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One copy per clinic
Please circulate to all practitioners.

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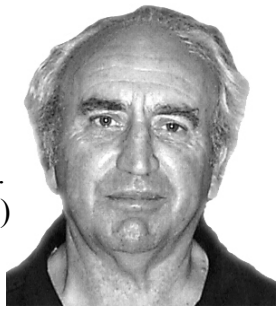
Dr. John Martin is "Setting Sail" for New Horizons



Please join us for a celebration of Dr. John Martin as he departs from the Veterinary Science unit of OMAFRA after 28 years of service. The reception is planned for January 30th at the Elora Curling Club, starting at 5:00 p.m. For further details, please contact Linda McFadden at (519) 846-0941, fax (519) 846-8178 or e-mail: linda.mcfadden@omafra.gov.on.ca.

Dr. Martin was raised in southern England and, after a short stint in the British Army, qualified in 1965, from the Royal Dick School of Veterinary Studies at Edinburgh University. He practiced large animal medicine for nine years in the countryside around Lincoln and York and emigrated to Canada in 1974 to join the Ontario Ministry of Agriculture and Food. The rest, as they say, is history.

John is currently our Veterinary Scientist – Swine, Sheep and Goats and is well known and respected for his work with the Ontario Swine Health Information Program, sheep-predator control, biosecurity and, more recently, helping his colleagues control Foot and Mouth Disease in England. There are certain to be interesting anecdotes told on the 30th to celebrate a truly illustrious professional career. Please join us, or send best wishes to Dr. Martin, using the contact information above.

David Alves

Bacterial Contamination of Colostrum

Colostrum contributes to, rather than prevents, diseases in newborn dairy calves on some farms. Bacterial contamination is the reason. In Quebec and Wisconsin, researchers are reporting improved calf health by feeding colostrum with low bacterial count.

The common sources of bacterial contamination in colostrum include infected quarters, inadequate cow preparation at the time of milking, poorly sanitized milking, collection or storage equipment, or storage without adequate cooling.

In Ontario, the Sentinel Herd study found that udder infections are common at calving time. Samples of milk from cows fresh 24 hours, on 60 farms were cultured over a 12-month period in 1998. On a monthly basis, 15 - 32% of fresh cows cultured positive for coliform, *Staphylococcus aureus*, or streptococci bacteria. In Quebec, Gilles Fecteau developed culture techniques to report bacterial counts in colostrum. He found 90% of colostral samples contaminated with one or more bacteria. Fecteau also found 27% of calf-milk samples contained more than 100,000 bacteria per mL. Fully 3,000,000 bacteria per mL were the most that he found in a milk sample. Fecteau also reported that the greatest risk of bacterial contamination was in the summer months.
In Wisconsin, Sheila McGuirk adapted Fecteau's methods to investigations of calf disease outbreaks. She now includes culturing calf-milk in her calf disease investigation protocol.

Although the methodology for culturing colostrum or pooled milk samples is complex, McGuirk insists that examination of the milk is essential for a complete investigation. In his laboratory, Fecteau dilutes the milk 1:10 to 1:100 and in Wisconsin, McGuirk dilutes the colostrum 1:50 to 1:50,000. They do this to facilitate reporting bacterial counts and rating the bacterial quality of the milk. The milk samples can be frozen and thawed once without harm, prior to culture. Both Fecteau and McGuirk use specialized media to determine the presence of fecal or environmental bacteria, common mastitis-causing bacteria, salmonella, or mycoplasma.

McGuirk established culture goals for colostrum as shown in **Table 1**. With her knowledge of the commonest sources of the bacteria, she looks for weaknesses in calf husbandry and opportunities for disease prevention or control. For example, lactose positive coliforms, including fecal pathogens, are often associated with inadequate cow preparation at the time of milking. Environmental staphs and streps, and lactose negative coliforms are often associated with inadequate sanitation of equipment. With inadequate cooling or storage, she often finds environmental staphs or streps, or amplification of any bacteria. McGuirk also looks to udders for sources of bacteria.

