CEPTOR

Animal Health News
Volume 12, No. 3, December 2004

ISSN1488-8572

Recent Findings from Denmark on Post-weaning Multisystemic Wasting Syndrome

PMWS

Tim Blackwell, Veterinary Science, OMAF

Dr. Jan Dahl from the Danish Bacon and Meat Council presented recent research results at the 2004 Allen D. Leman meeting in Minnesota concerning Post-weaning Multisystemic Wasting Syndrome (PMWS) in pigs. Porcine circovirus type 2 (PCV2) is routinely found in pigs diagnosed with PMWS and has been used to experimentally reproduce the syndrome. Although the vast majority of swine herds around the world test positive for PCV2, clinical signs of PMWS are comparatively rare. One hypothesis for the rarity of disease in sero-positive herds is the possibility of pathogenic and non-pathogenic strains of PCV2. However, DNA testing has failed to identify specific strains of the virus.

Danish veterinarians and producers believe that PMWS has spread like a contagious disease through their swine industry, despite documentation of pre-existing endemic infection with PCV2 in nearly all Danish swine herds.

Danish researchers performed a simple but revealing experiment to test the hypothesis that another agent could be involved in the pathogenesis of PMWS. The research involved six swine herds that were all seropositive for infection with PCV2. Two of these herds were affected with clinical disease and four were free of signs of PMWS. Recently weaned pigs from each of the four PCV2 positive but disease negative herds were placed in separate pens in separate rooms in a research facility. Sick pigs from either one or the other of the two PMWS positive farms were placed in each pen with the disease-negative pigs. In all four pens, the pigs from the disease-free farms developed PMWS.

Work continues to better define the pathogenesis of PMWS in swine herds. Infection with PCV2 may be necessary but is apparently not sufficient to cause disease. The possibility of a second infectious agent necessary to cause PMWS appears likely based on the study described above.

From a practical perspective, veterinarians should not rely on PCV2 serology to predict the likelihood of PMWS in pigs mixed from different sources, even when all sources are PCV2 positive.

One copy per clinic
Please circulate to all practitioners.

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Equine WNV Surveillance Update 2004

Kathy Zurbrigg, Veterinary Science, OMAF

As with previous years, OMAF has worked closely with the Animal Health Laboratory, University of Guelph, the Ontario Ministry of Health and Long-Term Care and the public health units to monitor and report cases of West Nile virus (WNV) in Ontario horses.

A total of 9 equine cases were seen this year, all in unvaccinated horses. The location of these cases can be found in the table below. A tenth WNV positive horse in Peel region was determined to be a vaccine reaction with the test results and not an actual case of WNV.

Location and Count of Equine WNV Cases in Ontario-2004

Region	Number of WNV Cases
County of Brant	1
County of Elgin	1
County of Lambton	1
District of Muskoka	1
District of Nipissing	3
Greater Region of Sudbury	1
Regional Municipality of Durham	1
Total	**9**

Further information about WNV and the 2002 and 2003 Surveillance Statistics can be found at: www.gov.on.ca/OMAF/english/livestock/horses/westnile.htm#surveillance

Human Salmonella Typhimurium Outbreak Associated with Veterinary Clinics

Neil Anderson, Veterinary Science, OMAF

Zoonotic transmission of *Salmonella enterica* has been associated with exposure to sick and healthy cattle on farms, sick cats at animal shelters, and cats at small-animal veterinary clinics. Salmonellosis is a well-recognized nosocomial problem at large-animal veterinary hospitals but it is associated with few, if any, human outbreaks.

In small-animal medicine, salmonellosis is likely underrecognized because gastrointestinal illness is common and often self-limiting. As in human medicine, salmonellosis is rarely confirmed in a laboratory, which results in underreporting of cases. However, in 1999 two salmonellosis outbreaks at veterinary clinics were linked to cats with either confirmed or suspected salmonellosis. From September to October 2003, the New York State Department of Health and three local health departments identified seven human infections with *S. enterica* serovar Typhimurium, which exhibited an uncommon pulsed-field gel electrophoresis (PFGE) pattern. Confirmed cases were in one cat, two veterinary technicians, four persons associated with clinic patients, and a nurse not linked to the clinic. These cases had an apparent link to a veterinary clinic. This report describes the outbreak investigation and underscores the importance of integrating veterinary medicine into public health surveillance.

Cherry B, Burns A, Johnson GS, Pfeiffer H, Dumas N, Barrett D, *et al. Salmonella* Typhimurium outbreak associated with veterinary clinic. Emerging Infectious Diseases 2004;10 (12, Dec.).

Available from www.cdc.gov/ncidod/EID/vol10no12/04-0714.htm

Choose the Right Loops for Side-lunging Free Stalls.

Neil Anderson, Veterinary Science, OMAF

Dad chose to drive a full size automobile or a pickup truck. Although he didn't get in or out of them often, it had to be easy when he did. I thought of this and his advice to "choose the right tool for the job" when I saw the cows and stalls shown in **Figure 1**.

The cows in the photograph stand, go down, lie and rise diagonally in their stalls because of obstructions to their normal forward-lunging behaviour. Often, we describe this diagonal behaviour as side lunging and the stalls as side-lunging stalls. With 10 resting and 10 rising motions per day, these cows could benefit from greater ease when getting in and out of their stalls. They need the right loop for the job.

Figure 1 shows loops that are inappropriate for side-lunging stalls. The lower pipe of the loop is 18 inches above the bed. It is too high for normal lunging motions.

