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# Update on the Ontario Johne's Program – One Year Down, Three to Go!

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

The Ontario Johne's Education and Management Assistance Program has completed the first year of the four year program. Approximately 70% of eligible producers had participated in the program as of year end. Participating herds have completed whole-herd testing during their county's scheduled testing period, their RAMP (Risk Assessment and Management Plan) with their veterinarian and, if applicable, removed cows with an ELISA test score of 1.0 or higher from their herd within 90 days of the herd test.

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More than 700 herds and just over 50,000 cows were tested in 2010. The graph (**Figure 1**) shows that among the tested cows, 507 had a positive result on either the blood or milk ELISA. This was approximately one percent of all cows tested. Cows that had a very high positive result (an ELISA score of 1.0 or higher) are classified as High Titre Cows (HTCs) in the program. There were 54 of these among the 507 positive cows. These 54 cows were in 46 herds and represent about 0.1 percent (1 in 1000) of all cows tested thus far. This number is lower than predicted from previous Ontario studies, which is very encouraging, as it may indicate improvement over time. At this time, we can say that the prevalence of herds with a very serious Johne's problem in Ontario is low. This is not to say that herd problems have not been uncovered. It is encouraging to see the teamwork the program has helped to initiate to get these herd owners started on the road to improvement.

HTCs cause concern when they are found. These cows have been singled out in the program because it is well established that a test result of this level occurs in cattle that are actively shedding *Mycobacterium avium* subspecies *paratuberculosis* (MAP), the bacterium that causes Johne's. HTCs are an active source of infection for calves in the herd. They transfer infection to other people's herds if they are sold for dairy purposes. We remain very concerned that these animals be dealt with appropriately – their removal is a high priority when they are found.

We want to remind producers who don't find HTCs in their herds that the program results show that these cows are out there. Most HTCs identified on the program do not have severe

*(Continued on page 3)*

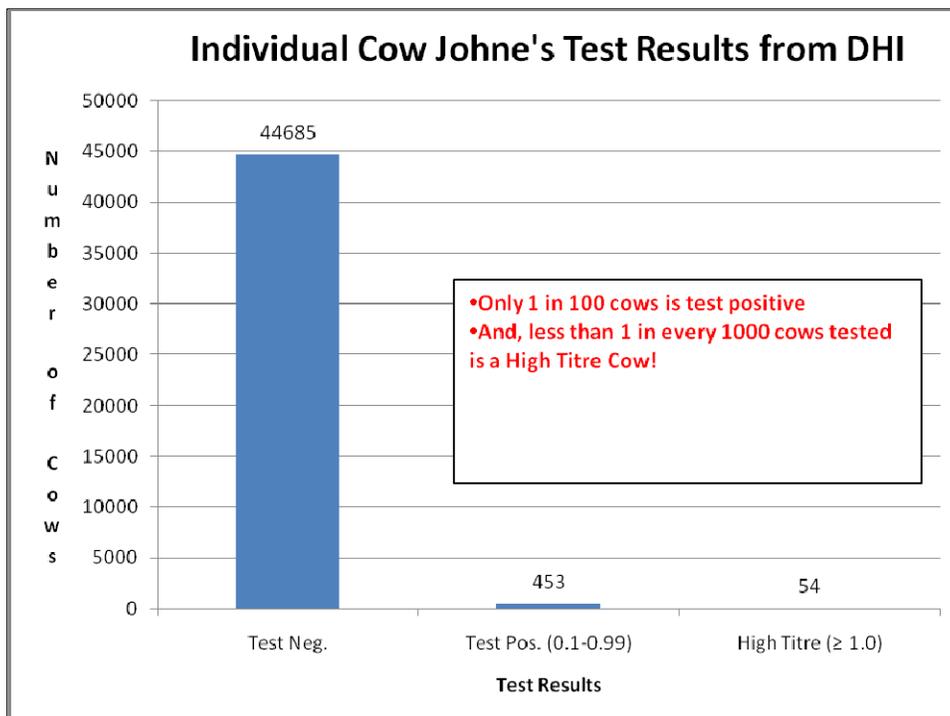
clinical signs of Johne’s Disease – if they did, they may already have been culled and would not be present on test day. While the HTCs found on herd testing are often thin and have lower production, no one can tell by looking at them that Johne’s Disease is the cause. Testing is necessary in order to confirm suspicions. It is imperative that producers buying cattle become informed about the Johne’s herd test results of any herd they are buying from. Producers should protect themselves from buying MAP-infected and shedding animals.

To receive testing reimbursement, producers are required to remove all HTCs found in the herd within 90 days of the herd test date or before the HTC’s next calving, whichever comes first. HTCs can be euthanized and then composted, buried or rendered (in other words, they cannot be sold for beef or dairy). This removal needs to be documented with a “Disposal Form”. If this is done, producers receive additional funds. The program provides \$500 per HTC removed. This is an increase in the amount allocated per cow as of January 1, 2011, and continues to the end of the program. Note that removal and reimbursement is

not for ALL cows with positive tests but ONLY for those with HT results. Producers who participated in 2010 and removed HTCs have already received \$250 per HTC cow. The program co-ordinator will arrange for an additional \$250 to be paid to these herd owners.

The Ontario Johne’s Working Group has increased the amount of funding for HTC removal after a review of the first year of the program. Funds have been increased to encourage producers to fully participate in the removal aspect of the Johne’s program. The removal of a HTC is important to reduce the risk of Johne’s spreading. HTCs typically occur in herds with more severe Johne’s problems. Herds that have HTCs have an opportunity to be financially assisted, to encourage them to make culling decisions, management and facility changes that limit Johne’s spread. Examples of changes made so far have included modifications to maternity pens (such as extra gates for separating calving cows in group pens or building “mini-pens” for newborn calves), the purchase and provision of hutches for calves to allow housing away from cows, the building of pens to get calves away from contact

**Figure 1. Result of Testing of 50,000 Cows in the First Year of the Ontario Johne’s Program.**



*(Continued on page 4)*

with the mature cow herd and/or the purchase of milk or colostrum replacer to allow the feeding of low-risk milk or colostrum to heifer calves. Some herd owners have elected to use the funds to implement a routine herd testing program (such as the whole lactating herd every four or six months, or all cows each lactation at last test before dry off, or all cows each lactation on last test before the end of the voluntary wait period) to assist decision making and speed up the finding of HTCs to facilitate their quick removal.

A number of producers have commented that they want to do the “right thing” when they dispose of these cows, regardless of reimbursement. One message we get loud and clear from these herd owners is that no one who has had a personal experience with Johne’s wants to pass it on to fellow herd owners!

Recently published research continues to support a program of improved calf management and the removal of active MAP shedders as soon as possible from a dairy herd to control Johne’s. The producer – veterinarian teams that are formed under the Ontario Johne’s program are essential for helping to develop a Johne’s prevention plan and a better, complete, calf herd health program. Very significant “tangential” improved calf health is a resounding benefit from the Johne’s program that occurs as a result of producers and their veterinarians conducting their annual review of young stock feeding, management and housing.

The program runs for three more years. To view further program updates, the testing schedule and program criteria, visit [www.johnes.ca](http://www.johnes.ca).