The importance of bacterial contamination on calf health has not been documented in the veterinary literature. However, at a recent AABP seminar, McGuirk used several case studies showing significant bacterial contamination of colostrum and improvement in calf health after changing management practices to decrease the bacterial load.

Colostrum can be a friend or a foe. When confronted with sickness in newborn calves, check the colostrum or the calf-milk for bacterial contamination. If it is contaminated, look for the common sources - infected quarters, inadequate cow preparation at milking, poorly sanitized milking, collection or storage equipment, or storage without adequate cooling. Take corrective action and very good calf health should be your reward.

Table 1. Culture goals for colostrum being fed to calves.

	Count/mL
Total coliform	<100,000
Coliform - lactose positive	<10,000
Coliform - lactose negative	<50,000
Streptococcus agalactiae	0
Streptococcus non-agalactiae	<50,000
Coagulase positive Staph (aureus)	0
Coagulase negative Staph	<50,000
Mycoplasma	0

Fecteau, Gilles. Personal Communication. Faculté de médecine vétérinaire, Université de Montréal, St-Hycinthe, Quebec. October 2001.

Godkin, Ann. Personal Communication. Ontario Sentinel Dairy Project, 1998. October 2001.

McGuirk, Sheila. University of Wisconsin, Madison, WI. Notes from the Young Dairy Calf Management Seminar. 34th Annual Conference of the American Association of Bovine Practitioners. Vancouver, BC. September 2001.

Neil Anderson

Testing Calves for Passive Transfer of Immunity

Dr. Sheila McGuirk, University of Wisconsin, Madison, uses the following protocol to assess the

success of passive transfer of colostral immunity to calves in dairy herds.

To assess serum protein levels:
1. Collect the blood, cool it, and centrifuge to separate the serum.
2. Sample a minimum of 12 calves.
3. Collect blood from calves less than 7 days of age. Calves can be tested as soon as 6 hours after drinking colostrum.
4. List the results.
5. Use a serum protein cut point of less than 5.5 g/dL.
6. Use an alarm level of 20%.

If 2 or more of the 12 calves tested less than 5.5 g/dL, look for reasons for failure of passive transfer. For successful passive transfer, collect colostrum within 4 hours of calving, from a healthy donor cow, feed a 4-litre meal, and administer it within 4 hours of birth. Monitor the results by testing for serum protein levels on 12 or more calves as described above. In some small dairy herds, it may take a few months to get the required sample size needed to make a proper judgement.

Neil Anderson

Laboratories for Johne's Disease Testing and Test Costs

Which laboratory should you send samples to? Are the results from all labs the same?

The National Veterinary Services Laboratory (USDA agency) in Ames, Iowa, provides voluntary accreditation for laboratories performing Johne's disease testing. Diagnostic laboratories wishing to become accredited pay a fee and receive coded serum samples for ELISA testing and fecal material for culture or PCR tests. Each lab can select the test they wish to use. Results of laboratory testing are submitted to the National Veterinary Services Laboratory (NVSL). NVSL scores the results and awards a certificate to those labs that pass the test by meeting the certifying criteria.

To become accredited, the lab must:
- correctly identify 5 of 5 "too numerous to count" samples,
- have zero false-positive results on the 5-6 true negative samples, and
- declare positive at least 85% of the remaining 15 or so positive samples that were also found positive by at least 70% of the labs taking the same test.

Participating laboratories are listed at http://www.aphis.usda.gov/vs/nvsl/LabCertification.htm Laboratories must re-take the tests annually to stay on the accreditation list.

Prior to sending samples to a lab, call to confirm that they can handle the samples at that time. Labs may also have special instructions for collecting and shipping samples.