The obstructions to forward lunging in the short, 7.5-foot stalls are a gate in the closest stalls and facing cows in the head-to-head stalls beyond. The loop opening is 30 inches. The distance from the top of the mattress to the top of the lower pipe of the loop is 18 inches. When side lunging, this pipe denies cows the freedom to use their heads as a counterweight in a normal bobbing motion. Instead, their heads follow an arc reminiscent of a ski jump.

A more cow-friendly loop for side-lunging stalls would have the lower pipe mounted about 6 inches closer to the stall bed. There also would be about 5 inches of space between the pipe and the brisket locator to avoid entrapment of a leg. Finally, the loop would have a wider opening to maintain neck-rail height.

Figure 2 shows the same loops installed in a new barn. They could be adequate in this installation because there is space for forward lunging.

Choose the right loop for the job. When renovating older barns with short stalls, choose side-lunging loops. Make it easier and more comfortable for the cows because they need to lunge over the lower pipe about 20 times every day.

Our Cows Need Their Mattresses Fluffed.

Neil Anderson, Veterinary Science, OMAF

At an extension meeting a dozen years ago, an entrepreneur heard the word *mattress*. Within a year, he manufactured and sold the first rubber-filled cow mattresses. A few million have been sold since. Although there's debate about mattresses, one thing is obvious - they suffer from neglect. Check for yourself and I'm sure you will agree. Millions of those rubber-filled mattresses need repair, replacement, or fluffing. We also need machines to do the fluffing and work crews to provide the service. And the sooner the better.

A rubber-filled mattress has advantages over concrete or a hard rubber mat as a stall surface. Even so, it has become a hazard on some farms because of fundamental differences in bed management. On farms with organic, straw-pack beds (**Figure 1**), it's standard practice to remove manure and soiled bedding, shake up and level the existing bedding and add more clean straw. Moreover, it's common to clean out old and build up new organic mattresses once a year. For sure, producers clean surfaces and add new bedding onto rubber-filled mattresses. However, the rubber crumbs compact, the cushioning effect diminishes and hollows and humps form (**Figure 2**). Unfortunately, it's impossible to shake up the rubber crumbs, level the humps or fill the hollows daily. What's more, there's no tumbler or fluffer to do the job when needed.

Figure 1 shows cows housed in a tie-stall barn with generous amounts of straw to form their mattresses.

Figure 2 shows a cow standing upon a rubber-filled mattress with chopped straw for bedding. The cow's feet compact the rubber crumbs and depressions and humps form in the bed. A ridge of unpacked crumbs at the curb holds urine or milk on the bed.

Unlike milking equipment dealers, cow-mattress dealers do not recommend service intervals for their product, warn of the perils of neglect or provide routine checks and maintenance. Yet cows make contact with mattresses five times more often and 50 times longer per day than with milking machines. Regrettably, there's no documentation showing associations between *tired mattresses* and resting times, standing times or milk production. As well, there's none showing the contribution of mattress hardness, humps or hollows to hock sores, dirty cows, lameness, mastitis, or premature culling. Some producers have seen the need for mattress maintenance. They have loosened the rubber crumbs in mattresses while renovating stalls or replaced all or most mattresses in their barns.

As you slip between your clean and warm flannel sheets this winter night, think about the other beds in your care. In the morning, check them carefully and replace or repair as needed. Your cows will repay your kindness.

Thoughts on Sweep-in Feed Mangers

Neil Anderson, Veterinary Science, OMAF

Sweep-in mangers are now an accepted part of the construction of dairy barns. After more than two decades of use, it's becoming apparent that cows and caretakers face some gnawing challenges related to them.

Simplicity of construction and ease of cleaning are selling features when compared to feed bunks with barrier fronts. Moreover, nutritionists and veterinarians egg on the choice to assure frequent removal of stale feed and thereby improve feed intakes.

What have these mangers really meant to the cow and her caretaker?

Figure 1. The feed in this sweep-in manger is outside the reach of the cows. Although push up and cleaning are easy tasks, the feeding system requires labour to keep the feed close to the cows.

Sweep-in mangers mean extra work for pushing up feed. The frequency of push-up varies from 3 to 12 times per day. The intensity of the labour varies with the technology - brooms, snow shovels, ATVs or garden tractors with blades or brushes, skid steers or tractors. Although quicker and easier, the job still consumes time. To reduce labour even more, automated feed pushers (an adaptation of an alley scraper) came upon the market and found some acceptance.

Figure 2. This 25-year old drive-through feed bunk retains feed within easy reach of the cows. The owner does not push up feed, claims very little feed refusal and only minimal need to remove corncobs.

In tie-stall barns, sweep-in mangers may contribute to dirty stalls and cows and subsequent lameness or mastitis. It's obvious that cows step forward to reach feed and often that's when they defecate in their stalls. What also is obvious in tie-stall barns is the beneficial effect of keeping feed closer to the cows. My clinical impression is less episodes of manure in stalls and fewer cows with neck injuries in barns with a barrier at the front of the manger. For sure, someone needs to do formal research because clinical impressions and owner testimonials can be misleading. By putting cows to an outdoors feed bunk, some tie-stall operators avoid the extra labour of dirty stalls at one or two daily feedings. In free-stall barns, cows reach for feed and injure their necks on the feed-barrier rail or cable.

What isn't obvious in both barn types is the probability of stress on the claws. When cows reach for feed, the change in posture is very obvious. However, we need research on weight bearing on claw surfaces during these episodes and what effect, if any, this may have on claw disease.

Keep feed within easy reach of cows. This is an essential tenet of stockmanship. It benefits the cow - freedom from hunger, injury and disease - and the caretaker. Feed barriers could have a place on modern dairy farms. They just need 21st Century automation so they lift up or drop down out of the way for cleaning mangers.