## **Scrapie Surveillance in Ontario Sheep and Goats – A Reminder from CFIA**

**Jocelyn Jansen, Veterinary Science and Policy Unit, OMAFRA**

Scrapie continues to be detected at low levels in Canadian sheep. In 2010, 11 flocks in Canada were confirmed with scrapie. Of the 11 flocks infected, one case of classical scrapie and one case of non-classical (atypical) scrapie were confirmed in Ontario. (See *Scrapie Update*, **Ceptor**, June 2010.) The level of scrapie in the national goat herd is unknown at this time. Scrapie was last diagnosed in a goat in Canada in 1976.

In 2010, Agriculture and Agri-Food Canada approved funding for a National TSE (transmissible spongiform encephalopathies) Eradication Plan. A portion of the funding is earmarked towards determining the prevalence of scrapie in the Canadian sheep flock and goat herd and the continuation of the Voluntary Scrapie Flock Certification Program.

Dr. Brian Evans, Chief Veterinary Officer and Chief Food Safety Officer for Canada, reminds sheep and goat producers, veterinarians and federal/provincial governments that “we all play an important role in eliminating scrapie from Canada”.

The Canadian Food Inspection Agency (CFIA) would like to test any mature animal(s), 12 months of age and older, that die on farm or exhibit symptoms of scrapie. Signs of scrapie can vary greatly and may include behavioural changes such as apprehension or aggression, tremors, incoordination or an abnormal gait. However, **a mature animal with a poor coat, an animal with unexplained weight loss, or one that is simply found dead, are also signs compatible with classical scrapie.** The local CFIA office can be contacted and arrangements made to have a sample taken for testing. There is no charge for samples submitted through the CFIA. Animals suspected of having scrapie and ordered destroyed by CFIA are eligible for compensation. In addition to samples taken on farm, CFIA is also collecting samples at auction markets, abattoirs, deadstock facilities and animal health laboratories across the country.

CFIA’s overall surveillance target is to obtain approximately 15,000 samples from across Canada over a two year period (7,500 samples per year).

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During that period, Ontario needs to collect roughly 4,100 samples to reach a target of 2,265 samples originating specifically from Ontario sheep and goats. This is to account for the high percentage of sheep from other provinces that are processed in Ontario.

For more information on scrapie surveillance, please contact your local CFIA office, call the CFIA at 1-800-442-2342 or visit the CFIA's scrapie website at <http://inspection.gc.ca/english/animal/diseases/scrapie/scrtree.shtml>

## Withdrawal Periods for Drugs Used in Equines Intended for Slaughter

Information on the requirements for horses intended for slaughter in Canada is now available in the Canadian Food Inspection Agency (CFIA) Meat Hygiene Manual of Procedures. This includes a table (E.7) that lists CgFARAD-recommended withdrawal periods for commonly-used antimicrobials, parasiticides, tranquilizers, anaesthetics, glucocorticoids and other pharmaceuticals.

Practitioners should refer to the material at this link when assisting their clients in the preparation of the mandatory documents for slaughter horses:

[www.inspection.gc.ca/english/fssa/meavia/man/ch17/annexee.shtml#e1](http://www.inspection.gc.ca/english/fssa/meavia/man/ch17/annexee.shtml#e1)

## Products Licensed to Decrease Stress or Pain in Food Producing Animals

*Trisha Dowling, DVM, MSc, DACVIM (LAIM) & DACVCP, Professor, Veterinary Clinical Pharmacology, Western College of Veterinary Medicine, Robert Tremblay, DVM, DVSc, Dipl ACVIM, Boehringer Ingelheim (Canada) Ltd., and Tim Blackwell, Veterinary Science and Policy Unit, OMAFRA*

**Table 1** lists the drugs that are approved to decrease stress or pain in cattle, sheep, goats and swine in Canada. Many of these products have limited label claims. You should check with your veterinarian to ensure that dosages, indications, and withdrawal times are appropriate. Before administering any drug, you should read the label for notes on administration, warnings and contraindications.

**Note :** The table that appeared on pages 14 and 15 in the November 2010 issue of Ceptor contained errors that were spotted by an alert reader, and should not be used as a reference. Please discard that table and replace it with the version in this issue (See Table 1 on pages 6 and 7)

*(Continued on page 6)*

**Table 1. Drugs Approved for Cattle, Sheep, Goats and Swine in Canada**

Active Ingredient	Trade Name	Class	Analgesia	Meat withdrawal time after last dose	Milk withdrawal time after last dose	Approved for
Acetylsalicylic acid	Acetylsalicylic acid boluses	NSAID*	Implied	No labelled withdrawal	No labelled withdrawal†	Bovine
	Asen (240 bolus or P powder)					
	ASA boluses					
Flunixin meglumine	Banamine®	NSAID*	Yes	Swine must not be slaughtered for food use for 13 days. Bovine have a 6-day meat withdrawal. Do not use in calves to be processed for veal.	Milk must not be used in food for 36 hours. Do not use in dry dairy cows.	Bovine, Porcine
Flunixin meglumine	Flunazine™	NSAID*	Yes	Must not be slaughtered for food use for 6 days. Do not use in calves to be processed for veal.	Milk must not be used in food for 36 hours. Do not use in dry dairy cows.	Bovine
	Flunixin injection					
	Cronyxin® Injection					
	Suppressor					
Ketoprofen	Anafen® ketoprofen injection 100 mg/mL solution	NSAID*	Yes	Swine must not be slaughtered for food use for 7 days. Bovine have a 24-hour meat withdrawal.	Milk from treated cows may be used without withdrawal.‡	Bovine, Porcine
Meloxicam	Metacam® 20mg/mL solution injection	NSAID*	Yes	Must not be slaughtered for food use for 20 days. Do not use in calves to be processed for veal.	No labelled withdrawal†	Bovine
Dexamethasone sodium phosphate	Dexamethasone 2 or 5 sterile injectable solution	Corticosteroid**	Analgesic through anti-inflammatory effect.	No labelled withdrawal	No labelled withdrawal†	Bovine
	Dexamethasone 21					
	Dexamethasone injection 2 mg/mL					
	Dexone					
	Dexamethasone powder					
	Dexacort					

(Continued on page 7)

**Table 1. Drugs Approved for Cattle, Sheep, Goats and Swine in Canada (continued)**

Active Ingredient	Trade Name	Class	Analgesia	Meat withdrawal time after last dose	Milk withdrawal time after last dose	Approved for
Flumethasone	Flucort® injection	Corticosteroid**	Analgesic through anti-inflammatory effect.	Must not be slaughtered for food use for 4 days.	No labelled withdrawal†	Bovine
Isoflupredone acetate	Predef® 2X sterile aqueous suspension	Corticosteroid**	Analgesic through anti-inflammatory effect.	Must not be slaughtered for food use for 5 days.	Milk must not be used in food for 72 hours.	Bovine, Porcine
Prednisolone acetate	Prednisolone acetate	Corticosteroid**	Analgesic through anti-inflammatory effect.	Must not be slaughtered for food use for 5 days.	Milk must not be used in food for 72 hours.	Bovine
	Prednisolone injection					
Acepromazine maleate	Atravet® injectable	Sedative/Tranquilizer	No	Must not be slaughtered for food use for 7 days.	Milk must not be used in food for 48 hours.	Bovine, Ovine, Caprine, Porcine
	Atravet® soluble granules (Labelled for use in bovine and porcine only)					
	Acevet injection					
Azaperone	Stresnil™ injection	Sedative/Tranquilizer	No	Must not be slaughtered for food use for 24 hours. Not to be used on swine in transit to slaughter.	Not labelled for bovine.	Porcine
Xylazine	Rompun® 20 mg/mL solution	Sedative/Tranquilizer	Yes	Must not be slaughtered for food use for 3 days.	Milk must not be used in food for 48 hours.	Bovine
Lidocaine HCL products	Lido-2	Local Anaesthetic	Yes	Must not be slaughtered for food use for 5 days.	Milk must not be used in food for 96 hours.	Check product label for approved species.
	Lidocaine HCL 2% and epinephrine injection USP					
	Lidocaine HCL 2%					
	Lidocaine neat					
	Lidocaine hydrochloride 2% with epinephrine					
Thiopental sodium	Lurocaine	General Anaesthetic	Yes	No labelled withdrawal	No labelled withdrawal†	Bovine, Ovine, Porcine

\*NSAID= Non-steroidal anti-inflammatory drugs

\*\*The use of steroids can inhibit healing of wounds in certain situations.

