CEPTOR

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Veterinary Achievements

Industry Recognizes Veterinarian's Contribution

Keith Robbins, Ontario Pork

Dr. Tim Blackwell, Veterinary Scientist with OMAF has been awarded one of two Pork Industry Merit Awards this year. The awards were announced at the Ontario Pork Annual General Meeting and Banquet March 13th, 2003.

Dr. Blackwell has been instrumental in developing and delivering many practical programs and resources for the swine industry, including the Sentinel Herd Program, Swine Medicines Course, Ontario Swine Health Information Plan, and Alternative Sow Housing resources. His unique style and 'get the job done' attitude are appreciated by producers, researchers and colleagues throughout the industry. Dr. Blackwell will receive his award at the London Swine Conference, April 9th.

Ontario Veterinarian Recognized by the Peterborough Federation of Agriculture

Marg Dawson, President Peterborough County Federation of Agriculture

Annually the Peterborough County Federation of Agriculture nominates a worthy recipient from the community to receive their "Longstanding Community Service Award to Agriculture". This year we were especially proud to award this to Dr. Barry Diceman and very pleased that he accepted.

Barry has touched the lives and hearts of so many farm families in this county. His easy-going yet competent approach to a veterinary problem, along with a touch of humour to ease the tension, has been Barry's trademark. In his years as a veterinarian in this county, he has been a part of many of our lives. The attendance at the recent Annual Meeting told its own story, with one of the biggest crowds ever for an Annual Meeting. As the guest speaker, Barry's humour had everyone rolling in the aisles as he told stories of some of his more interesting experiences over the years as a veterinarian in Peterborough County.

We at the Peterborough County Federation of Agriculture, take pride in presenting Barry with this award. He is a true ambassador to the farming community having displayed outstanding service and commitment.

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Where did that Salmonella come from?

Tim Blackwell, Veterinary Science, OMAF

Dr. Scott Hurd and his colleagues at the National Animal Disease Centre in Ames, Iowa have shown that the origins of Salmonella in market hogs are not as obvious as we may have assumed. It has often been stated that the stress of loading, mixing and holding pigs prior to slaughter resulted in a recrudescence of latent Salmonella infections. Dr. Hurd demonstrated that mixing, fasting, and holding pigs on the farm of origin for up to 18 hours did not increase Salmonella excretion rates compared to pigs left in their pens without any interventions. However, when pigs were moved to and held at abattoirs, the proportion of culture positive pigs increased significantly. Although pigs transported to the slaughterhouse shed more Salmonella, they also shed different strains of Salmonella than the strains that were recovered from the farms of origin.

In another experiment, Dr. Hurd and colleagues slaughtered pigs on the farm of origin or at an abattoir. Tissues collected from pigs slaughtered at the abattoir had a 7 fold higher Salmonella isolation rate (39.9%) compared to pigs necropsied on the farm (5.3%). In addition, there were twice as many Salmonella serotypes isolated from pigs slaughtered at the abattoir (17) compared to pigs killed on the farm (8).

In order to test the hypothesis that pigs could actually become infected during the short period of time they were held at the plant prior to slaughter, a marked strain of Salmonella was placed on the floor of a holding pen in a research facility. Market hogs were introduced to the pen and slaughtered after 2, 3 and 6 hours of being held in the pen. In the hogs held for only 2 hours, 80% had at least one tissue sample test positive for the specific strain of Salmonella that had been introduced to the pen. After 6 hours, 100% of pigs had at least one tissue sample test positive.

This series of experiments indicate how quickly tissues can test positive for Salmonella after pigs are exposed to the organism and demonstrates that the potential sources of Salmonella infection in swine extend well beyond the farm.

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Dipyrone in Swine – Response from gFARAD

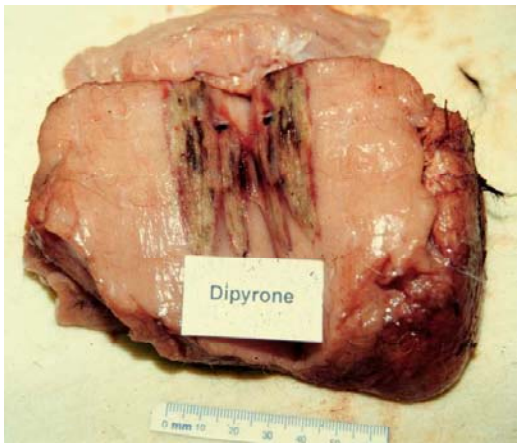
Dr Patricia Dowling, gFARAD Western Centre

In response to your inquiry regarding the use of dipyrone in food animals, we at the Canadian gFARAD strongly recommend that this drug not be used in food producing animals. It is banned for use in food animals in the United States, therefore any animal treated with dipyrone can never enter the US food chain.

Dipyrone has historically been used in humans and animals as an antipyretic, anti-inflammatory; and analgesic. The drug has been associated with serious toxic effects in humans, including dose-independent teratogenicity, increased bleeding times, and a potentially fatal agranulocytosis. Prompted by these concerns, the FDA removed approval for all dipyrone-containing human medical products in 1977. Dipyrone products labeled for companion animals (which the FDA had never approved) continued to be sold.

On the basis of surveys indicating use in food animals, the absence of an assay method, and lack of animal safety, residue, and efficacy data, regulatory discretion allowing marketing of the veterinary product ceased in 1995 in the US. Yet it continues to be sold for use in horses and dogs in Canada. Any use of dipyrone in food animals remains a violation of the US Food Drug and Cosmetic Act and receives the same regulatory priority as chloramphenicol and clenbuterol.