Stable Blindness and Sensitivity to the Sensitive Corium

Neil Anderson, Veterinary Science, OMAF

Many working with livestock suffer from stable blindness but how many is unknown. Stable blindness usually describes those who cannot see faults in their stock or flaws in their husbandry or practices. Fortunately, stable blindness is reversible.

For example, some have stable blindness to the sensitivity of the sensitive corium of a cow's foot. At a recent lameness conference, professional claw trimmers and veterinarians debated the need for intravenous regional analgesia (IVRA) for treating claw diseases. "It isn't painful enough to warrant locals" was one opinion. "It's invasion of the sensitive corium and that always requires pain relief" was the opposite pole. Some always saw pain. Some saw it sometimes. Others never saw it.

Figure 1 shows surgical exposure of the sensitive corium beneath the sole. The bleeding is a sure sign of invasion of the sensitive corium.

While the removal of tissue is common treatment, the extent of trimming varies. Some remove the loose edges of horn tissue to expose the ulcer all-the-while being careful not to expose more sensitive corium. Without pain relief, a flinch is their warning not to venture further with horn removal. However, others remove healthy horn tissue and expose corium beyond the ulcer. They follow the adage that "the more they bleed the quicker they recover."

The application of a wooden block or plastic shoe on the healthy claw of the affected foot is very common. The reduction of pain by relief from weight bearing is obvious as cows walk and stand with greater ease. At least two studies show more rapid healing and greater success without bandaging the affected claw. Not bandaging appears to be widely adopted.

The conference debate revealed inconsistent use of analgesia for pain relief. It left me wondering if we have become blind to the sensitivity of the corium. Veterinarians, claw trimmers and milk producers should debate the issue of regional analgesia. It's time to establish a standard of care for treating sole ulcers - one that includes pain relief.

Industry Averages of Cow Comfort

Kathy Zurbrigg, Veterinary Science, OMAF

Lactating cows on 317 Ontario tie-stall dairy farms were scored for problems including lameness, injury and cleanliness. The percentage of the herd affected was calculated and the range was broken up into groups, each containing 20% of the study farms. The stall length, width, tie-rail height and tie-chain length were also recorded and the ranges grouped in the same manner. The information is presented in the chart "Score Your Farm for Cow Comfort." The chart was created to encourage producers to score their own farms and compare them to the industry norms. It is hoped that this may motivate those who are below the industry averages to make improvements to stalls and cow comfort.

Example of a COW COMFORT SCORE SHEET

Stall Length (gutter to manger curb) = _____ Stall Width (divider to divider at centre) = _____

Tie-rail Height = _____ Tie-chain Length = _____

Electric Trainer Location (height above cow's chime) = _____ Distance from gutter curb = _____

ID	Neck	Back Arch	Tail	Hind Claw	Hind Limb Cleanliness	Udder Cleanliness	Hock
	0 1	0 1	0 1 2	0 1	0 1 2 3	0 1 2	0 1 2 3
	0 1	0 1	0 1 2	0 1	0 1 2 3	0 1 2	0 1 2 3
	0 1	0 1	0 1 2	0 1	0 1 2 3	0 1 2	0 1 2 3
	0 1	0 1	0 1 2	0 1	0 1 2 3	0 1 2	0 1 2 3
[5]	0 1	0 1	0 1 2	0 1	0 1 2 3	0 1 2	0 1 2 3

Parameters and Definitions

Parameter	Definition
Back arch 0	No arch is seen in the back while standing.
Back arch 1	An arch is seen in the back while standing.
Hind claw 0	No rotation of the hind claw
Hind claw 1	Hind claw rotated outward more than 20 degrees from the cow's midline
Hind limb 0	No manure on hind leg from claw to hock
Hind limb 1	Manure is seen only up the dewclaw.
Hind limb 2	Manure is seen from dewclaw to shank.
Hind limb 3	Manure is seen from dewclaw up to or over hock joint.
Hock 0	No hair loss, broken skin or scabs
Hock 1	Hock is swollen with no hair loss, broken skin or scabs.
Hock 2	Hock has hair loss with or without swelling.
Hock 3	Hock has broken skin or scabs with or without swelling.
Neck 0	No hair loss, broken skin or scabs visible
Neck 1	The neck has hair loss, broken skin or scabs visible.
Udder 0	No manure visible on udder
Udder 1	Slight amount of manure visible on udder
Udder 2	Significant amount of manure visible on udder
Tail 0	Tail is not docked or broken.
Tail 1	Tail has a deviation in the vertebrae from a previous or recent break.
Tail 2	Tail is docked.
Stall length	From inside (stall bed side) of manager curb to inside of gutter curb
Stall width	Between the stall dividers on their centre
Chain length	From snap at cow collar to tie rail
Tie-rail height	From stall bed to underside of tie rail

SCORE YOUR FARM for COW COMFORT

Count all the milking cows on your farm with each problem listed below. Turn the count of affected cows for each problem into a percent value by dividing the number of affected cows by the total number of milking cows scored. For each problem area, find which group your farm fits into. For example, if the percentage of cows that have hock wounds is 3%, then you would be in group 2 for hock wounds.

Boxes that are shaded indicate values that are considered too high for that problem.