† Health Canada has not established a labelled milk withdrawal time for this product

‡ Health Canada has established a zero milk withdrawal time when used according to labelled indications.

# **Announcing an Opportunity for Large Animal, Food Production and Equine Veterinarians**

***Kathy Zurbrigg, Veterinary Science and Policy Unit, OMAFRA***

The Ontario Veterinary Medical Association is pleased to participate in a program to expand the awareness and promotion of best practices in biosecurity. A proposal has been accepted by the Agricultural Adaptation Council for funding provided by the federal government and the Ontario Ministry of Agriculture, Food and Rural Affairs.

The program will be offered through veterinary technician student externships administered by the Ontario Association of Veterinary Technicians (OAVT).

Veterinary technician students, who are in their graduating year of study from an OAVT accredited college, will apply to the program through the OAVT. Successful student applicants will then seek out a veterinarian to assist in the two week experience. The focus of the learning will be on the best practices for decreasing the spread of disease both within a farm and between farms.

This program will provide an opportunity for veterinarians to become more familiar with the contributions of a skilled veterinary technician. Also,

producers will benefit from understanding the role and responsibilities of veterinary technicians in this aspect of veterinary medicine. This experience may help your practice, should you as a veterinarian decide that there is an ongoing need to employ a Registered Veterinary Technician.

Participating veterinarians will receive \$150 per day for having a technician student for 10 days in the spring of 2011. Specific dates are to be determined based on your practice needs and availability of students.

The selected students will receive a separate stipend to support their costs, such as travel, room, and board. Students will be responsible for making their own arrangements. Also, the students will be provided supplemental study materials to augment their learning of biosecurity best practices.

If you are interested in having a veterinary technician student contact you to be an extern with your practice, or for more information, please contact Rory Demetriooff of the OAVT at 1-800-675-1859 or [rory@oavt.org](mailto:rory@oavt.org)

## **Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Provides Funding to CgFARAD**

***Janet Alsop, Veterinary Science and Policy Unit, OMAFRA***

The Canadian global Food Animal Residue Awareness Databank (CgFARAD) became operational on October 1, 2002, after start-up funding was received from Agriculture and Agri-Food Canada following petitioning by Dr. Tim Blackwell, OMAFRA, and Dr. Patricia Dowling, Western College of Veterinary Medicine.

The purpose of the CgFARAD is not to promote extra-label drug use (ELDU), but to protect the food supply when it is necessary for veterinarians to use drugs in an extra-label manner. ELDU withdrawal information is only provided to veterinarians authorized to practise in Canada because of their

privilege and responsibility in using or prescribing drugs in an extra-label manner.

From 2005 to 2009, the CgFARAD received 7,069 requests from Canadian veterinarians. Of this number, 3,459 (48.9%) were from Ontario. In 2009, 60% of the 1,700 requests received were from Ontario veterinarians. Requests have covered more than 250 different drugs and drug combinations, including drugs, vitamins, vaccines and chemicals.

For each year, requests relating to broiler production represented the majority of requests received,

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followed by turkeys, dairy cattle and swine. Requests from Ontario represented 11.3%, 71.4%, 27% and 78.5%, respectively, of each of those commodity groups. Requests increased dramatically in 2009, and numbers to date for 2010 suggest that this increase is being maintained. Requests related to dairy cattle have increased from the initial year through to 2009, corresponding to the dairy industry's quality assurance initiatives. Industry activity, including consolidation and economic fluctuations, affects the case load. Implementation of on-farm food safety programs has a major impact, as producers and veterinarians closely scrutinize and document their use of drugs in a specific class of animals. The changes in request numbers from year to year within each commodity group makes staffing the CgFARAD challenging.

Since its inception, the CgFARAD has been supported by funding from industry and professional associations, federal agencies and participating universities (in-kind staff time, office space and a

small amount of administrative support). The organization has never been on a strong financial footing because it has no routine support and, each fiscal year, the CgFARAD director has to solicit contributions from the Canadian livestock and poultry industry stakeholders. In the summer of 2010, the director of CgFARAD, Dr. Patricia Dowling, took a six-month sabbatical. Because there is only a small permanent staff, and in order to meet the demand for information requests from Canadian veterinarians, it was necessary to hire a graduate pharmacology student to assist during Dr. Dowling's absence. This greatly reduced the operating funds reserved for CgFARAD.

OMAFRA funding in the amount of \$24,000 was recently approved to assist CgFARAD in continuing to serve Ontario and Canadian veterinarians. The Ontario government's support of CgFARAD is consistent with the Food Safety and Environment Division's vision of Safe Food, Healthy Animals, and Healthy Environment.

## **Media Coverage of Animal Welfare Issues Impacts Meat Demand**

***Janet Alsop, Veterinary Science and Policy Unit, OMAFRA***

Consumers are becoming more interested in whether animals raised for food are handled in a "welfare friendly" or "humane" manner. Residents in several U.S. states have indicated their concern for livestock welfare by voting on ballots affecting the use of certain practices, such as sow gestation stalls or caged laying hens. Major food retailers, such as McDonald's and Burger King, are increasing the amount of meat that they source from "crate free" or "humanely-raised" sources in response to concerns voiced by consumer activist groups. However, to date, there has not been any assessment of the impact of animal welfare concerns on meat consumption.

Glynn Tonsor of Kansas State University and Nicole Olynk of Purdue University recently published the results of their research in this area. They carried out an extensive search of major U.S. newspapers and magazines to develop indices that reflected animal welfare information available to American consumers from 1982 to 2008. Articles noting

positive animal care by producers and articles noting negative welfare aspects were equally weighted and summed to form one index for each of three commodities – beef, pork and poultry. There was no distinction made between severity, content (negative or positive) and source of the articles. As previous researchers in this field have done, they made the assumption that public information affects consumer perception, which in turn influences buying decisions.