Laboratories for Johne's Disease Testing and Test Costs

Laboratory	Shipping	Johne's Tests (Bovine)		
		Serology	Fecal	Milk
Animals Health Laboratory Laboratory Services Division University of Guelph Building 49, McIntosh Lane Guelph, ON N1H 6R8 519-824-4120 ext. 4502 From Concession Rd, enter Kemptville College, 2nd bldg on right K0G 1J0 613-258-8320 **Accredited for Serology**	Courier Fee For Forwarding Samples: - $20 shipping (BC) - $30 shipping (Cornell) - $ 6 handling fee, if no other tests performed at AHL	ELISA (IDEXX) $7.50/test	Samples forwarded to the BC lab, unless otherwise requested AHL in the process of validating the BACTEC (liquid culture)	Not Available
Animal Health Monitoring Lab 1767 Angus Campbell Rd Abbotsford, BC V3G 2M3 604-556-3135 **Accredited for Serology and Fecal Culture**	Courier Fee	ELISA (Biocor) <10 samples - $10/test $10 samples - $6.75/test $100 samples - $5.35/test	BACTEC (liquid culture) $25/test (confirmed by acid-fast staining, culture, or PCR)	Not Available
Antel Biosystems, Inc. 3900 Collins Rd Lansing, Michigan 48910 1-800-631-3510 **Accredited for Serology, Fecal Culture and Rapid Fecal Test**	Courier Fee	ELISA (Biocor) $6 US/test discounts start at $31 samples	Traditional Culture $25 US/test (discounts start at $31 samples) Rapid Fecal Test (PCR based test) $25 US/test (discounts start at $31 samples)	ELISA (Antel Bio) $6 US/test
Cornell Veterinary Medical Diagnostic Laboratory Upper Tower Rd Cornell University Ithaca, New York 14852-5786 607-253-3900 **Accredited for Serology (Biocor)**	Courier Fee Out-of-state Fee $13 US	ELISA (KELA) $4 US/test ELISA (Biocor) $10 US/test	TREK (liquid culture) $33 US/test	Not Available
Diagnostic Bacteriology Laboratory National Veterinary Services Laboratories 1800 Dayton Ave Ames, Iowa 50010 515-663-7563 **Accredited for Serology and Fecal Culture**	Courier Fee	ELISA (IDEXX) $4.75 US/test	Traditional Culture $26.50 US/test PCR $26.50 US/test	Not Available

Jocelyn Jansen

How to Handle Emergency Slaughter Situations Outside of Normal Slaughterhouse Operating Hours

It is Sunday morning and a regular client has phoned to say that an 800-pound stocker calf has been found with a broken front leg. The owner would like to slaughter the calf as soon as possible. The calf has apparently injured the other front leg as well and the owner is uncertain as to whether he should load the steer onto his stock truck to go to the nearest abattoir. The local butcher has been contacted and is willing to slaughter the calf this morning but advised the owner to make sure the vet has done all the right paperwork. The "right paperwork" and the right veterinarian to oversee this emergency slaughter situation depend on a number of factors. The flow chart below can help ensure that the injured calf is treated appropriately.

Emergency Slaughter – Outside Plant Operating Hours

	Ambulatory	Non-Ambulatory	
		On Farm	At Plant
Process to Follow	• Owner to arrange slaughter with operator. • Operator is responsible to secure services of an appointed vet for ante-mortem, stunning, bleeding, dressing and post-mortem. • Appointed vet to complete "in-plant report"	• Owner to arrange slaughter with operator. • Owner to secure service (usually through operator) of an appointed vet. • Appointed vet must be present on farm to perform ante-mortem and observe stunning and sticking and complete "non-ambulatory certificate." • Owner to arrange transport to plant. • Operator to ensure appointed vet present during dressing; may be different vet than vet present at farm. If so, then "non-ambulatory certificate" provides important means of communication. • Appointed vet to complete "in-plant report" and attach "non-ambulatory certificate."	• Owner has arranged for slaughter with operator. • Owner has secured service of a licensed vet to provide "non-ambulatory certificate." • Owner has arranged transport to plant. • Operator to ensure appointed vet is present for ante-mortem, stunning, bleeding, dressing and post-mortem. • Appointed vet to create "in-plant report" and attach "non-ambulatory certificate."
Form Required	"In-plant report"	"Non-ambulatory certificate" (created at farm) and "in-plant report"	"Non-ambulatory certificate" (created at farm) and "in-plant report"
Use of Meat	Operator may purchase for sale or owner may keep for consumption.	Owner must keep for consumption.	Operator may purchase for sale or owner may keep for consumption.