Problems	Best 20% of Farms	2nd Best 20% of Farms	Middle 20% of Farms	2nd Worst 20% of Farms	Worst 20% of Farms
Swollen hocks	0 - 3.8%	3.9 - 8.8%	8.9 - 15.4%	15.5 - 25.7%	25.8 - 60.8%
Hock hair loss	0 - 14.8%	14.9 - 26.9%	27 - 41.7%	41.8 - 53.1%	53.2 - 81.1%
Hock wounds	0 - 1%	1.1 - 3.4%	3.5 - 6.9%	7 - 12.2%	12.3 - 100%
Neck lesions	0%	0%	0 - 1%	1.1 - 4.1%	4.2 - 47.8%
Broken tails	0%	0%	0 - 1%	1.1 - 5%	5 - 50%
Rotated hind claws	0 - 6.7%	6.8 - 14.6%	14.7 - 22%	22.1 - 34.2%	34.3 - 73.7%
Arched backs	0%	0 - 1%	1.1 - 2.6%	2.7 - 5.6%	5.7 - 21.4%
Dirty udders	0%	0 - 1%	1.1 - 2.7%	2.8 - 6.9%	7 - 48%
Dirty hind limbs	0 - 2.9%	3 - 8.7%	8.8 - 18.2%	18.3 - 36.1%	36.2 - 94.4%

Measure 1 or 2 of your milking cow stalls. Identify risks to your cows by finding which group your farm fits into for each measurement.

Stall Sizes	Worst 20% of Farms	2nd Worst 20% of Farms	Middle 20% of Farms	2nd Best 20% of Farms	Best 20% of Farms
Stall length	54 - 64 in	65 - 68 in	69 - 70 in	71 - 72 in	73 - 86 in
Stall width	36 - 44 in	45 - 46 in	47 - 48 in	49 - 51 in	52 - 57 in
Tie-rail height	30 - 35 in	36 - 37 in	38 - 39 in	40 - 42 in	43 - 52 in
Tie-chain length	14 - 18 in	19 - 20 in	21 - 22 in	23 - 26 in	27 - 45 in

***Stalls should be sized for the stature of the cow.**
See the information sheet *Tie Stall Dimensions* for sizing information. Refer to www.gov.on.ca/OMAF/english/livestock/dairy/facts/info_tsdimen.htm

Viable *Mycobacterium Avium* Subspecies *Paratuberculosis* Found in US Retail Milk Samples

Jocelyn Jansen, Veterinary Science, OMAF

Pasteurization may not be effective in eliminating all viable MAP found in raw milk.

New research by Marshfield Clinic Laboratories, Wisconsin, has found that some *Mycobacterium avium* subspecies *paratuberculosis* (MAP) survived pasteurization. The research was conducted on pasteurized retail whole milk samples from California, Minnesota and Wisconsin between May 2002 and April 2003. Two culture techniques and PCR were used to evaluate 702 samples. They found that 2.8% of the samples contained viable MAP. Rates of positives were similar among states, but more positive samples were found during the summer months. The experimental design of the study and methodologies appear to have been well planned and executed. Researchers commented that contamination of milk post-pasteurization might also explain the findings. Results of this study were released on August 9, 2004, at the International Association for Food Protection Meeting in Phoenix, Arizona.

Between 1999 and 2000, United Kingdom researchers examined 567 pasteurized retail milk samples and found 11.8% of milk samples tested positive for MAP using PCR. The PCR test can not distinguish between viable and dead/non-viable bacteria. Samples were also cultured to try to detect viable cells and 1.8% of milk samples were found to contain live MAP. Culture positive samples had been treated at 72°C for 15 seconds (high-temperature, short-time (HTST) pasteurization) as well as 72 to 75°C for an extended holding time of 25 seconds. It was concluded that viable MAP are occasionally present at low levels in retail milk samples in the United Kingdom. These levels had not been verified in published scientific literature in North America until August 9.

A 2002 Ontario study completed at the University of Guelph on 710 retail milk samples from Ontario found no live Johne's bacteria. However, 15% of the samples were positive for MAP DNA by the PCR test. The researchers concluded that the lack of recovery of live MAP from retail milk samples may have been due to the absence of live MAP in the samples tested or the presence of low numbers of live MAP which went undetected by the culture method used in the study. The limit of detection for the PCR used in the study was 100 colonies of MAP per millilitre milk; this would suggest that the test could not detect below 25,000 organisms of MAP in a cup of milk.

Other international studies have also found that MAP may survive heat treatment at 72°C for 15 seconds (HTST) if present in high numbers prior to heat treatment (spiked milk samples). Current pasteurization regulations were established to inactivate *Coxiella burnetti* (the organism responsible for Q-fever) and *Mycobacterium tuberculosis* (the organism responsible for tuberculosis). MAP may be more heat resistant than either of these two bacteria.

Ten to twenty percent of Ontario's retail milk is "microfiltered" prior to pasteurization. This filtration process is said to result in a 99% total reduction of bacteria. Companies do not specifically test for MAP following microfiltration. In the 2002 Ontario study described above, 4% of the retail milk samples were microfiltered and none of these samples were PCR positive, but this sample size is too small to draw any conclusions. Further research into microfiltered milk and MAP is needed to determine if the process is capable of removing MAP prior to pasteurization.

The dairy industry, worldwide, is concerned about the possibility that MAP may survive the pasteurization process and that Johne's and Crohn's disease may be linked. However, at this time, researchers and health officials do not feel that anyone should change their dietary habits. Research continues on this very controversial topic.