The media indices were incorporated into a meat demand model that estimated the effect of animal welfare information published by U.S. media sources on beef, pork, poultry and non-meat food demand for the typical American consumer in the period 1982-2008. The model results suggest that media attention has not directly affected beef demand, but has had a small, but statistically significant, impact on both pork and poultry demand. Their analyses also suggest that media

*(Continued on page 10)*

articles influence meat demand both in the quarter in which they are published and in the subsequent quarter. Although estimated animal welfare elasticities — the percent change in quantity purchased for each percent change in the indices — are smaller than those for price, over the period of time examined in the study, they did have noticeable economic effects on the U.S. livestock industry. For example, their research suggests that, between 1999 and 2008, pork and poultry demand increases would have been 2.65 percent and 5.01 percent higher, respectively, if media attention in the fourth quarter of 2008 had been at an equivalent level to that in the first quarter of 1999. Interestingly, they found that increased focus on welfare issues resulted in a reallocation of spending to non-meat food rather than a redistribution to other meat products.

This research suggests that the U.S. livestock

industry needs to recognize that impacts on meat demand do exist and that the different commodity groups need to collaborate in responding to changing societal pressures regarding animal welfare. Additional work is needed, especially in estimating the net economic impact of changes in farm production practices in order to improve the understanding of how increasing societal pressure to adjust on-farm practices is economically impacting participants in the meat supply chain.

Source:

Tonsor GT, Olynk NJ. *Impacts of animal well-being and welfare media on meat demand*. *J. Agricultural Economics*. doi: 10.1111/j.1477-9552.2010.00266.x

## The Trials and Tribulations of Disease Monitoring

Janet Alsop, Veterinary Science and Policy Unit, OMAFRA

Monitoring swine herds to determine freedom from specific disease agents is not always straightforward. A recent case illustrates this.

A high-health, swine breeding stock producer with multiple barn locations has been monitored every quarter for specific diseases, including *Mycoplasma hyopneumoniae*. This is carried out by routine monitoring of clinical signs and by testing 20 blood samples from animals in the finishing barns, using the Oxoid monoclonal blocking ELISA test.

The results of ELISA testing on November 2010 indicated that two out of 20 animals had suspicious results on *M. hyopneumoniae* serology. There was one suspicious animal in each group of 10 tested in two different finishing barns. Ten days later, 30 animals in each barn were blood tested. All samples were negative in one barn and there were three suspicious animals in the second barn. The samples from the two suspicious animals on the initial test and the three suspicious animals on the second test were sent to the University of Montreal for re-testing with the *M. hyopneumoniae* ELISA (Idexx) test kit. The samples from the first two animals were negative on the Idexx ELISA and there was one suspicious animal in the group of three from the second barn.

Since the results in the second barn were still equivocal, pigs in that barn, and in the same pens, were tested on a third occasion, twenty-three days after the initial testing. Of 30 samples tested by Oxoid ELISA at AHL, one animal was positive and 10 animals were suspicious. The samples from the sero-positive and suspicious animals were sent for re-testing at the University of Montreal. Of these 11 samples, one tested positive. This was the same sample that tested positive on the AHL ELISA.

The pig that tested positive on both AHL and University of Montreal ELISAs and one of the suspicious animals were sent for necropsy at the AHL and a complete respiratory diagnostic work up was performed. On gross necropsy (**Table 1**), neither animal exhibited any lung lesions. PCR for *M. hyopneumoniae* was negative in lung tissue from both animals. Blood samples were collected immediately after euthanasia and tested for *M. hyopneumoniae* antibodies at both AHL and the University of Montreal. Pig A (*M. hyopneumoniae* suspicious on previous testing by Oxoid ELISA) tested suspicious on both the Oxoid ELISA and the Idexx ELISA.

(Continued on page 11)

**Table 1. Summary of Diagnostic Results of Live Animal Submissions to Animal Health Laboratory**

	<b>Pig A—suspicious on Oxoid ELISA (on-farm testing)</b>	<b>Pig B—positive on Oxoid ELISA (on-farm testing)</b>
<b>Gross</b>	No lung lesions	No lung lesions
<b>Histopathology</b>	Interstitial pneumonia, tonsillitis	Interstitial pneumonia, tonsillitis
<b><i>M. hyopneumoniae</i> PCR</b>	Not detected	Not detected
<b><i>M. hyopneumoniae</i> ELISA (Oxoid)</b>	Suspicious	Suspicious
<b><i>M. hyopneumoniae</i> ELISA (Idexx)</b>	Suspicious	Positive
<b>Influenza A - IHC</b>	Negative	Negative
<b>Virus isolation</b>	None isolated	None isolated
<b>PRRSV RT-PCR</b>	Not detected	Not detected
<b>PRRSV - IHC</b>	Negative	Negative
<b>PCV2-real time PCR</b>	Not detected	Not detected
<b>PCV2 - IHC</b>	Negative	Negative

Pig B (*M. hyopneumoniae* positive on previous Oxoid ELISA testing) tested suspicious on the Oxoid ELISA and positive on the Idexx ELISA. On histopathology, tissue samples from both animals had lesions consistent with interstitial pneumonia and tonsillitis; therefore additional viral testing was performed on the lung tissue. Samples from both animals were negative on IHC for influenza A, PCR and IHC for PRRSV and PCR and IHC for PCV2. In addition, no viruses were isolated from the lungs.

During this period, there were no clinical signs of mycoplasmal pneumonia in any of the barns. As a precaution, the producer discontinued breeding stock sales until he received all laboratory results. This resulted in a five-week period without sales, thus increasing the financial burden of the investigation.

No explanation was identified for the repeated findings of suspicious animals on *M. hyopneumoniae* serology. It was hypothesized that the problem was related to the current lot of an Oxoid ELISA test kit, since AHL had reported an increase in suspicious test results since changing test kits in July 2010. However, re-testing at the University of Montreal also identified some animals that tested suspicious or positive. All of the suspicious and positive test results were from animals housed on straw. There have been anecdotal reports of increased unusual serology results when testing animals in contact with straw, and researchers in the UK are investigating the relationship between immunoglobulin levels of pigs and the fungal loads of their environments <sup>(1)</sup>.

1. Lane, Gomm, et al. Do pigs suffer allergic reactions to straw? *Veterinary Record* 2006;158:420.

# Observations from a PRRS Outbreak

*Tim Blackwell, Veterinary Science and Policy Unit, OMAFRA, and  
Brent Jones, Southwest Ontario Veterinary Services*

A recent outbreak of Porcine Reproductive and Respiratory Syndrome (PRRS) in a commercial sow herd provided an opportunity to examine how PRRS virus spreads within a barn and how various testing protocols compare in identifying infected individuals during an outbreak. It should be noted that this is a case study and that the findings from this case do not necessarily apply to other outbreaks of PRRS.

Two days after abortions were observed in a commercial farrow-to-wean operation, the herd veterinarian was contacted and 10 blood samples were collected from sows and gilts that had either aborted or were off feed in the breeding and gestation barn. All 10 samples were positive for PRRS virus by real time reverse transcriptase polymerase chain reaction (rt-RT PCR). Approximately three weeks after the onset of clinical signs, blood samples were again collected from a cross-section of 71 apparently affected and unaffected sows and gilts in the herd, based on clinical signs. These samples were tested with the IDEXX ELISA test. Among the 71 samples, 25 tested positive (S/P ratio > 0.4), with S/P ratios ranging from 0.43 to 3.3. Another 18 of the 71 had S/P ratios between 0.1 and 0.34, while the remaining 28 samples had S/P ratios below 0.1. Subsequently, all 71 of these samples were tested individually by rt-RT PCR for the presence of PRRS virus RNA. All 71 samples were positive on rt-RT PCR. Finally, all 71 samples were tested using an immuno-fluorescent test (IFA) for anti-PRRS IgG. Only 14 of the 71 samples were positive using the IFA test.