Definitions:

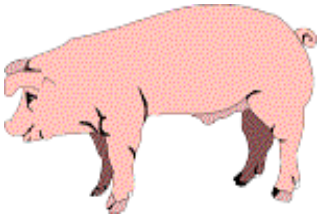
licensed:	licensed by the College of Veterinarians of Ontario (CVO)
appointed:	a licensed veterinarian who has been appointed under the Meat Inspection Act (Ontario)
"non-ambulatory certificate":	Veterinary Certificate for Direct Transport to Slaughter (form 3526-45)
"in-plant report":	"In-plant Veterinary Inspection Report" (form M.I.I.B. 215)
owner:	animal owner or their agent
operator:	slaughter plant operator
OMAFRA tag:	red/yellow plastic rectangle with "OMAFRA" and unique 5 digit number, with cable tie for attachment to animal's leg

The animal also requires an OMAFRA tag when the Veterinary Certificate for Direct Transport to Slaughter is created at the farm.

OMAFRA expects operators to acquire the services of an appointed Veterinarian, but Area Managers or Regional Veterinarians will assist if contacted. Area managers or Regional Veterinarians (Dr. G. Ferdinand or Dr. R. Hayes) can be contacted by calling 1-800-263-1420, and asking for them by name to be paged.

Robert Hayes and Tim Blackwell

Dry Sow Housing Continues to Evolve



When sows were first housed indoors, they were kept in small, straw-bedded pens. As farms became larger, two, three and four sows were sometimes housed together in larger, straw-bedded pens. The tedious and time-consuming job of mucking out these pens kept sow numbers low on most farms. With the advent of liquid manure handling systems, sow numbers on farms began to increase. Sows were commonly held in pens in groups of 4 to 6 sows, and floor fed during gestation. Some of these systems proved inhumane. Large sows would bully the smaller sows away from the feed. Occasionally the smallest sows would be injured during fights with larger sows and these individuals would no longer be able to compete for the available feed. As a result one or two sows in a pen became over-conditioned, while others became extremely thin.

As a more humane alternative to this group-housing system, gestation crates were created to ensure that all sows received their allotted amount of feed and water, and could rest without fear of being attacked by another sow. These systems virtually eliminated the fat sow/thin sow problems associated with group feeding and put an end to sow fighting. They were, however, more expensive than the simpler pen-housing designs.

Recently, in Ontario, producers have been experimenting with loose housing systems for larger groups of sows. Sows are now being housed in groups ranging in size from 12 to 100 sows per pen. These new systems provide a more even distribution of feed while minimizing fighting between sows. It appears that larger groups of sows in bigger pens fight less than smaller groups of sows in small pens. The barns are often cheaper to build than conventional crated gestation barns because there is no need for a complicated system of crates and alleys.

A video is currently in production describing three such group-housing systems and will be available this coming spring from Ontario Pork.
Tim Blackwell

Whenever you are asked if you can do a job, tell'em, "Certainly, I can!" Then get busy and find out how to do it.

- Theodore Roosevelt

Botulism and Horses

Several incidents of botulism occur each year after horses eat wrapped or bagged round-bale haylage. In some of these outbreaks, the haylage looked and smelled spoiled. In others, the bales did not look spoiled but horses eating them developed botulism.

The clinical signs of botulism in horses are similar to those attributable to other causes of central nervous signs, including rabies, the equine viral encephalitis diseases such as Eastern, Western or West Nile viral encephalitis and the nervous form of equine viral rhinopneumonitis. Botulism is diagnosed by eliminating other causes of central nervous disease. Rarely is it possible to detect botulinum toxin in the serum of affected animals or in suspect feed. The Mouse Toxin Assay is the gold standard for toxin detection and typing. However, it may take up to four days to complete the test. A positive test confirms the presence of the toxin but a negative test does not mean that the disease has not affected the animal.

Botulism is difficult to treat. If available, antitoxin for the specific toxin suspected is the most helpful therapy. Antitoxin is most beneficial if used when animals are first seen to be sick. With supportive care, horses can recover but, if they are exposed to a large amount of toxin, most will die despite treatment.