Increase in Livestock Rabies in Ontario

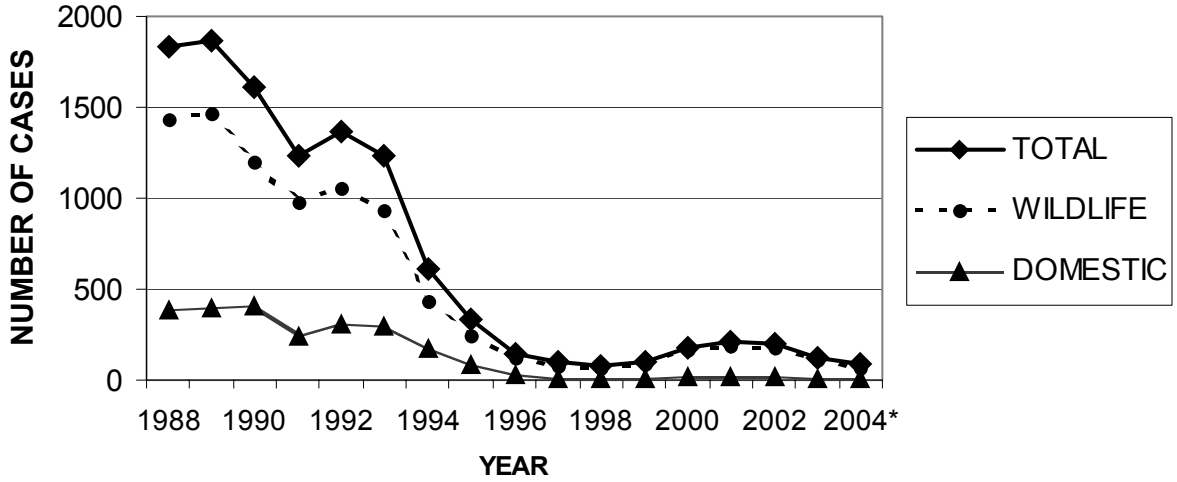
Jocelyn Jansen, Veterinary Science, OMAF

The number of cases of rabies in livestock has increased in 2004. According to Beverly Stevenson of the Rabies Research and Development Unit (Ontario Ministry of Natural Resources), there have been 14 confirmed cases and seven clinical cases of rabies in livestock during the first nine months of the year. Clinical cases are animals that show signs of rabies and that the district veterinarian believes are rabid, but they are not actually submitted for testing. From 1996 to 2003, livestock cases only accounted for, on average, 9% of all cases in Ontario, compared to 25% to date in 2004.

Part of the increase may be due to multiple rabid animals from a single farm. There were seven positive cows from a farm in Simcoe County, 3 positive cows from a farm in Grey County and two positive cows from another farm in Grey County to date. Most of the livestock rabies cases have occurred along the eastern edge of Grey County and the western edge of Simcoe County.

The wildlife baiting program of the Ontario Ministry of Natural Resources and vaccination of companion animals has dramatically decreased the level of rabies in the province (**Figure 1**, **Table 1**) – but the **risk is not zero**.

FIGURE 1: RABIES IN ONTARIO, 1988-2004



Ontario Ministry of Natural Resources, Rabies Reporter Home Page. Available at www.gis.queensu.ca/RReporter/

Table 1: Number of Cases of Rabies in Ontario by Species from 2000 – 2004.

Species		2000	2001	2002	2003	2004*
Total Number of Cases		183	210	201	122	84
Wildlife						
	Big Brown Bat	32	50	71	68	45
	Little Brown Bat	1	2	0	3	2
	Hoary Bat	0	1	0	1	0
	Silver-Haired Bat	1	0	1	0	0
	Red Eastern Bat	0	1	0	0	0
	Striped Skunk	57	57	46	21	15
	Raccoon	40	45	22	16	5
	Red Fox	30	26	41	5	1
	Wolf	1	2	0	1	0
	Coyote	0	1	2	0	0
	Groundhog	1	0	0	0	0
	Total	**163**	**185**	**183**	**115**	**68**
Livestock						
	Bovine	10	11	5	5	11
	Bison	0	1	0	0	0
	Equine	3	5	1	1	2
	Ovine	0	2	1	0	0
	Caprine	0	0	0	1	1
	Porcine	0	0	1	0	0
	Total	**13**	**19**	**8**	**7**	**14†**
Companion						
	Dog	7	4	4	0	1
	Cat	0	2	6	0	1
	Total	**7**	**6**	**10**	**0**	**2**

*Results from January to September, 2004

†Excludes clinical cases

British Experts Test for BSE in a Goat

Jocelyn Jansen, Veterinary Science, OMAF

A healthy goat slaughtered in France in 2002 is suspected of having Bovine Spongiform Encephalopathy (BSE). The goat was tested as part of the European Union's surveillance program, designed to detect Transmissible Spongiform Encephalopathies (TSEs) in small ruminants. Over 140,000 goats have been tested since April 2002. The initial positive test result differed from normal scrapie strains and further testing was carried out (the necessary assays were reported to take two years to complete). Results from those tests indicate that the brain could be BSE-positive. French authorities have submitted their data to the Community Reference Laboratory for TSEs in England. If confirmed, this would be the first case of BSE in a species other than cattle.

All goats in the herd, including the affected one, were destroyed. Tests on all 300 adults were negative for all TSEs. No products from the affected goat or its herdmates entered the food or feed chain. Results from the expert panel in England are expected over the next two to four weeks.

Johne's Disease Testing – What Are the Options for You and Your Clients?

Jocelyn Jansen and Ann Godkin, Veterinary Science, OMAF

CanWest DHI, in co-operation with AntelBio (Michigan), will be offering a new screening test for Johne's Disease that utilizes the preserved cow milk samples collected on DHI test day. The test will be available through DHI starting in January 2005. The coming availability of this test has stimulated interest and discussion among producers about Johne's Disease. They have questions about testing for Johne's Disease, protocols for testing and infection prevention strategies.