Some interesting observations on the behaviour of PRRS virus can be made from the data collected during this outbreak. The first is that all 71 females were viremic at the time of blood collection three weeks after the onset of clinical signs, although clinical signs were only observed in a proportion of these viremic animals.

A second observation is related to test sensitivity in the early stages of an outbreak. Although the IFA test has been reported to identify antibodies against PRRS virus sooner than the ELISA test, this did not occur in this outbreak. Of the 25 samples that tested positive by ELISA, 11 tested negative by IFA. All 14 IFA-positive results occurred in samples that tested positive by ELISA. There was a tendency for samples with S/P ratios between 0.4 and 1.1 to be more likely to test negative by IFA than samples with an S/P ratio greater than 1.1. Therefore, in this herd, the IFA test was less sensitive than the IDEXX ELISA in identifying PRRS sero-positive individuals three weeks following the onset of clinical signs.

This case demonstrates two useful concepts:

1. Infection can spread rapidly within a herd. Infection produces a range of clinical signs among infected individuals; a lack of clinical signs does not necessarily correlate with a lack of infection.
2. The IgG IFA test for PRRS may identify sero-conversion later than the IDEXX ELISA in some PRRS outbreaks.

This is useful information for practitioners. The IFA test is one back-up test commonly used when suspect false-positive ELISA readings occur. Because false-positive ELISA readings often have S/P ratios between 0.4 and 1.0, using the IgG IFA test to confirm a negative test status in such situations may lead to incorrect conclusions. It is recommended that, when confirming the accuracy of an unexpected low-positive ELISA reading for PRRS, an IFA test for IgM as well as an rt-RT PCR be performed to ensure a more accurate interpretation of the true status of the sample.

# Effective Rodent Control Without the Worry

*Tim Blackwell, Veterinary Science and Policy Unit, OMAFRA*

Rodents act as vectors for swine diseases; they damage buildings and they consume and waste livestock feed. They can cause electrical shorts in wiring if they damage the conduit and insulation around the wires. Eliminating or controlling rodents once they are established in a livestock facility requires an understanding of the basics of rodent control.

There are various options available to livestock owners for controlling rodent infestations, including such old favourites as traps and cats. These approaches, however, are seldom effective when rodent infestations are severe. As a result, the majority of farms rely on the use of rodenticides to control mice and rats but, despite the cost of these products, they are often used in a manner that fails to maximize their efficacy.

Two common practices that limit the effectiveness of rodenticides on livestock farms are:

1. not placing baits in sufficient locations around the barn to ensure consumption.
2. not placing the rodenticides in secure bait stations where the rodents can consume the bait feeling safe and protected, thus maximizing intake.

In swine barns where feed is plentiful, it is all the more important that the bait stations are numerous and offer a secure environment (i.e., enclosed) for bait consumption. It is recommended that bait stations for mice be located one to two meters apart and for rats seven to ten meters apart to encourage their use. When baiting for rodents in a depopulated barn without ready access to swine feed, these distances can be extended.

Enclosed bait stations provide distinct advantages over simply tossing bait packets or baits in alleyways and corners where rodents or evidence of their

presence is observed. Bait boxes provide a secure location for rodents to consume the rodenticide with less fear of being observed or caught. This increases consumption and thus efficacy. Bait containment devices make it less likely that baits will be kicked or swept or moved from their desired location. Bait boxes also greatly decrease the likelihood that non-target species will consume the bait.

One problem that occasionally occurs in swine barns is when pigs escape into an alleyway or pen where they do not belong and where rodenticides have been placed in an exposed location. When the producer checks the baits in the pen or alleyway after the pigs are returned to their rightful location, he must try to remember how much bait was there before the pigs entered. This is usually a “best guess” scenario and leaves the producer wondering if any of the pigs ate some of the bait. Even if the pigs show no sign of illness after a couple of days, the producer remains concerned regarding chemical residues that may be present in the carcasses. The withdrawal time for any drug is based on the amount of drug consumed. However, in this type of situation, the producer cannot confidently provide the information required for a withdrawal time to be determined. In such situations, the producer should contact his or her veterinarian for assistance in determining appropriate procedures to follow.

Well-designed bait boxes essentially eliminate the possibility that a rodenticide will be consumed by a non-target species and improve bait consumption by rodents under normal conditions. Simple bait boxes can be devised from discarded plastic or metal containers or can be constructed from PCV pipe. Plans for a simple bait station, as well as useful information on rodent control, can be found at [www.omafra.gov.on.ca/english/livestock/dairy/facts/10-077.htm](http://www.omafra.gov.on.ca/english/livestock/dairy/facts/10-077.htm).

# Standard Practices for Feeding Colostrum

Neil Anderson, Veterinary Science and Policy Unit, OMAFRA

In his research, Munashe Chigerwe evaluated serum IgG concentrations in bottle-fed calves. From his data, he estimated the *probability* of failure of passive transfer (FPT) and he suggested standard operating procedures for colostrum feeding based on colostrum intake at 1-4 h and 12 h of age. In his conclusions, Chigerwe writes, “*Allowing calves fed by nipple bottle to ingest as much colostrum as they can within 4 hours after birth and at 12 hours of age substantially reduced the probability of FPT. Bottle-fed calves that do not ingest 3 L of colostrum within the first 4 hours after birth should be targeted for oesophageal intubation.*” **Flow chart 1** is an adaptation from his published papers that shows three pathways for making decisions about intervening by intubation.

For the **first pathway**, look at the left side of the flowchart. If a calf suckles less than 2 L at its first meal, Chigerwe recommends tube-feeding to make a total of 3 L. If the calf suckles less than 1 L at the second meal, he recommends tube-feeding 2 L. If the calf suckles 1 L or more at its second meal, he recommends no intervention. The **second pathway** is in the centre of the flow chart. If a calf suckles 2-3 L at its first meal, and 2 L or more at its second meal, he recommends no intervention. However, if a calf suckles less than 2 L at its second meal, he recommends tube-feeding 2 L. The **third pathway** is on the right side of the flow chart. If a calf suckles 3 L or more, at first feeding, and 1 L or more at its second feeding, he recommends no intervention. However, if a calf in this group suckles less than 1 L at its second meal, he recommends tube-feeding 2 L.

The success of passive transfer of antibodies to newborn calves depends on post-calving harvest-time of colostrum, antibody (IgG) content/L, bacterial contamination, volume ingested, calf age at ingestion, and method of ingestion (i.e., suckling, intubation), to name a few factors. To mitigate the risk of failure of passive transfer (FPT), the common advice is to feed 4 L of colostrum as soon as possible after birth. As a result, some calves are force-fed 4 L of colostrum in one meal; a practice based on science, assumptions, mathematical extrapolation, convenience, or misinterpretation. Research has

shown us that an intake of 150-200 g of IgG significantly reduces the risk of FPT. Since average colostrum contains about 50 g of IgG/L, simple math was used to arrive at the 4 L. A single feeding by intubation facilitates getting the job done.