I personally assisted the chemists from the CFIA in their method development for dipyrone residues, so I know that the detection program is active and accurate to extremely low concentrations. Since these were not depletion studies, I have no information on which to base a withdrawal recommendation.



Dipyrone injection site from a calf 48 hours post-injection

My last reason for not using dipyrone is because of the tissue damage it causes. I photographed the non-steroidal anti-inflammatory drug (NSAID) injection sites in the CFIA study. The picture shows a dipyrone injection site from a calf 48 hours post-injection. Of all the NSAID lesions I've examined, dipyrone was by far the worst. So I do not think that the use of dipyrone is acceptable in any meat production Quality Assurance program and I cannot provide you with any guidance for a withdrawal time.

Sizing Holstein Cows

Dr. Neil Anderson, Veterinary Science, OMAF

Resting, standing, and perching (standing with two feet in the stall) behaviour are of interest because of an association between uncomfortable stalls or dominance behaviour and increased standing time and lameness (Leonard 1994, Galindo, 2000). The mismatching of cow dimensions and stall dimensions could contribute to the contrariness of cows to appropriate stall use. For example, nose-to-tail length and head-lunging space would be essential measurements for sizing stalls for forward lunging. Although producers often comment that cows are getting bigger, dimensions for modern dairy cows are not easy to find.

Current North American extension publications show cow weight and recommended stall dimensions. However, the publications show neither cow dimensions nor space requirements for normal standing, resting, rising or lying behaviour. However, there are several choices of dimensions for cows of a specific weight. Moreover, the choice of stall size must be made on faith because there are neither performance data for the stalls nor audit reports for appropriateness of fit. To use the tables in extension publications, one must know cow weights.

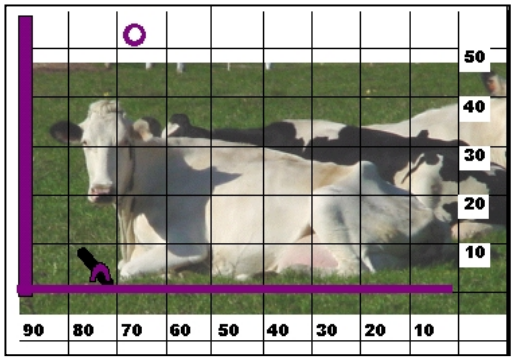
Weights from an Ontario farm. The variation of cow weights within a herd and within age groups is apparent in the data from an Ontario herd. While on feeding trials in 2002, researchers weighed 87 Holstein cows, four to seven times during their lactation. This yielded 448 weights to describe the weight distribution for cows in the herd. Thirty-one, 27, 13, 6, 4, 3, 2 and 1 cows were in Lactation 1 to 8, respectively. As expected, weight changed by stage of lactation. The median weight was 1448 lb. - half the weights were greater and half less than the median weight, and the 3rd quartile was 1560 lbs. The median weight for Lactation 1 cows was about 1350 lbs. and the weights ranged from 1000 to 1800 lbs. By 200 days in milk, the Lactation 1 cows weighed greater than 1400 lb. The 3rd quartile weight was 1430 lbs. for Lactation 1 cows. The median weight for the mature cows was 1540 lbs. and the weights ranged from 1200 to 1900 lbs. Their 3rd quartile weight was about 1600 lbs. Does weight provide enough information for sizing stalls?

An audit in the United Kingdom. A recent report of space requirements for cows comes from Faull and Hughes (1996). After observing cows freely lying and rising in a field, they concluded that Friesian/Holstein cows needed 95 x 47 inches living space and a further 24 inches of head lunging space for rising (Table 1). After conducting barn audits, they found 87% of cubicles (free stalls) were too short, 50% were too wide or too narrow, and that only 12% of the cubicles permitted real freedom of movement. Fully 10% of cows appeared moderately or severely restricted when lying down, 33% when rising and 55% when standing. How do our Canadian Holsteins compare to the UK cows?

Table 1. Measurements of cow length, width and rising space for UK Friesian-Holsteins (Faull 1996).

Length - nose-to-tail	95 inches
Imprint length	71 inches
Imprint width	47 inches
Length of head lunging space	24 inches
Length of front-leg stride to rise	18 inches

Holstein Canada and Holstein Association USA.
Fully 25% of Canadian Lactation 1 Holstein cows stand 59 inches or higher at the rump and weigh greater than 1325 pounds at the time of type classification. According to information from Holstein Association USA, the average weight for the breed is 1500 lb. and rump height is 58 inches. The Associations do not report nose-to-tail length, imprint length or width.



Cow measurements. Anyone who has tried to measure nose-to-tail length will understand why this measurement is difficult to find in the scientific literature. With inspiration from Red Green, we tried the duct tape method at an Ontario farm. After placing a duct tape grid on a 8.5-foot wall adjacent to a water trough, cows were recorded on video while standing or drinking. The technique showed that Holsteins in that herd measured greater than 102 inches from nose-to-tail.

Measurements of rump width revealed that 50% of the cows in another Ontario herd measured greater than 25 inches at the hook bones and the top 25% measured 27 inches. Rump width may be useful to calculate imprint width (twice hook bone width) while resting in the narrow position. Rump height is a surrogate measure of withers height - a useful measurement for positioning the neck rail. Cows used for a behavior study in Quebec had a mean nose-to-tail length of 97.5 ± 3.7 inches (Haley 2001).