The Veterinary Science group will be offering short meetings this winter for veterinary practitioners interested in discussing the various tests available for diagnosing Johne's Disease in cattle. The pros and cons of the different tests, interpretation of test results, and recommendations to clients, will be examined/debated. Meetings will be held across the province and will be about two hours long.

We plan to offer times during the week of January 10th to 14th in southwestern Ontario and from Feb 1st to 3rd in eastern Ontario. Please let us know if you would be interested in attending. The response will affect the number and location of the veterinary meetings scheduled.

Please respond, as soon as possible, to Jocelyn Jansen at (519) 846-3414 (direct line), by e-mail to jocelyn.jansen@omaf.gov.on.ca, or by fax (519) 846-8101.

Audit of Colostrum Feeding Practices on Ontario Dairy Farms

Ann Godkin, Veterinary Science, OMAF

Feeding enough colostrum to calves as soon as possible after birth is the most important action to undertake to prevent calf-hood disease. As with anything, it's not just what you do but how you do it that ensures the outcome will be successful. First feedings of colostrum, if not cleanly collected, cleanly stored and timely fed, may deliver high numbers of bacteria right into the GI tract of highly susceptible neonatal calves. We wanted to find out if this was likely to occur on Ontario dairy farms.

Ten veterinary practices participated in a study to look at feeding practices and the bacterial numbers in colostrum fed to calves on their client's farms. Samples of colostrum intended for 94 calves on 33 farms were collected for 14 weeks between July 11th and Oct 10th, 2002. The owners completed follow-up questionnaires on calf health when each calf was a week old.

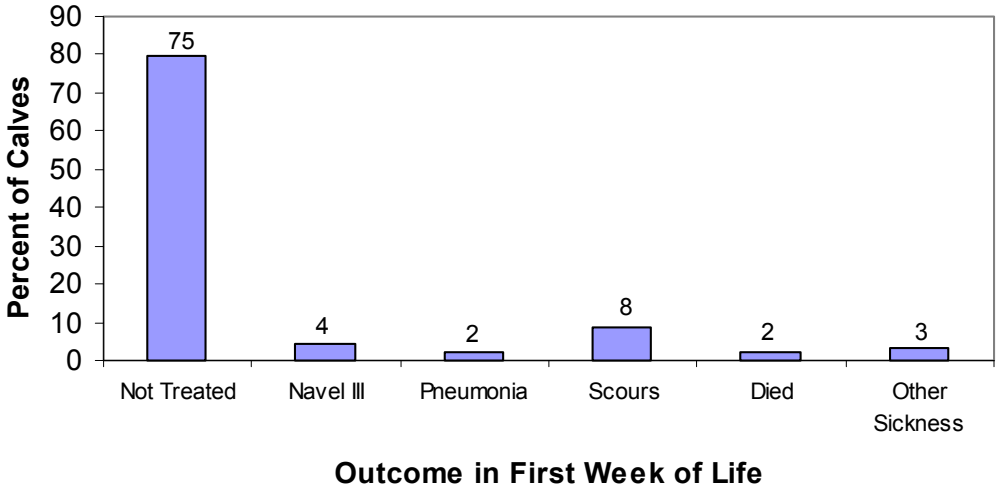
Calves

A total of 94 calves, 45 male and 49 female, had pre-feeding samples of colostrum collected for this study.

Sick Calves

Of the 94 calves, 19 (20.2%) became sick and required treatment, within 1 week of birth. Two died. Four had navel-ill, two pneumonia, eight scoured and three had other problems (**Table 1**).

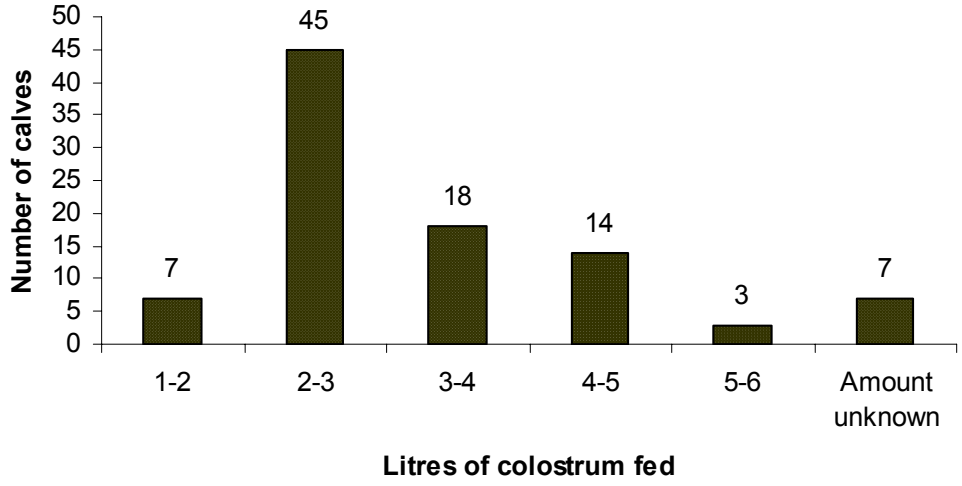
Table 1: Percent (Number) of 94 Calves Treated Within One Week of Birth
Number of calves appears above graph bars.



Amount of Colostrum Fed

80.5% of calves received less that 4 litres of colostrum (1 - 3.8 litres) while the remaining 19.5% received 4 or more litres (16% of the overall amount were fed 4 litres, the remaining 6% were fed from 5 to 6 litres). Five producers did not know how much colostrum had been fed while 2 had left the calf with the cow to get it's own colostrum (**Table 2**).