Certainly, the IgG must benefit the calf but does the volume or method do harm? Since suckling 2-2.5 L satisfies a calf's feelings of hunger, should we force-feed more than this volume in a meal? Force-feeding 4 L often results in calves refusing to suckle 12 h later. This makes calf-feeding frustrating and time consuming for producers and, perhaps, stressful for calves. Given that gorge-feeding is unhealthy for calves, why is it recommended for a calf's first meal? There's scant information about pain, discomfort, reflux or aspiration, or a long inter-meal interval following force-feeding with 4 L. Enhanced milk-feeding strategies (20% of body weight as whole milk or its equivalent in milk replacer) during 3-24 d of age may lessen the importance of several unknowns related to colostrum feeding.

Chigerwe's suggestions move colostrum feeding closer to Nature's way. He recommends suckling as the primary route of ingestion, 3 L of colostrum within the first 4 hours of age, practical volumes of colostrum per meal, decision points for interventions when necessary, and volumes of about 2 L when intubating. His techniques assure high probability of successful passive transfer. The flow chart may be useful to your clients and the calves in their care.

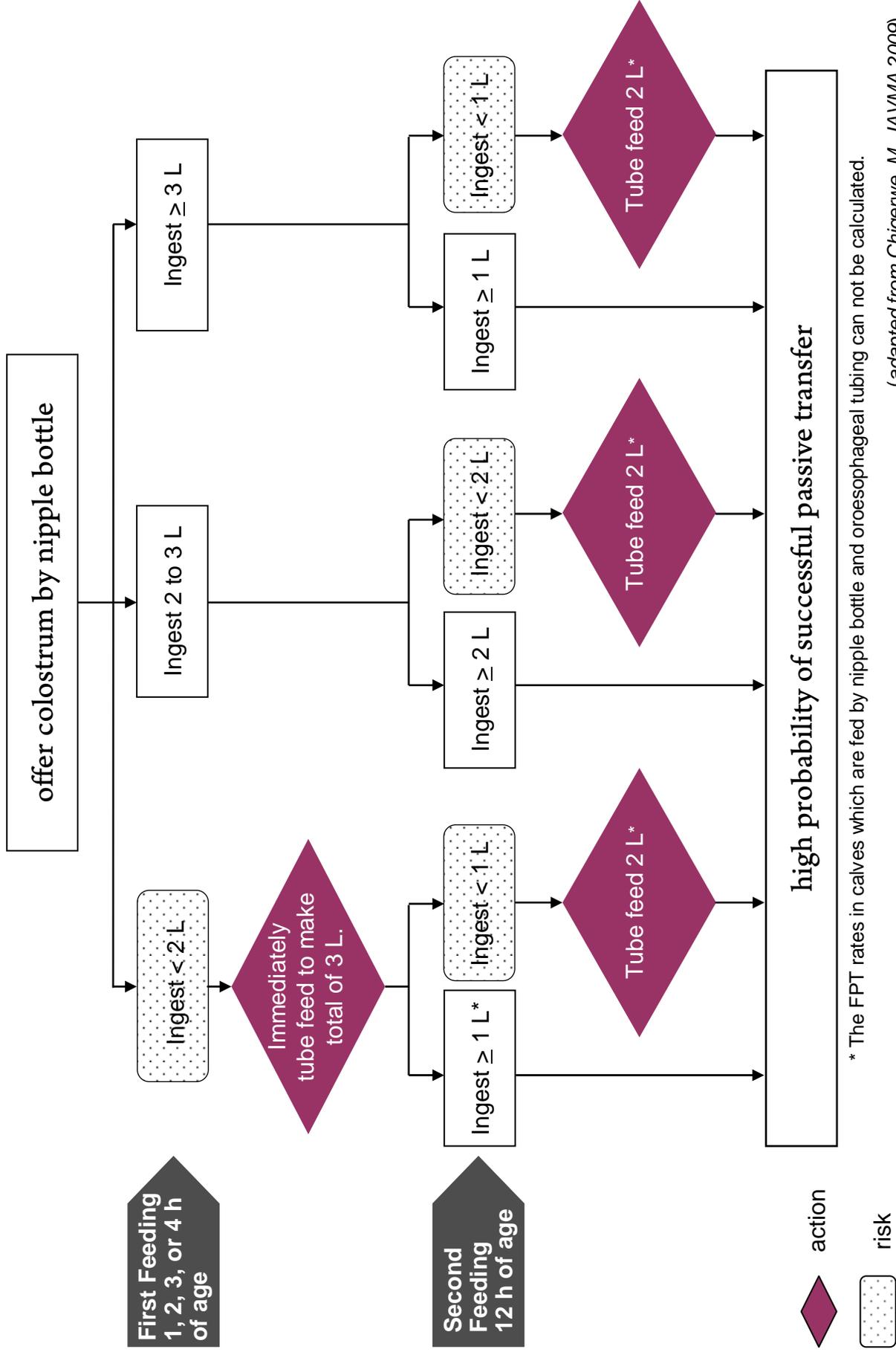
*Chigerwe, M. et al. Effect of colostrum administration by use of oesophageal intubation on serum IgG concentrations in Holstein bull calves. Am J Vet Res. 2008 Sep;69(9):1158-63*

*Chigerwe, M. Evaluation of factors affecting serum IgG concentrations in bottle-fed calves. J Am Vet Med Assoc. 2009 Mar 15; 234(6):785-9.*

*Chigerwe, M. Effect of colostrum administration practices on serum immunoglobulin concentration in dairy calves. Doctoral Thesis. May 2008. <https://mospace.umsystem.edu/xmlui/bitstream/handle/10355/5602/research.pdf?sequence=3>*

(Continued on page 15)

Flow Chart 1. Standard Practices for Colostrum Feeding



# Checking the Mixing Ratio for Automated Calf Feeders

Neil Anderson, Veterinary Science and Policy Unit, OMAFRA

When investigating sickness or poor performance of calves fed by automated feeders, a check of the mixing ratio of milk replacer powder to water should be part of the examination. The check described in this article may differ from, and should not be confused with, calibration of the machine as described in an owner's manual. Recent checks of a few feeders revealed extremes of 90 g/L (too little powder) to 210 g/L (too much powder) and actual ratios that differed from what owners believed they were feeding.

The equipment list for the job (**Figure 1**) includes:

- paper plate
- plastic measuring cup ( $\geq 1L$ )
- gram scale
- pocket thermometer ( $-5^{\circ}$  to  $50^{\circ}C$ )
- pen, paper and calculator



**Figure 1.** Equipment for the job

With the owner's help, I follow these steps.

1. Look at the most recent date and calibrations for water (L), powder (g) and temperature ( $^{\circ}C$ ) on the operating panel display. Record the data. (i.e., show me what the machine is programmed to do.) **Figure 2**
2. Empty the mixing bowl.
3. Prepare a mix. Empty the contents of the mixing bowl into a measuring cup. Record the volume and temperature.



**Figure 2.** Record the data from the operating panel display to show what the machine is programmed to do.

4. Prepare 4 mixes. *Each time*, catch the powder onto a paper plate before it dumps into the mixing bowl and empty the water into your measuring cup. Weigh the powder (**Figure 3**), measure the water (**Figure 4**) and note the temperature. Record your findings. (i.e., show me what the machine is doing.)
5. Calculate the grams of powder per litre. Compare your findings to the programming and the targets for milk replacer preparation.