An Estimate of Cow Dimensions. Although there are scant measurements for predictions, the top 25% of Canadian Holstein cows in a herd should weigh greater than 1550 pounds, stand 59 inches at the rump, and span 27 inches at the hook bones. A nose-to-tail length of 102 inches should be common.

Matching cow dimensions and stall dimensions. Cermak (1988) and Irish and Merrill (1986) advised sizing stalls by using cow dimensions but gave no cow measurements for reference. For example, Irish and Merrill recommended building stalls twice the width of the hook bones. The newest tie stalls seem to be following this strategy. Similarly, Merrill recommended a total stall length equal to body length plus about 24 inches for forward lunging. The newest free stalls seem to be adhering to this recommendation.

Knowledge of cow dimensions and space requirements for normal behavior is essential for building a husbandry system. Research projects to get the measurements and observe the behavior are a definite asset to our dairy industry. The new larger stall sizes appear to be based more on cow size, behavior and needs than the standard recommendations or common practice of the past. For the most part, stalls have been built for the average Holstein cow - one believed to be 1400 lbs. Nonetheless, our Holsteins exceed this weight by the end of their first lactation. About 50% of cows in most herds will weigh greater than 1550 lbs. Until stall performance information is available, the standard advice to match stall dimensions to average dimensions of cows is as unsatisfactory as providing medium sized coveralls for everyone visiting a farm. The larger half of the population of visitors would either not fit or fit uncomfortably into the coveralls. Building a group of stalls to fit lactation one cows and another group of stalls to fit mature cows could assure the majority has the freedom for normal resting, rising, or standing behavior.

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Thanks to Kathy Zurbrigg and cooperating producer

Diagonal Lunging in Free Stalls

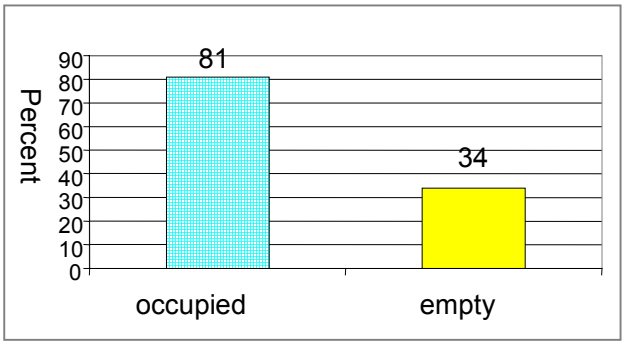
Neil Anderson, Veterinary Science, OMAF

Diagonal standing or lying in free stalls is of interest because these behaviors affect stall cleanliness, labor, and mastitis related to defecation on the corners of the stalls.

At a study farm with 16-foot, open-front, head-to-head free stalls, cows lunged diagonally 34% of the time when the facing stall was empty and 81% of the time when the stall was occupied ($p<0.0001$). At another farm, cows lunged diagonally 68% of the time with the original 8-foot closed front stalls and 44% of the time with modified stalls that had open fronts and loops with 38-inch wide side openings ($p=0.0002$).

A mismatching of the space provided with the space required for normal rising and lying motions appears to contribute to diagonal lunging and standing. Cows that stand diagonally will generally lie diagonally. Obstructions in the space used for head bobbing, or short stalls, may be the greatest contributors to diagonal lunging and lying in the stall. The obstructions could be another cow, a wall, high brisket boards, support pipes, concrete or bedding piled the front of the stall, or the location of the neck rail. Rather than trying to force cows to stand and lie straight with narrower stalls, the solution seems to be more freedom to exhibit normal. The most cow friendly stalls provide the space and necessary freedom to lunge forward and to bob the head down and up. Some naysayers proclaim they cannot afford to build a barn that meets those requirements. Others believe it is their duty of care.

Figure 1. Frequency of diagonal lunging in 16-foot, head-to-head, open-front freestalls with the facing stall occupied or empty.



Thanks to Kathy Zurbrigg and John Williamson for data collection

Standing Behaviour in Free Stalls

Neil Anderson, Veterinary Science, OMAF

The standing behaviour of dairy cows in loose housing systems may injure cows, most notably foot health. Standing behaviour may indicate frustration, disease, stress, or fear. Abnormal standing behavior is a welfare and economic problem because it contributes to lameness, lost production, and decreased cow longevity. The observation that many, most, or all stalls are occupied at some time during the day may not be a sensitive measure of stall performance because cows normally rest as a group even in uncomfortable stalls. Resting, standing (four feet in the stall) and perching (standing with two feet in the stall) times measure specific cow responses to the stall and could be better indicators of stall performance.

The findings for Holsteins housed in free stalls at an Ontario farm provide an example. The behaviour of cows in the old (original) stalls and the new (modified) stalls was evaluated using time-lapse video recordings. The stalls under observation faced the alley at the feed bunk. The dimensions appear in Table 1. The loops for the original stalls had a 28-inch opening and the new loops had a 38-inch opening. The modified stalls were wider, the brisket board was replaced with a Poly Pillow®, the neck rail was higher and more forward, and the loops were mounted on individual posts. The modified stalls also had a pipe mounted at the very front of the stall to discourage entry from the feed alley or exit into the feed alley. This pipe was about 10 inches lower than the neck rail. The stalls had rubber-filled mattresses and the owners provided 0.80 stalls per cow. Stocking density, bedding (wood shavings) and other husbandry remained the same during the video observation period, but bedding changed to chopped straw three weeks later.

Table 1. Dimensions for original and new stalls at the Study Farm.

