dairy cows has not been reported before. Although HS was found on undamaged hock skin, the risk of HS on hock skin increased when there were lesions. The herds with the highest rates of hock lesions had the highest rate of positive hock samples. Most positive hock samples had the dominant mastitis strain for that herd. The authors suggest that the hock skin became contaminated with milk from the mastitic quarters via milk leakage and contact with bedding surfaces. Visible damage to hock skin increased the likelihood of hock-skin contamination with HS but damage was not necessary for there to be an association between hock skin and mastitis.

About 27% of the bedding samples collected in the lactating-cow area were also positive for HS, with all but one having the herd's predominant mastitis strain. All cows were housed on rubber mats bedded with chopped straw. The mats may have had a role in damage to the hocks as has been shown previously by Dan Weary. They may also have enhanced the opportunity for milk retention and hock contact when cows laid down. The very high rate of hock positivity suggests that cow hock surfaces have the potential to become contaminated with HS and to serve as a reservoir for HS in the cow herd.

(Continued on page 11)

The information in this paper suggests three strategies to consider when enhancing HS mastitis prevention programs:

1. Physical segregation of cows with HS mastitis (not just changing the milking order) to reduce physical and environmental contact between cows with and without HS mastitis.
2. Improvement of the cow resting surface to improve cow hock health, which may assist in reducing the HS reservoir, and
3. Replacement with new bedding more frequently.

For the full paper, refer to: Capurro A, Aspan A, Ericsson Unnerstad H, Persson Waller K, Artursson K. Identification of potential sources of Staphylococcus aureus in herds with mastitis problems. J Dairy Sci 2010; 93 (1):180-191.

Surveillance for Lameness in Ontario Swine Herds

Paisley Canning, Research Assistant and Tim Blackwell, Veterinary Science and Policy Unit, OMAFRA

Lameness is a welfare and economic concern in hog production. Sows and gilts affected by lameness require treatment or removal from the herd. Early culling of lame females is a cost to the producer. Lame sows and gilts have reduced numbers of pigs born alive, compared to non-lame sows [1]. The prevalence and severity of lameness in sows and gilts has not been well documented. To begin to address this, a pilot surveillance project is underway to record the prevalence and severity of sow lameness on six Ontario hog farms.

Participating producers are evaluating the soundness of sows and gilts as they are moved into and out of farrowing rooms each week. A scoring system was devised and a sow's or gilt's gait is scored as a 0 (no lameness), 1 (mildly lame) or 2 (clearly lame). A lameness scoring video tutorial was created to describe this lameness scoring system and to help standardize producer evaluations. Producers are submitting their lameness data via mobile phone, e-mail, fax or mail.

So far, data have been collected on 1,932 sows entering farrowing rooms and 1,910 sows at weaning on the six swine operations. On these farms, gestating sows are housed in group housing, stalled housing or a combination of the two. Participants have reported that they found the scoring system easy to apply. Since the study began, 14 sows have died in the farrowing rooms for reasons unrelated to lameness. **Table 1** is a summary of average prevalence data for enrolled herds.

The prevalence of lameness in gilts and sows in the six study farms is low. All herds experience some low level of mild lameness, and have a very low prevalence of score 2 (clearly lame) sows or gilts. These results show a lower lameness prevalence compared to other countries, such as the UK, where the prevalence of abnormal gait in pregnant females has been reported as approximately 15% [2].

Table 1. Summary of Average Prevalence Data for Enrolled Herds.

	Average for all herds (n=6)	Range
Sows moving to farrowing rooms		
Score 0: no lameness	97.67%	94.64% - 99.30%
Score 1: mildly lame	1.26%	0.43% - 4.17%
Score 2: clearly lame	0.51%	0.00% - 1.26%
Sows just weaned, moving out of farrowing rooms		
Score 0: no lameness	95.76%	91.94% - 98.53%
Score 1: mildly lame	2.36%	0.61% - 3.92%
Score 2: clearly lame	0.49%	0.00% - 1.61%

(Continued on page 12)

Currently, data are still being collected on sow and gilt lameness and four new farms have recently joined the study.

1. *Anil SS, Anil L, Deen J. Effect of lameness on sow longevity. JAVMA 2009; 235(6):734-738.*

2. *Kilbride AL, Gillman, CE, Green LE. A cross-sectional study of the prevalence of lameness in finishing pigs, gilts and pregnant sows and associations with lesions and floor types on commercial farms in England. Animal Welfare 2009; 18(3): 215-224.*

Postweaning Wasting/Catabolic Syndrome – a New Disease in Pigs?