**Figure 3.** Weigh the powder and record your finding.

(Continued on page 17)



**Figure 4.** Measure the water, note the temperature and record your findings.

When ratios are outside the mixing goals, you may need to reprogram the computer or look for problems using the owner's manual trouble-shooting section as a guide. Water and powder may be dispensed by time. Moisture could combine with

powder to form a gummy obstruction to powder flowing from the powder outlet. The float rod or float also may be gummed-up with sticky powder, or the float may have been installed upside-down. These faults could alter the filling level of water in the mixing bowl. Dirty in-line water filters or low water pressure could alter the volume of water delivered to the bowl in the time (e.g., 10-second) programmed into the computer. If so, clean the powder discharge orifice, float rods, floats, or replace the filters. Re-check the mixing ratio. Since milk replacers vary in *flowability*, the mixing ratio should be checked when switching to a different milk powder. Simple maintenance items should be checked before reprogramming the computer or calling the service technician. For veterinarians, the mixing ratio may be an important item on a checklist during an investigation of sick or poor-performing calves fed by automated feeders.

## **BVDv Testing for Breeding Bulls – New Zealand Method**

*Neil Anderson, Veterinary Science and Policy Unit, OMAFRA*

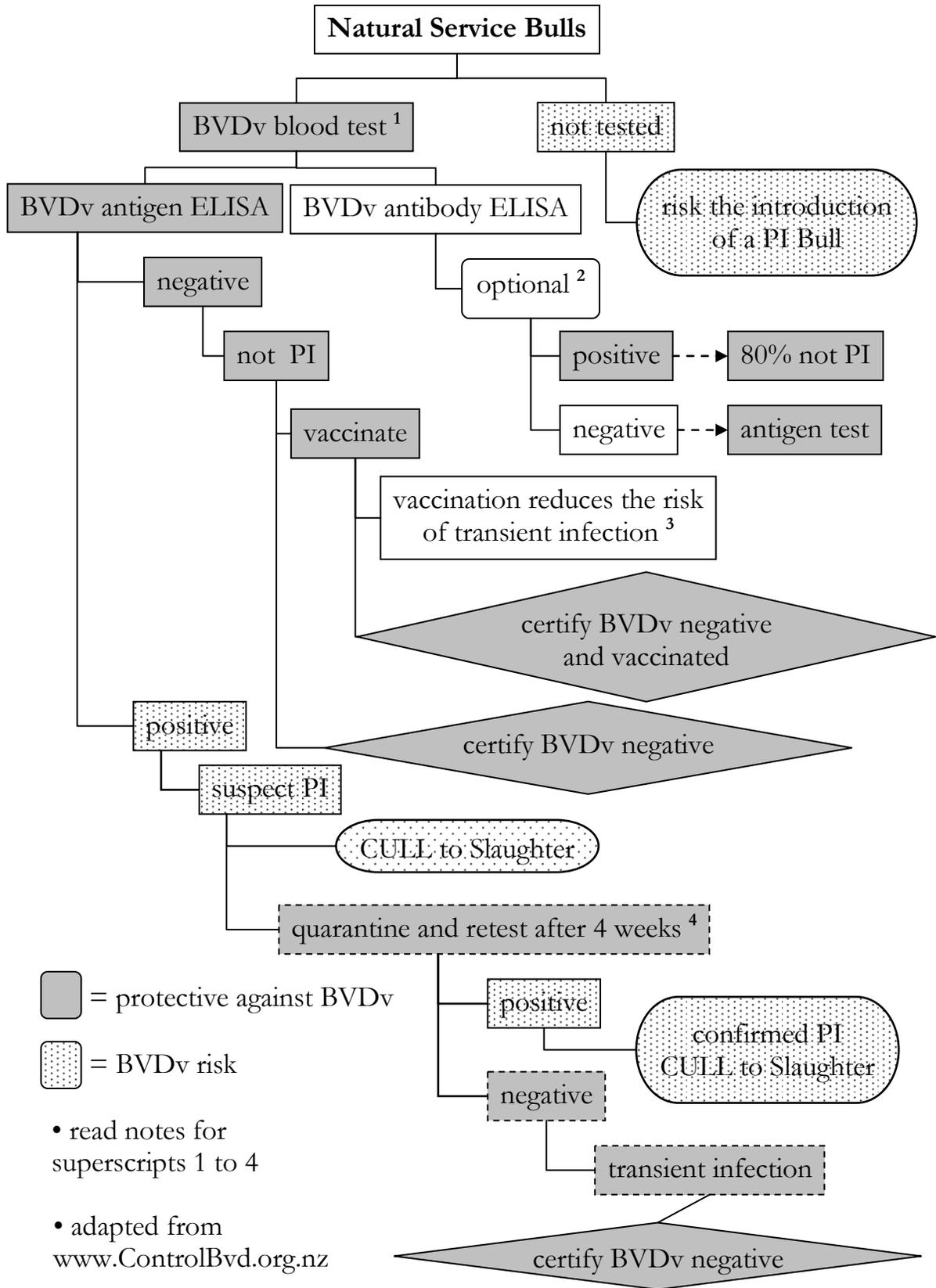
Unprotected cattle are at risk of disease when mated to bulls that are persistently infected (PI) with Bovine Virus Diarrhea virus (BVDv). Consequently, owners are at risk of reproductive, production or financial losses when a PI bull enters their herds. Twenty-eight members of the Professional Dairy Operators responded to a mini-survey about *bulls in dairy barns* in their December newsletter. Ten respondents used breeding bulls and, of those, four farms used home-raised and six used purchased bulls. All six owners of purchased bulls chose not to test for anything prior to bringing bulls into their herds. Two of the six quarantined their newly purchased bulls. Three vaccinated the bull prior to putting him with cows or heifers. Although the sample size is too small to be representative of practices in Ontario herds, it gives some insight into biosecurity measures for bulls in our dairy barns.

In New Zealand where bull-breeding is common, members of their livestock industry developed a Standard Operating Procedure (SOP) for testing and vaccinating bulls prior to entry to a herd. The NZ bull testing scheme is worth examining by Ontario purchasers of breeding bulls. The protocol may be useful for prevention of disease outbreaks or financial hardship.

**Flow chart 1** is a diagram that shows steps to assure BVDv-negative bulls enter a herd and BVDv-positive bulls do not enter. The gray-shaded boxes denote pathways towards introduction of a BVDv-negative bull. The black-stippled boxes show pathways that risk the introduction of PI bulls or identify PI bulls for culling to slaughter. Superscripts 1 to 4 appear within four boxes in Flow chart 1. The superscripts reference the following notes from the NZ information.

*(Continued on pages 18 and 19)*

Flow Chart 1. Steps taken to assure that a BVDv-negative bull enters a herd.



1. Testing should be timed such that test-negative bulls can be fully vaccinated prior to the mating start date.
2. BVD antibody is occasionally used as a cheaper pre-screening blood test with the assumption that antibody-positive cattle are not PI. This is not recommended for two reasons. First, up to 20% of PI animals will test antibody positive. Secondly, a negative test result requires confirmation by an antigen test, potentially adding to the overall cost of testing. BVD antibody may be measured but only as an optional extra to the antigen test; a positive test indicates that the animal has been previously exposed to BVD virus and a negative test indicates a naïve animal.
3. Transient viraemia has been associated with poor semen quality and transient shedding of virus in semen.
4. Retests would only be recommended where the value of the bull is significant or if absolute confirmation of persistent viraemia is required for any other reason.