	Original Stalls	**New Stalls**
Length	8 ft to pipes	8 ft to open front
Bed length (curb to brisket locator)	69 in	72 in
Stall width (on centers)	44 in	48 in
Neckrail location Vertical from bed Forward of curb	 43 in 67 in	 50 in 70 in
Brisket locator height	8 in	4 in

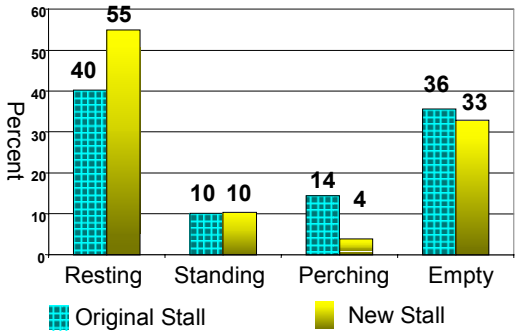


Figure 1. Percentage of 48-hour period that a stall was used for resting, standing, perching or empty

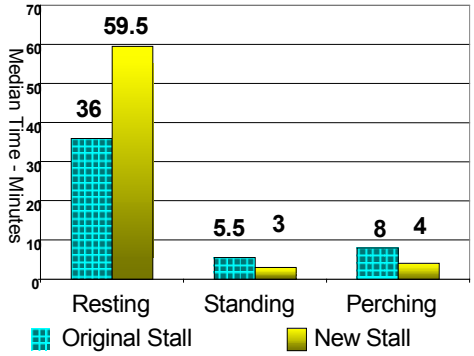


Figure 2. Median resting, standing and perching bouts in original and new stalls.

Resting Time. The percentage of time a stall was used for resting increased from 40% in the original stalls to 55% in the new stalls (Figure 1). The cows used the new stalls an additional 3.6 hours per day for resting. The median resting time in the old stalls was 36 minutes whereas the median resting time in the new stalls was 59.5 minutes. The difference in the duration of resting time is significant, (Kruskall-Wallis statistic = 7.1, P=0.008). Figure 2 shows a shift to resting bouts of greater duration in the new stalls.

Standing Time. The percentage of time a stall was used for standing was 10.1% in the original stalls and 10.3% in the new stalls (Figure 1). However, the median standing time in the old stalls was 5.5 minutes whereas the median standing time in the new stalls was 3 minutes. The difference in the duration of standing time is significant, (K-W = 8.3, P=0.004). Figure 2 shows a shift to standing bouts of shorter duration.

Perching Time. The percentage of time a stall was used for perching decreased from 14% in the original stalls to 4% in the new stalls (Figure 1). Cows used the new stalls 2.4 hours less per day for perching. The median perching time was 8 minutes in the old stalls whereas the median perching time was 4 minutes in the new stalls. The difference in the duration of perching time is significant, (K-W = 9.4, P=0.002). Figure 2 shows a shift to perching bouts of shorter duration in the new stalls.

Unused Stalls. Original stalls were empty 36% of the time and new stalls were empty 33% of the time (Figure 1). With about 0.80 stalls per cow, the new stalls were empty about 8 hours per day and the original stalls approximately 8.6 hours. The unused time represented the time spent during milking (2x), eating, or standing in alleys.

Milk Production. Weigh slips from milk pickups were used to monitor milk production before and after changes to the stalls. Milk per cow per day was 22 kg at the time of observation in the original stalls. Milk production was 25 kg per cow per day, seven days after the stall changes and 25.5 kg six weeks later.

Hock Injuries. Fully 100% of the cows had open lesions on their hocks when the old stalls were in use. Six weeks after the stalls had been modified, 15% had open lesions, and 74% showed hair loss or swelling.

Discussion. The new stalls were larger, provided greater space for forward lunging into the feed alley and diagonal lunging into the adjacent stall, and had a higher neck rail. There were significant changes in the percentage of time a stall was used for resting and perching. There also were improvements in the duration of resting, standing, and perching bouts, production, and hock health, indicating greater comfort had been achieved. The cost of materials and labour was $132.00 per stall. The pay back time (using increased milk production for income) would be about 6 months. When given a choice, the cows chose forward lunging about 56% of the time in the new stalls. In contrast, cows lunged forward 32% of the time in the old stalls. Mismatching stall and cow dimensions appeared to be detrimental to cow health, milk production, and stall performance.

The results from a single case study herd have limitations because the findings may not be applicable to the general population and they may not be repeatable in other herds. However, this case study has been presented to stimulate awareness, discussion, additional case studies, or research. The dimensions for the new stalls were chosen empirically based on field observation without the benefit of data from controlled experiments. It is unknown if alternative dimensions would be better or if herds with fewer injuries and greater production would see changes in standing by modifying stalls. One can find considerable variation in cow comfort and performance within and between various housing systems because of the way the system is managed.

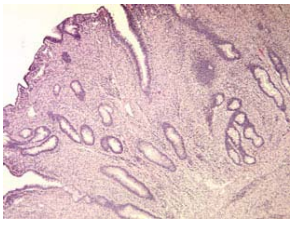
Conclusion. Humane care and performance should be justification for determining the ideal matching of cows and stalls. Resting, standing or perching behavior may be as important as position control for sizing stalls because these behaviors have an impact on foot health, leg injuries, production, and longevity. Although stall dimensions have been chosen to position cows for reasons of stall cleanliness, or because of common practice, an expert's opinion, or barn cost per stall, producers also wisely base the decision on cow comfort. Information about the performance of the stall (e.g. resting, standing, and perching times, diagonal lying, or injury scores) should be valuable for making the choice.