Janet Alsop, Veterinary Science and Policy Unit, OMAFRA

Postweaning Wasting/Catabolic Syndrome (PWCS), a syndrome affecting weaned pigs, has been reported in Western Canada, Kansas and Ontario. Researchers at the Western College of Veterinary Medicine (WCVM) are investigating cases in Manitoba and Saskatchewan. Up to 20 barns in Manitoba are reported to be affected.

The condition has been seen in large-framed, healthy pigs weaned between 16 and 24 days of age. They become anorexic and die within two to three weeks if not euthanized. Smaller piglets are rarely affected. Intervention strategies, such as antimicrobial treatment and supportive feeding, have proven to be ineffective in the majority of these cases. Postweaning mortality may increase to 6 to 10% in affected barns. Gross post-mortem lesions include emaciation, empty GI tract, fatty liver and depleted fat reserves. Ketonuria is found in some cases. Histologically, there is hepatic lipidosis, villus shortening and, in some cases, bronchopneumonia, Porcine Reproductive and Respiratory Syndrome (PRRSV), Swine Influenza Virus (SIV) and/or Rotavirus has been present.

Veterinarians in Kansas have reported two patterns of the syndrome:

1. Wasting associated with colitis and pneumonia - Salmonella spp. and Rotavirus have been isolated in these cases and producers have been able to reduce mortality through vaccination against these pathogens, antibiotic treatment and partial depopulation.

2. Wasting without associated colitis or enteritis - In these cases severity is farm dependent, with piglets from some sources exhibiting much higher numbers of wasting piglets than others. PRRSV has been isolated in some, but not all, of the cases. Male piglets are twice as likely to be affected as females.

Nutrition has been suggested as a possible factor in PWCS. Cost-saving measures on farms may result in reduced nutrient density or lower quality rations. However, to date, trials at Kansas State University have not demonstrated that nutrition is implicated and workers are currently evaluating the impact of vaccines on feed intake in weaned piglets.

In Ontario, one case with clinical signs of anorexia and wasting in healthy weaned barrows has been reported. However, in that case, the affected animals recovered fully after they were separated and placed into separate pens with supportive feeding. After the pig herd of origin was changed, no further cases were reported. Extensive diagnostic work did not reveal any disease agents.

To summarize, this syndrome affects large, healthy piglets, has no identified etiology and no pathognomonic lesions.

Practitioners in Ontario who are seeing cases of increased wasting of unknown etiology in weaned piglets are asked to contact Janet Alsop at janet.alsop@ontario.ca .

Dufresne L, Fangman T, Henry S. Post-weaning catabolic syndrome – complexities and perspectives. Proc. Allen D. Leman Swine Conf 2008:79-85.

Friendship, R. Personal communication, February 18, 2010.

Postweaning Wasting/Catabolic Syndrome – Canada: request for information. ProMED-mail. February 11, 2010
www.promedmail.org

Corynebacterium ulcerans: Emerging Zoonotic Infectious Disease?

Kathy Zurbrigg, Veterinary Science and Policy Unit, OMAFRA

Corynebacterium ulcerans has been associated with severe and sometimes fatal diphtheria in people without up-to-date immunization with a diphtheria toxoid vaccine. *C. ulcerans* can be found world-wide and has a large number of wild and domestic animal hosts, including cats, dogs, horses, goats and cattle. The bacterium is a commensal in animals but can cause mastitis in cattle and goats. Historically, zoonotic transmission of *C. ulcerans* was thought to be limited to the consumption of raw milk or close contact with infected dairy animals. However, many published reports of *C. ulcerans* diphtheria-like disease do not have this direct link to raw milk or dairy animals and the source of infection remains undetermined (1).

C. ulcerans is closely related to *C. diphtheriae*, and many strains of the bacterium produce toxin that is immunologically identical to that of *C. diphtheriae*. In humans, *C. ulcerans* has been associated with cases of diphtheria (some fatal), pharyngitis, sinusitis and cutaneous lesions. However, people can carry *C. ulcerans* in the pharynx with no symptoms.

Over the past five years, public and veterinary health professionals have found evidence to support the theory that the pathogen may also be transmitted from dogs and cats. Reports from both the UK and France have demonstrated that the toxigenic isolates from patients and the infected companion animals they have been in contact with have indistinguishable ribosomal patterns (2). The epidemiology of human infections is not well known. Though rare, the pathogen is being labelled as a potential emerging infectious disease due to *C. ulcerans* respiratory diphtheria-like disease being increasingly reported by developed countries.