Table 2: Litres of Colostrum Fed at First Feeding to 94 Ontario Calves



Method of Feeding Colostrum

Colostrum was supplied by bottle-feeding for 73% of the calves. 14% were tube fed, 10% were pail fed and 2% were left with the cow.

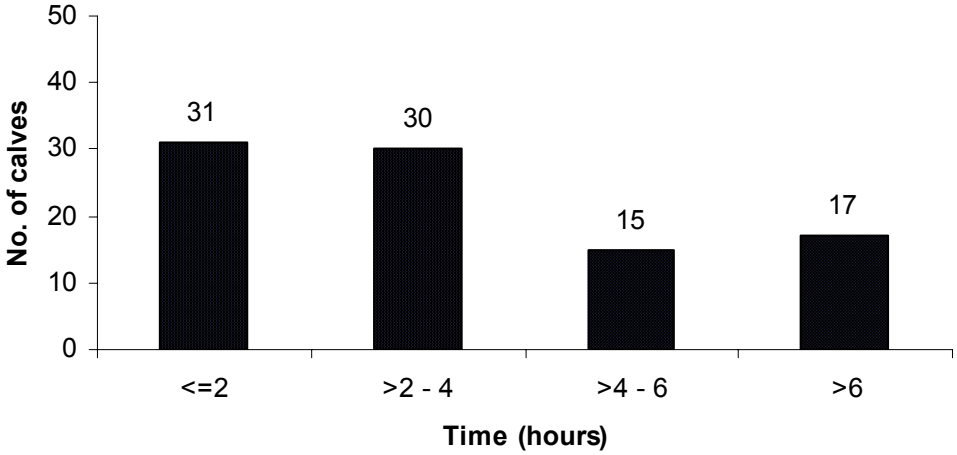
Colostrum Source

Only one calf was fed colostrum from a pooled source; the rest received colostrum from only one cow, although it might not have been its own dam.

Time until Colostrum Fed

Within two hours after birth, 31 of the calves received colostrum. Another 30 were fed between two and four hours post-natally. Thirty-two of the calves received their first feeding of colostrum at over four hours of age (**Table 3**).

Table 3: Time Interval (Hours) Elapsing Before Calves Were Fed Colostrum



The time to first feeding did not vary for male or female calves (either the average or range). Male calves often have lower immunoglobulin levels in veal calf studies. It seems this is most likely due to the amount of colostrum fed and not because dairy producers make less effort to feed them as early as heifer calves.

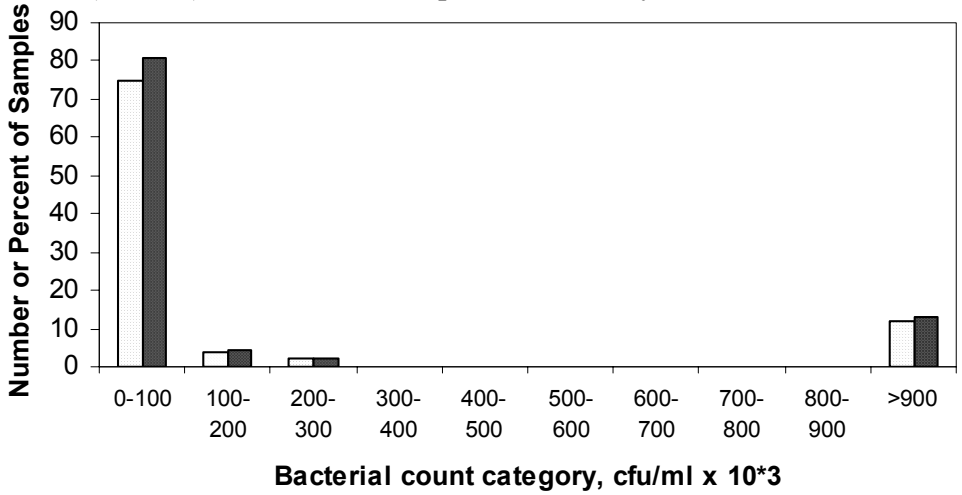
The time to first feeding was not associated with the total bacterial count. This suggests that prolonged incubation was not responsible for the elevated bacteria counts.

Bacterial Counts in Colostrum

Overall, bacteria counts were either high or low on the samples of first colostrum - there were very few "in between" counts (**Table 4**). Twelve colostrum samples (12.8%) had total bacterial counts where bacterial numbers were so high they could not be counted (TNTC). Of these 12, six had total gram-negative counts that were TNTC while all 12 had total gram-positive counts that were TNTC.

Of the 33 farms submitting colostrum samples nine had at least one colostrum sample with a very high count.

Table 4: Number (Percent) of Colostrum Samples Classified by Bacterial Levels at Feeding Time



Take-home Points

1. Illness in very young calves is very common. One in five calves were treated for illness in the **first week**. Ten of the 33 farms treated at least one calf.

2. About 1 in 10 of colostrum samples had very high bacterial numbers. About 1/3 of the farms had at least one sample with a high count.

3. When these high counts occurred, it was unlikely that they had become elevated as a result of incubation before feeding. It is much more likely that the colostrum from which these samples were drawn was grossly contaminated by being collected from a dirty udder and/or into a dirty container.

Overall, the rate of neonatal illness requiring treatment was too high among the farms from which the samples were collected. Many of the colostrum samples had high bacterial numbers. The presence of lots of bacteria indicated that hygiene for colostrum collection and calf feeding is inadequate. The greater the rate of contamination of colostrum with bacteria, the greater the risk of transferring a pathogen becomes.