Thanks to Kathy Zurbrigg and John Williamson for data collection

Voluntary Johne's Disease Herd Status Program: Does it Work?

Ann Godkin, Veterinary Science, OMAF

Strategies for using tests currently available for Johne's Disease (JD) have been recommended by various groups of JD experts. One of the most popular has been the Voluntary JD Herd Status Program (VJDHSP) developed in 1997 and publicized by the US Animal Health Association. The program uses both serology (ELISA) and fecal culture and is devised to utilize these tests in a fashion that is a compromise between test accuracy and cost. Although commonly recommended and used as the backbone for some national testing



A low power magnification Photomicrograph of an ileal tissue taken from a cow with Johne's disease (H&E stain).

programs, the testing scheme has, until recently, never been evaluated for it's ability to correctly classify herds as positive or negative for JD.

Within the VJDHSP there are different levels of certification. At the first level, a random sample of 30 cows in their second or later lactation are tested using a recognized ELISA test. Cows are culled based on fecal culture confirmation of ELISA positives. Advancement to higher levels requires annual re-testing by ELISA and bacterial culture of fecal samples from a much larger herd sample or the entire herd, depending on herd size. The full description of the program is available on the United States Animal Health Association web site at www.usaha.org under "Johne's Disease" and then "certification".

US researchers have now evaluated the performance of the program for classification of dairy herds for JD status, using herds with established JD status. Sixty-four dairy herds were used to test the program at its different levels.

The objective was to determine what proportion of herds would be correctly identified as either positive or negative for JD if they used the VJDHSP. For herds with .1 to 4.9% of cows positive on fecal culture, collecting 30 samples/herd was shown to identify only 33% of these herds as positive under the criteria of the VJDHSP which required at least one cow to be positive on both ELISA and fecal culture (the confirmatory test). As the proportion of cows in the herd with positive fecal cultures or positive ELISA tests increased, using the 30 samples/herd, the sensitivity also increased (more of them were correctly classified as positive). Similarly as more cows in the herd were sampled the sensitivity for classifying the herd as positive also increased.

Ultimately, in herds with a low prevalence of JD infection as established by bacterial culture (< 4.9% of adult cows), even if all adult cows were tested, only 73% of these herds would be identified if the VJDHSP protocol were followed (ELISA serology of all, followed by fecal culture of seropositive cows)

In the 8 herds without laboratory or clinical evidence of JD, under the various classification schemes, from 89 to 100% of them were falsely identified as JD positive using the ELISA testing results, as is recommended at the first level of the VJDHSP model.
JD remains a difficult infection and disease to identify through the testing of adult cattle. Classification and certification of herds based solely on testing strategies and test results such as those used in the VJDHSP is difficult to support when the rate of wrongly classified herds has been shown to be so high. While this strategy might serve as a useful guide for veterinarians and their clients seeking a reasonable path through the JD testing fog, purchasing replacement animals from herds so classified cannot be advocated.

For the full article see: Wells SJ, RH Whitlock, BA Wagner, J Collins, F Garry, H Hirst, J Lawrence, WJA Saville and AL Larew Naugle. Sensitivity of test strategies used in the Voluntary Johne's Disease Herd Status Program for detection of *Mycobacterium paratuberculosis* infection in dairy cattle herds. JAVMA Vol. 220, No. 7, April 1, 2002. p1053.

Calves with Cryptosporidiosis can be Frustrating: Is there a Treatment?

Daryl Nydam, Cornell University

Cryptosporidiosis in dairy calves can be very frustrating to deal with. The agent of this disease, *Cryptosporidium parvum*, is the pathogen most often found in scouring calves aged 5-30 days. It does not appear to be as life threatening as, for example, *Salmonella*, but under the right conditions can cause severe diarrhea and death in young calves. Clinically affected calves are the most likely animals to shed large numbers of this protozoan, but calves with no outward signs of infection may also shed large numbers of oocysts. In fact, during an infection of average duration, a calf sheds approximately 40 billion oocysts. Thus, it can be very prevalent in the calf's rearing environment and can be present in the maternity area as well. Reports indicate the herd prevalence in North America is approximately 60-80%.

Calves are infected via the fecal-oral route and it likely takes less than 100 oocysts to infect a healthy calf. The reproductive and infective structure, the oocyst, survives very well in the environment and is resistant to most disinfectants at farm friendly concentrations. This leads to a high likelihood of a susceptible calf being exposed to an infectious dose of oocysts. Once the intestine is colonized, the life cycle of this parasite allows for auto-infection of nearby cells potentially leading to chronic disease.

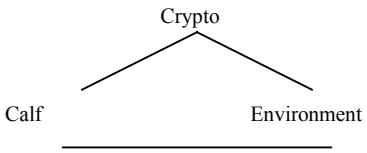
The constant environmental presence of oocysts, well-adapted life cycle of the parasite, and limited impact of immune enhancement often leaves us trying to treat sick calves. Unfortunately, that remains frustrating as well. Many antimicrobial agents have been tried and investigated for treating calves with cryptosporidiosis. Among them are allicin, ionophores (monensin and lasalocid), amprolium, decoquinate, sulfas, paramomycin, and halofuginone. Most other antimicrobials have limited pharmacologic basis (e.g. ceftiofur) for use against a protozoan pathogen or are illegal (e.g. metronidazol).