1. *Tiwari T, Golaz A, Yu T, Ehresmann K, Jones T, Hill H, Cassiday P, Pawloski L, Moran J, Papovic T, Wharton M. Investigations of 2 cases of diphtheria-like illness due to toxigenic Corynebacterium ulcerans. Clinical Infectious Diseases 2008; 46:395-401.*
2. *Hogg R, Wessels J, Efstratiou A, De Zoysa A, Mann G, Allen T, Pritchard C. Possible zoonotic transmission of toxigenic Corynebacterium ulcerans from companion animals in a human case of fatal diphtheria. Veterinary Record 2009; 165:691-691.*

Johne's Question of the Month: "Should I test the dry cows?"

Ann Godkin, Veterinary Science and Policy Unit, OMAFRA, and
Nicole Perkins, Johne's Program Co-ordinator

Frequently practitioners have asked whether they should include dry cows in a herd's Johne's program testing. Testing these cows is optional. To test them, blood samples need to be collected by the vet during the herd's testing window.

Here are some things to consider when helping a herd owner decide about dry cow testing.

1. The prevalence of positive tests will be about the same in the dry cow "herd" as it is in the lactating cow herd, so not much "herd level" information is gained.
2. Testing dry cows may wrongly encourage producers to interpret the test results at the individual cow level. This can lead to attempts to manage individual cows based on a cow-level test result. Remember, because of the test's performance parameters in individual cows (false negatives and potential for false positives), this can lead to management errors.
3. Owners who test dry cows need to be prepared to act on the information they get back. If a high titre cow (one with a titre of 1.0 or higher) is found, they will be required to remove the cow before she calves to receive testing reimbursement.
4. Dry cows have to be tested in the same testing window as the lactating cows.

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5. For reimbursement to occur, a Testing Submission Form must be sent in with the dry cow samples to the laboratory. A second form to go with the dry cow samples can be obtained from the Johne's Program Co-ordinator.

6. Testing dry cows is probably most justifiable in herds where Johne's clinical cases have occurred recently and a high prevalence of infection is suspected. The need to identify as many potentially infected cows as possible is immediate and critical in herds like this.

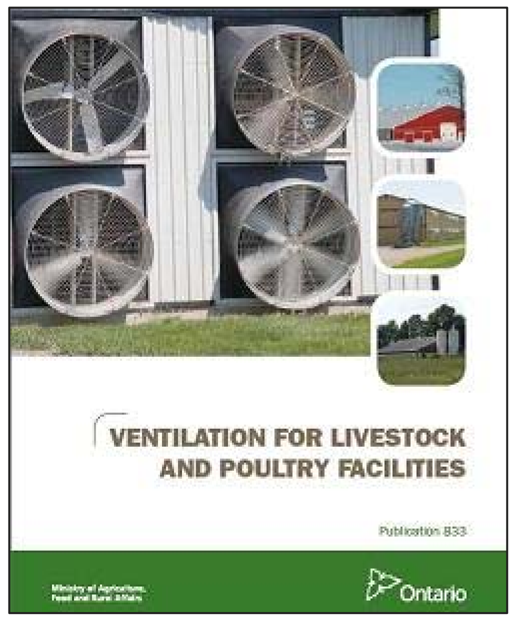
Available Resources

Factsheets

BIOSECURITY: Health Protection and Sanitation Strategies for Cattle and General Guidelines for Other Livestock— an eight-page Factsheet written by Neil Anderson. This updated Factsheet replaces one of the same name written in 2005. Order no. 09-079.

Sand-Laden Manure Handling and Storage—a nine-page, colour Factsheet written by Harold House, Engineer, Dairy and Beef Housing and Equipment/OMAFRA. This is a new Factsheet. Order no. 10-007

Ventilation for Livestock and Poultry Facilities - Publication 833



The goal of every livestock and poultry producer is to provide an optimum environment in the barn to maximize the animals' wellbeing and productivity. Good ventilation is a key component of this goal. This manual was prepared to assist producers and ventilation designers in the design, installation and maintenance of ventilation systems. It explains the basic design principles, operational requirements and maintenance of ventilation equipment in livestock and poultry barns in Ontario. Examples are provided throughout the book to demonstrate how the various principles and components are interconnected in actual barn situations.