Secondly, if feeding 4 litres of colostrum within 2 hours of birth is the "gold standard" for good calf raising, few calf-feeders are heeding this extension advice. Only 7 of the 93 calves were fed 4 or more litres of colostrum within 2 hours of birth.

Do you know how colostrum is collected, stored and fed to calves on your client's operations? A winter calf colostrum feeding audit could answer this question for you and help you to improve management (with little cost!) to benefit owners and calves.

BSE Surveillance Update

Paul Innes, Veterinary Science, OMAF

After the discovery of an indigenous case of BSE in May 2003, an international team of experts assessed Canada's response and made recommendations for future policy actions. One recommendation was enhanced surveillance in the highest risk populations: dead, down, diseased and dying cattle (the 4-D categories) over 30 months of age. The purpose of enhanced surveillance sampling is to establish a statistically valid prevalence estimate for BSE in Canada, and to monitor the effectiveness of control measures on that prevalence over time. BSE testing is not being used as a food safety measure; therefore, it is not necessary to test every animal. Public health concerns are addressed by the mandatory removal of Specified Risk Materials at slaughter.

The provinces have been working with the Canadian Food Inspection Agency (CFIA) on a National Enhanced Surveillance Plan (NESP), which is being implemented across the country based on the specific regional or provincial situation and needs. National targets of 8,000 and 30,000 samples have been set for 2004 and for 2005 and subsequent years respectively. OMAF has been collaborating with CFIA Ontario in implementing the plan in this province to meet our provincial targets of 1,000 this year and 4,000 in 2005.

Building on the BSE surveillance work done by OMAF since 2002, CFIA sampling of deadstock is underway at two locations in Ontario. By the end of October, Ontario had surpassed the target of 1,010 samples for this calendar year, with all results negative.

OMAF is supporting the national plan by sampling 4-D animals arriving at provincially licensed abattoirs, or diverting them to one of the federal sampling streams. As part of the NESP, producers are also being encouraged to report 4-D animals directly to the CFIA. Funding is being made available to offset the costs for disposal and veterinary services for animals being sampled on-farm by either a CFIA or a private veterinarian. Details of the program are available from the CFIA at www.inspection.gc.ca/english/anima/heasan/disemala/bseesb/surv/brochuree.shtml or by calling 1-866-400-4244.

Continuing Education/Coming Events

January 7 & 8, 2005	Ohio Dairy Veterinarians Meeting, Holiday Inn- Inn on the Lane, Columbus, Ohio. This year's program features Dr. Ken Nordlund from University of Wisconsin - Madison as the primary speaker. Ken will present papers on: Cow Behavior, Pen Moves, and Overstocking Monitoring Transition Cow Management. This will be the first time for this information to be presented in a CE meeting. Update on Free-stall Design and Management, Air Hygiene, Bedding and Calf Respiratory Disease. Registration deadline is January 3. Hotel deadline is December 19, (614) 294-4848, rate at $89.00. Contact Dr. Mark Armfelt, (740) 668-2682, Mark.a.Armfelt@monsanto.com.
January 8 - 12, 2005	North American Veterinary Conference and Veterinary Technicians in America Annual Conference, Orlando, FL. 1-800-817-9928, www.navconline.com
January 16 - 19, 2005	National Mastitis Ccouncil 44th Annual Meeting. Orlando, FL. (608) 848-4615, www.nmconline.org
January 25 - 27, 2005	Dairy Calves and Heifers; Integrating Biology and Management Conference, Holiday Inn-Liverpool, Syracuse, NY. (607) 255-7654, Fax (607) 254-8770, nraes@cornell.edu, www.NRAES.org/conferences/calves2005.html
January 27 - 29, 2005	Ontario Veterinary Medical Association Annual Conference, Toronto, ON. 1-800-670-1702, cneziol@ovma.org, www.ovma.org/pdf/05conf_program.pdf
February 20 - 24, 2005	Western Veterinary Conference, Las Vegas, NV. (702) 739-6698, www.wvc.org/
February 24 - 27, 2005	Midwest Veterinary Conference, Greater Columbus Convention Center, Columbus, OH. ohiovma@ohiovma.org, www.ohiovma.org/index.html
March 5 - 8, 2005	American Association of Swine Veterinarians 36th Annual Meeting, Westin Harbour Castle, Toronto, ON. (515) 465-5255, aasv@aasv.org, www.aasv.org/annmtg
March 8 - 11, 2005	Western Canadian Dairy Seminar. "Working Today for Tomorrow's Future." Red Deer, Alberta, www.wcds.afns.ualberta.ca/
March 30 - April 1,	Professional Dairy Heifer Growers Association (PDHGA) Conference. 2005 National Dairy Calf and Heifer Conference jointly with Central Plains Dairy Expo, Sioux Falls, South Dakota. See the PDHGA web site, www.pdhga.org; the Central Plains Dairy Expo web site, www.centralplainsdairyexpo.com or call Alvaro Garcia, 2005 conference chair, (605) 688-5488.
June 12 - 15, 2005	4th IDF International Mastitis Conference, Maastricht, The Netherlands. www.fil-idf.org/mastitis2005
July 24 - 28, 2005	American Dairy Science Association Annual Meeting, Cincinnati, Ohio. www.adsa.org

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Kathy Zurbrigg, Veterinary Science, Ontario Ministry of Agriculture and Food

Wellington Place, R.R. # 1, Fergus, Ontario N1M 2W3

Tel: (519) 846-3418 Fax: (519) 846-8101E-mail: kathy.zurbrigg@omaf.gov.on.ca

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Deadline for next issue: February 15, 2005

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