Allicin, a sulfur containing component of garlic, that is available as an additive to milk replacer was shown in a randomized controlled trial not to alter the duration of diarrhea due to *C. parvum* or enhance weight gain. Monensin and amprolium were also found to be ineffective in an oocyst inoculation trials in calves and rats. Lasalocid has been reported to have some efficacy at relatively high doses (5-15 mg/kg). Unfortunately, this cannot be recommended because doses of 5-8 mg/kg have been shown to be lethally toxic to neonatal calves. There are many anecdotal reports from the astute practitioners in the field attesting to the utility of a high dose (e.g. 5x) of decoquinate in the prophylaxis and treatment of cryptosporidiosis. In addition, one trial with 5 Holstein bull calves suggested it may reduce the number of days of oocyst shedding and improve fecal scores, but did not prevent shedding of the organism. Unfortunately, in another very well run trial, decoquinate showed little to no activity against the parasite in either cell culture or mice. The authors of this trial postulated that any apparent clinical improvement of calves with cryptosporidiosis and treated with decoquinate was due to effects other than on *C. parvum*. Trimethoprim-sulfa, sulfadimidine, and sulfadimethoxine have also been demonstrated to be ineffective against the disease.

Paramomycin, a human-labeled aminoglycoside, has been shown a number of times to have utility in cell models, rodent models, and is often used as adjunct therapy in patients with cryptosporidiosis and AIDS. A suggested and researched dose in calves is 100mg/kg for 10 days. Unfortunately, this comes with the vagaries of using an aminoglycoside in food producing animals as well as a price tag of about $60/day for a 40 kg calf, i.e. $600USD. Halofuginone is one antimicrobial that has shown promise in Europe to treat and prevent cryptosporidiosis in dairy calves. In at least 3 trials with reasonable numbers of calves it has decreased oocyst shedding and improved fecal consistency scores. Unfortunately, to the author's knowledge this is currently not available in North America.

In the future halofuginone may become available in North America, but this often takes substantial time. In addition, there has been a recombinant protein vaccine against *C. parvum* developed that is administered to dry cows somewhat like an *E. coli* K99 scours vaccine. At this point in time it is not commercially available, but it has moved from the research laboratories to pharmaceutical companies for testing.

So now what? Ask yourself, "If nothing can be found to reliably treat cryptosporidiosis in AIDS patients who are very desperate to try most any treatment, is it likely that there is something useful for calves?" The bugs and drugs paradigm won't work with this pathogen, or most others for that matter, causing scours in dairy calves. Further ask yourself, "Can a pathogen that is usually present on a farm be the cause of an increase in disease incidence?" The answer is usually "No". Some other factor in the host (in this case calf), pathogen (in this case Crypto), and environment triad is usually broken. An example of a host factor is co-colonization with other more virulent enteropathogens, examples of environmental factors include poorly cleaned milk and grain buckets.



So what can we do? Fortunately, most clinically ill calves respond to fluid therapy and supportive care. Remember to watch for metabolic acidosis associated with *Cryptosporidium* induced diarrhea. Consider supplementing intravenous fluids with sodium bicarbonate. Be persistent and intervene early with oral electrolyte solutions, while continuing to feed milk or milk replacer at the normal daily rate (divide it into more frequent, smaller feedings if necessary and feasible). Recall the ability of *C. parvum* to auto-infect adjacent cells and the calf's slow immune response to the parasite that can lead to protracted disease and necessitates vigilance in care of these calves.

To prevent infection follow routine best management practices for calves. These include removing the calf from the maternity area as soon as possible and putting it in an environment that has been cleaned from previous calf use. Cleaning should include removing bedding and the base (e.g. geotextile fabric or large gravel) and hot water disinfection of the pens. Remember though, that water can spread other pathogens around if it is not used judiciously and the area allowed to dry between calves. As always, wear clean clothes and boots when working with calves.

Cryptosporidium is certainly a frustrating pathogen to combat, but by attending to the details of calf management we can get ahead of it even in the absence of efficacious antimicrobials.

The Quality Starts Here✓

Quality Starts Here

Paul Stiles, Ontario Cattlemen's Association

The Quality Starts Here✓ - Verified Beef Production Program, an initiative of the Canadian Cattlemen's Association, has been introduced to beef producers across Canada. This program will serve as the national voluntary on-farm food safety program for the beef industry. The Ontario Cattlemen's Association, in partnership with Beef Improvement Ontario and the Government of Ontario, will deliver the program in Ontario.

One critical element of the program is the requirement for all participating producers to have a valid veterinary client patient relationship. As on-farm food safety programs develop and encompass an ever-increasing number of farms and commodities, the role of veterinarians will become crucial to their success.

Requirements of the program, verified during an on-farm audit, includes the maintenance of records for all on-farm practices, a signed Veterinary Visit Report sheet and veterinarian-approved protocols for both processing and treatments of livestock. Prescriptions are also required for all extra label use of medications.

The two QSH coordinators, Paul Stiles and Dan Ferguson, in conjunction with OMAF staff have taught workshops to over 150 beef producers across Ontario. Local veterinarians have attended some of these workshops to discuss the program and serve as a resource at the workshop.

Workshops have been scheduled throughout the winter and spring with on-farm audits scheduled to begin in the fall of 2003. For further information on the program, call Paul Stiles or Dan Ferguson at 1-866-887-8858 or visit the website at www.qualitystartshere.on.ca

Non-ambulatory Horses NOT Eligible for Slaughter

W. Robert Hayes, Regional Veterinarian, OMAF, Guelph.

Non-ambulatory horses for slaughter must be certified under Ontario Regulation 732/94. In Canada federally registered horse slaughter plants cannot accept down horses. This is because these plants also have EU registration. Non-ambulatory horses arriving at a federal slaughter plant are automatically euthanized on arrival.