The book also provides guidelines to contractors and producers who install and/or operate ventilation systems in livestock and poultry barns. Although it may serve as a useful guide to engineers, it was not prepared as a basic engineering manual on ventilation systems. No attempt has been made to supply all basic theory and information. Consult additional reference material for a comprehensive discussion on the ventilation of livestock and poultry facilities. The cost of publication 833 is $50.00 + G.S.T. *www.omafra.gov.on.ca/english/engineer/facts/vent_p833.htm*

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  (416) 326-5300
  (416) 325-3408 (TTY)
  1-800-668-9938 toll-free across Canada
  1-800-268-7095 TTY toll-free across Ontario

Continuing Education/Coming Events

May 7 & 8, 2010	Ultrasound Workshop sponsored by the Ontario Association of Bovine Practitioners, Walker's Dairy Sales Barn, Aylmer, Ontario. Contact Ruth Cudmore—(519) 846-2290 or oabpruth@bell.net
May 12 & 13, 2010	46th Annual Eastern Nutrition Conference, Delta Hotel, Guelph, Ontario. *www.anac-anac.ca/eventspublications/enc/index.html*
May 18-20, 2010	Minnesota Dairy Health Conference, University of Minnesota—St. Paul Campus, Saint Paul, Minnesota. *www.MNDairyHealth.org*
May 19-21, 2010	International Symposium on Beef Cattle Welfare, Kansas State University, Manhattan, Kansas. *www.isbcw.beefcattleinstitute.org*
May 26-30, 2010	Canadian Association of Veterinary Epidemiology and Preventive Medicine (CAVEPM) Conference—Towards One Health: Multiple Disciplines Working Together for Optimal Health of People, Animals and the Environment, Rozanski Hall, University of Guelph, Guelph, Ontario. *www.ovc.uoguelph.ca/cavepm/index.cfm*
June 4 & 5, 2010	Ontario Hoof Trimmers Guild Conference, Delta Hotel Conference Centre, Guelph, Ontario. *www.ontariohooftrimmersguild.com*
June 9-11, 2010	World Pork Expo, Iowa State Fairgrounds, Des Moines, Iowa. *www.worldpork.org*
June 20-24, 2010	14th International Conference on Production Diseases in Farm Animals (ICPD), De Aula—Ghent University, Ghent, Belgium. *www.14icpd.ugent.be*
July 7-10, 2010	62nd Canadian Veterinary Medical Association Convention, Hyatt Regency/Fairmont Palliser, Calgary, Alberta. *http://canadianveterinarians.net/professional-convention-highlights.aspx*
July 11-15, 2010	Joint Annual Meeting of the American Dairy Science Association® (ADSA®), the Poultry Science Association (PSA), the Asociación Mexicana de Producción Animal (AMPA), Canadian Society of Animal Science (CSAS), Western Section of ASAS (WSASAS), and the American Society of Animal Science (ASAS), Colorado Convention Center, Denver, Colorado. *http://adsa.psa.ampa.csas.asas.org/meetings/2010*
July 18-21, 2010	21st International Pig Veterinary Society Congress—Sharing Ideas-Advancing Pig Health, Vancouver Convention and Exhibition Centre, Vancouver, British Columbia. *www.ipvs2010.com*
August 19-21, 2010	American Association of Bovine Practitioners 43rd Annual Conference, Albuquerque Convention Center, Albuquerque, New Mexico. *www.aabp.org/meeting/conference.asp*
September 1-3, 2010	Compassionate Conservation: Animal Welfare in Conservation Practice—an international symposium, Lady Margaret Hall, University of Oxford, United Kingdom. *www.compassionateconservation.org*
November 14-18, 2010	26th World Buiatrics Congress, Espacio Riesco Convention Centre, Santiago, Chile. *www2.kenes.com/buiatrics2010/congress/Pages/General_Information.aspx*
December 4-8, 2010	56th Annual American Association of Equine Practitioners Convention, Baltimore, Maryland. *www.aaep.org/convention.htm*

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Ann Godkin, Veterinary Science and Policy Unit, Ontario Ministry of Agriculture, Food and Rural Affairs
Unit 10, 6484 Wellington Road 7, Elora, ON N0B 1S0
Tel.: (519) 846-3409 Fax: (519) 846-8178 E-mail: ann.godkin@ontario.ca

Comments: ....
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Ontario
Ministry of Agriculture, Food and Rural Affairs

Veterinary Science and Policy Unit
Unit 10
6484 Wellington Road 7
Elora, Ontario
N0B 1S0