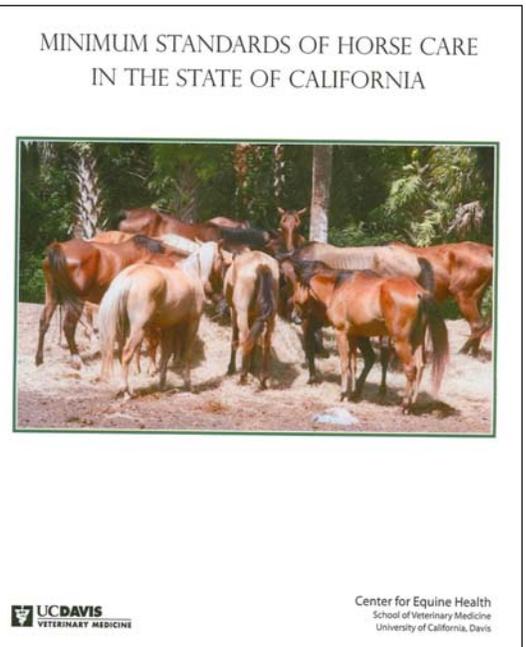
For more information about the New Zealand scheme, please link to [www.ControlBvd.org.nz](http://www.ControlBvd.org.nz).

## Available Resources

### Minimum Standards of Horse Care in the State of California

Three equine researchers in California recently published a booklet to assist California law enforcement agents, who might not be familiar with horses, in detecting and describing neglect cases.

The publication addresses proper water, feed, shelter, health care and transportation for horses. It also provides valuable information on identifying neglect or abuse. Minimum Standards... is designed to serve as a basic guidebook for law enforcement officials, but would be useful to others called in to assist with equine welfare investigations. The booklet includes reference photographs as well as detailed descriptions of minimum standards for horse care that apply not only in California but across North America. This publication fills an important but often overlooked niche. It can be accessed at [www.vetmed.ucdavis.edu/ceh/sp\\_standards.cfm](http://www.vetmed.ucdavis.edu/ceh/sp_standards.cfm)



### Calf Facts

If you are looking for good information on calf-raising, refer to [www.atticacows.com](http://www.atticacows.com) and click on “Calf Facts” in the side menu.

A CD, entitled “Calf Manager: Resources for Successfully Raising Dairy Calves,” is available from Cathy Wallace, [cw6@cornell.edu](mailto:cw6@cornell.edu) or (585) 343-3040 ext. 138 at a cost of \$10 US plus shipping and handling. The “Calf Manager” CD contains over four hundred pages of skill definitions and reference articles. For forty basic and advanced calf-care skills there are instructional resources (40 teaching outlines and 22 video clips). For more information, click on “Calf Manager CD English/Spanish” under “Calf Facts.”

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## Available Resources (continued)

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### Small Ruminant Veterinarians of Ontario (SRVO)

The Small Ruminant Veterinarians of Ontario has a new website.

Check out the site at [www.srvo.ca](http://www.srvo.ca)



Small Ruminant Veterinarians of Ontario

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## Continuing Education/Coming Events

- March 12 & 13, 2011 Camelid Health Conference for Owners and Veterinarians, Pomeroy Student-Alumni Learning Center, St. Paul Campus, University of Minnesota, St. Paul, Minnesota. [www.cvm.umn.edu/vetmedce](http://www.cvm.umn.edu/vetmedce)
- March 24-27, 2011 American Animal Hospital Association (AAHA)/Ontario Veterinary Medical Association (OVMA) Conference, Metro Toronto Convention Centre, Toronto, Ontario <https://secure.aahanet.org/eWeb/StartPage.aspx?site=AAHAYC2011>
- March 25-27, 2011 Northeast Dairy Production Medicine Symposium, Embassy Suites, East Syracuse, New York. [www.NEDPMS.org](http://www.NEDPMS.org)
- March 30 & 31, 2011 London Swine Conference—Exploring the Future, London Convention Centre, London, Ontario. [www.londonswineconference.ca](http://www.londonswineconference.ca)
- April 6 & 7, 2011 Sheep Infrastructure Workshop, sponsored by the Large Flock Operators and OMAFRA, Eastern Ontario (Kemptville Area) [www.omafra.gov.on.ca/english/livestock/sheep/20081211.htm](http://www.omafra.gov.on.ca/english/livestock/sheep/20081211.htm)
- April 13 & 14, 2011 Ontario Association of Bovine Practitioners and Ontario Agri-Business Association Spring Meeting, Holiday Inn (Scottsdale), Guelph, Ontario. [www.oabp.ca](http://www.oabp.ca)
- June 8-10, 2011 2011 World Pork Expo, Iowa State Fairgrounds, Des Moines, Iowa. [www.worldpork.org](http://www.worldpork.org)
- June 12-15, 2011 6th International Symposium on Emerging and Re-emerging Pig Diseases, Palau de Congressos de Catalunya, Barcelona, Spain. [www.emerging2011.com](http://www.emerging2011.com)
- June 19-22, 2011 Safe Pork Conference 2011, La Bonbonnière, Maastricht, the Netherlands [www.safepork.org](http://www.safepork.org)
- June 21 & 22, 2011 38th Annual Ontario Pork Congress, Stratford Agricultural and Recreational Complex, Stratford, Ontario. [www.porkcongress.on.ca](http://www.porkcongress.on.ca)
- July 6-9, 2011 Canadian Veterinary Medical Association Annual Convention, World Trade and Convention Centre, Halifax, Nova Scotia. <http://canadianveterinarians.net/professional-convention.aspx>

(Continued on page 21)

## Continuing Education/Coming Events (continued)

- August 8-11, 2011      5th International Workshop on the Assessment of Animal Welfare at Farm and Group Level (WAFL), hosted by the Campbell Centre for the Study of Animal Welfare and the Ontario Veterinary College, Guelph, Ontario. [www.uoguelph.ca/ccsav/wafl/](http://www.uoguelph.ca/ccsav/wafl/)
- September 22-24, 2011      3rd International Symposium on Mastitis and Milk Quality will be held in conjunction with the American Association of Bovine Practitioners 44th Annual Conference, St. Louis, Missouri. [www.nmconline.org/meetings.html](http://www.nmconline.org/meetings.html)
- October 30-  
November 2, 2011      Antimicrobial Stewardship in Canadian Agriculture and Veterinary Medicine Conference: How is Canada doing and what still needs to be done? - Toronto Airport Marriott Hotel, Toronto, Ontario. [www.antimicrobialcanada.com](http://www.antimicrobialcanada.com)
- February 5-10, 2012      11th International Colloquium on Paratuberculosis (ICP), Camperdown Campus, University of Sydney, Sydney, Australia. [www.icp2012.com.au](http://www.icp2012.com.au)
- June 10-13, 2012      22nd International Pig Veterinary Society Congress—Happy Pigs - Healthy People, International Convention Centre, Jeju, Korea.
- February 18-22  
2013      International Sheep Veterinary Congress, Christchurch Convention Centre, Christchurch, New Zealand. <http://conference.intsheepvetassoc.org>



*It was one of those  
March days when  
the sun shines hot  
and the wind blows  
cold: when it is  
summer in the light,  
and winter in the  
shade.*

*~Charles Dickens*

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**Deadline for next issue: May 18, 2011**



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