Recently an incident occurred at an auction where a veterinarian certified a downed horse for slaughter. CFIA wishes all Ontario veterinarians to be reminded of the regulations covering the slaughter of a non-ambulatory horse. The veterinarian in question, as well as the owner of the auction, has been made aware of the situation.

Unless pre-arranged at a provincial abattoir, these animals should not be transported for slaughter. This only prolongs their suffering.

Update from the Rothsay Sulfa Testing Program

Ann Godkin, Veterinary Science, OMAF

To evaluate producer compliance with sulfa withdrawal recommendations in animals submitted for rendering, Rothsay Rendering has implemented a testing program for their clients. During 4 weeks in November, 130 bovine animals from 130 farms in southwestern Ontario were identified at the farm with a tag and tested at the deadstock collection location. Samples of urine or from gall bladders were obtained and tested using the Sulfa-on-site (SOS) test. Of the 130, two were found positive for sulfas at or above the high standard (1.3ppm) level.

The producers who had disposed of the positive animals were contacted by Rothsay and warned that their results could lead to withdrawal of rendering privileges by the company. One other producer did have services withdrawn for five days.

Meat and bone meal (finished product from the Rothsay plant) continues to be monitored closely by Rothsay staff. Samples of MBM are collected every 2 hours. Sixty of these samples are submitted to a laboratory at routine intervals for evaluation on a HPLC test for quantitative sulfa content.

PLDC Beef – 2003

Paul Innes, Veterinary Science, OMAF

This year, the beef industry, represented by the *Production Limiting Disease Committee (PLDC),* is conducting a national beef cow-calf assessment of four endemic diseases – Johne's, BVD, Bovine Leukosis and Neosporosis. The study group will include 60 herds in each of the provinces of British Columbia, Alberta, Saskatchewan and Ontario, and 100 herds in the Atlantic Region. Quebec and Manitoba have already completed their collections. Ontario's participation in this study is being coordinated by OMAF and the Ontario Cattlemen's Association.

This scientific survey will determine the prevalence of disease at the herd level. Armed with this information, producers, veterinarians and industry, together as the PLDC, will be able to develop *preventive measures* specifically for beef herds, assess the economic impact of these diseases and build a *Canadian Cattle Health Assurance Program.*

Producers randomly selected from the CCIA database have been contacted by mail. Each producer who agrees to participate will have animals tested for these four diseases. Participating producers will arrange to have their herd health veterinarian take blood samples in the fall of 2003. The PLDC will send supplies and a pre-paid courier waybill to the veterinary clinic before collection. The cost of testing (up to $1000) will be paid by PLDC. The producer will be responsible for the cost of the farm call.

Test results will be reported back to participants, and will remain confidential. Summary data for each province will be reported at the conclusion of the study.

Veterinarians in practice are important partners in Animal Disease Surveillance. They are critical to the success of this project. In recognition of this, PLDC will pay the veterinarian $100 per herd tested as an honorarium.

For more information on PLDC Beef 2003, contact Paul Innes at 519-846-3407 (paul.innes@omaf.gov.on.ca)

gFARAD Now Available

Tim Blackwell, Veterinary Science, OMAF

Veterinarians can now receive information concerning withdrawal times on livestock medicines that they prescribe in an extra-label manner. The global food animal residue avoidance databank (gFARAD) is now available in Canada, thanks to a grant from the federal government and donations from such groups as the Ontario Veterinary Medical Association, the College of Veterinarians of Ontario, the Ontario Association of Bovine Practitioners, the Ontario Association of Swine Practitioners, and the Ontario Veal Producers Association.

Veterinarians who are licensed to practice in Canada can contact gFARAD by dialing (866) 243-2723, or through the internet at cgfarad@umontreal.ca. You must have a valid veterinary license number to begin a request for information. You should also have the necessary information on the drug in question including generic and trade names, dose, route, volume injected per site (if applicable), dosing interval, number of doses given, species, age, weight, reason for treatment, and health status of the treated animal(s).

Rabies Reporter

Beverly Stevenson, Ministry of Natural Resources, Peterborough, Ontario

The latest issue of the Rabies Reporter newsletter is available at either of the website links below. Articles in this issue include:

- Rabies in Ontario During the Third Quarter
- Fall Bait Drops
- The Ontario Baiting System
- New Bait Controller

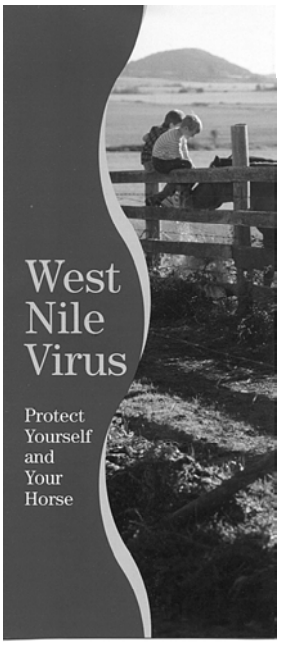
If you wish to subscribe please do so via the web at http://www.mnr.gov.on.ca/MNR/rabies/ or http://www.gis.queensu.ca/rreporter/newsletters.html

West Nile Extension Education Resources

Robert Wright, Veterinary Science, OMAF

The following information sheets are available on the web site of the Ontario Ministry of Agriculture and Food at www.gov.on.ca/omaf.

- West Nile Virus Threat to Ontario Horses
- West Nile Virus - Protect Yourself and Your Horse Practical Advice for Horse Owners
- Brochure (html version)
- West Nile Virus - Brochure (pdf version - 190 kb)
- West Nile Virus – Veterinary Practitioner Questionnaire Summary, October 23, 2002
- Equine Viral Encephalitis
- Questions and Answers for Ontario Horse Owners
- West Nile Virus – Ontario Equine Cases 2002



To obtain copies, contact the Agricultural Information Contact Centre, 1-877-424-1300, or e-mail ag.info@omaf.gov.on.ca.

Members of the Veterinary Science group of OMAF are available to speak about West Nile Virus at client/producer meetings throughout Ontario. Anyone wishing to host a meeting (*minimum of 25 persons required*) can contact Ora Zondervan, (519) 846-0941, fax (519) 846-8178, or e-mail ora.zondervan@omaf.gov.on.ca

To obtain an updated schedule of meetings you can call the Agricultural Information Contact Centre at the numbers listed above or refer to our web site at www.gov.on.ca/omafra/english/livestock/horses/westnile.htm

For those veterinarians who wish to make their own presentation, a kit containing educational material (handouts, video and PowerPoint presentation) will be distributed soon to all equine and large animal practitioners.

Poultry Disease Alert: Exotic Newcastle Disease (USA) and Highly Pathogenic Avian Influenza (EU)

Paul Innes, Veterinary Science, OMAF

The State of California is currently experiencing an outbreak of **Exotic Newcastle Disease (END)**. The disease was first discovered in backyard flocks in October 2002, and as of March 13 more than 13 000 premises have been quarantined. Commercial poultry farms have also been affected and to this date 19 premises have been identified and ordered depopulated, and more than 3 million birds have been humanely destroyed. END has also been confirmed in back yard flocks in the states of Arizona and Nevada.

Clinical signs include respiratory, nervous and gastrointestinal signs. Mortality in susceptible birds can be as high as 90 %. Exotic Newcastle Disease spreads primarily through direct contact with droppings, and nasal and ocular secretions of infected birds. The disease also spreads by mechanical means, on vehicles, equipment, shoes and clothing.

In addition to the END outbreak in California, The Netherlands is currently experiencing an outbreak of **Highly Pathogenic Avian Influenza (HPAI)** in its poultry industry. END and HPAI are foreign animal diseases in Canada and are reportable to the CFIA by law under the Health of Animals Act.

Some of the biosecurity measures that should be considered are:

1. Avoid visiting any poultry farms in any affected areas. This is especially critical for those who are in close contact with poultry farms in Canada (e.g. producers, service men and veterinarians).

2. If visiting farms in an affected area is necessary, be sure to observe all the appropriate biosecurity precautions (shower, change and wash all clothes that might have been exposed to the virus; disinfect shoes and any other equipment). Do not visit any farms for at least one week when you return to Canada (in addition to application of vigorous biosecurity measures).

3. Since the status of the spread of these diseases can change on a daily basis, keep informed of the latest updates and share the information with others.

4. As a rule, avoid accepting any unnecessary visitors on your farm. Question visitors to make sure that you know where they have been prior to your farm visit and that they have not been to a farm in an affected area. Make sure that all visitors use clean coveralls, disposable plastic boots, and preferably wear masks and disposable gloves.

5. Report any suspicious clinical signs to your veterinarian as soon as possible.

Upcoming Events

April 4 to 6, 2003	12th Annual Northeast Dairy Production Medicine Symposium "Expanding Your Horizons in a Contracting Dairy Industry" Embassy Suites Hotel, Syracuse, New York
April 10, 2003	Ontario Association of Bovine Practitioners Continuing Education Meeting, "Bed and Breakfast on the Dairy Farm: Cow Comfort," Holiday Inn, Guelph. Full program at www.oabp.ca To register contact Ruth Cudmore, telephone 519-846-2290 or cudmore@golden.net
April 9 & 10, 2003	3rd Annual London Swine Conference at the London Convention Centre. Contact Susan Benham at Ontario Pork 519 767-4600 or check the web at www.ontariopork.on.ca
April 9 to 11, 2003	"Stray Voltage and Dairy Farms: A Conference for Farm Advisors, Educators, Utilities, and Public Policy Advisors," Camp Hill, PA (near Harrisburg). Contact: NRAES for more information about registration fees, the conference program, and travel/accommodations, visit the conference web page at http://www.nraes.org/conferences/voltage.html. NRAES, PO Box 4557, Ithaca, NY 14852-4557 Phone: (607) 255-7654 Fax: (607) 254-8770 E-mail: NRAES@CORNELL.EDU
April 12, 2003	Symposium on the Control of Maedi Visna in Canada. OVC Learning Centre, Guelph. For information or to register call 519-836-0043 or email projects@ontariosheep.org web site is: http://www.ontariosheep.org
May 28 & 29, 2003	Dairy Health Management Certificate Program Annual Update Continuing Education Meeting. "Health Management Programs for Dairy Cows on the Day of Dry Off and the Early Dry Period". OVC Learning Centre, Guelph. Contact Tina Bruaset 519-824-4120 x 54035

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Ann Godkin, Veterinary Science, OMAF, Wellington Place, R.R. 1, Fergus, Ontario N1M 2W3
Telephone (519) 846-3409 Fax: (519) 846-8101 Email: ann.godkin@omaf.gov.on.ca

Topics for future issues include: …….

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Deadline for next issue: June 6, 2003

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