Type A botulinum toxin has been incriminated in several outbreaks in horses in the north-western United States (Washington, Idaho, Montana, Oregon). However, type B predominates and is referred to as forage botulism because of its association with contaminated forage.

Polyvalent antitoxin (types A to E) is available from Dr. Bob Whitlock at New Bolton Center, University of Pennsylvania. However, a therapeutic course for a single horse costs about $3,000 US. Other plasma products (Veterinary Dynamics) contain type B antitoxin. The University of Guelph and some other teaching hospitals also maintain a supply of antitoxin.

An inactivated toxoid is used to vaccinate against botulism. Neogen Biologics, Michigan, USA, manufactures Bot Tox-B. It is available in Canada from some suppliers. It protects against Type B only. An initial three-dose vaccination program is recommended followed by a single annual vaccination. The information sheet, *Botulism in Horses and Haylage* is available from the horse section of the OMAFRA web site at http://www.gov.on.ca/omafra/livestock.

Bob Wright

Correction

The Canadian Food Inspection Agency Foreign Animal Disease Contact Number, which appeared in the September 2001 edition of CEPTOR, was incorrect. The correct number to call for reporting a suspected FAD is ~~1-877-814-2342~~ 1-800-442-2342.

Chronic Wasting Disease Training

In the fall of 2001, OMAFRA staff, in conjunction with staff of the Animal Health Laboratory (AHL) and the Canadian Food Inspection Agency (CFIA), held three Chronic Wasting Disease (CWD) training sessions. The training reviewed the practitioner's responsibilities under the

national CWD Voluntary Herd Certification Program, the clinical signs of CWD, the transmissible spongioform encephalopathies (TSE's), and provided an opportunity for participants to remove the obex region of the brainstem from deer heads. Ten private practitioners, six CFIA staff, three producers and three AHL staff attended.

Practitioners and CFIA staff, who have an interest in receiving training, can either attend a future workshop or borrow the CWD training kit. The kit contains the training materials used in the sessions, including videos, PowerPoint presentations, obex removal tool, and handouts.

If you are interested in attending a future training session or borrowing the training kit, contact Bob Wright at (519) 846-3412.

Bob Wright

It's That Time Again – Oxidized Milk Season

Each winter, a number of herds in Ontario are at increased risk of producing off-flavour milk due to milk oxidation. This off-flavour has been unappealingly described as "wet cardboard."

When the problem is severe, milk graders refuse to pick up milk from the farm. When the problem is milder, the off-flavour reaction is not detectable at the time of pickup and the milk is processed. Unwittingly, off-flavour milk is sold. The consumer who buys and drinks the milk thinks "milk just doesn't taste as good as it used to." Then, next time, they buy juice or pop.

Causes of severe oxidation have been difficult to research and therefore it has also been difficult to prevent and solve farm flavour problems. Many "causes" of milk oxidation are known, but what actually happens on a farm is not.

Cow diet has long been suspected as predisposing or protecting cows from producing milk that is prone to oxidation (called spontaneous oxidized flavour or SOF). One dietary factor newly shown to have some affect on SOF is the feeding of roasted soybeans (RSB). Ohio researchers studied 20 farms and found that, as the concentrations of certain polyunsaturated fatty acids in bulk tank milk fat increased (linoleic, 18:2 and linolenic, 18:3), so did the probability of SOF. Additionally, these higher levels of fatty acids were more frequently found when RSB had been fed to the cows. There was a slight relationship to the amount of RSB fed.

While this feed factor was important, it wasn't the sole cause of the problem. Milk also had to contain a high concentration of copper. Copper is a pro-oxidant, meaning it likes to steal electrons from milk fat, leaving the off-flavour form of fat behind. Having the copper, plus lots of fatty acids for it to work on, is what predisposes milk to SOF. Furthermore, the copper levels in milk were not related to the levels of copper fed to the cows. Apparently copper in the milk came from sources other than the cows. Others have speculated that mineral buildup and wash water in the milking system contributes to milk copper levels.

Feeding RSB has advantages for cows and milk production. However, in herds with SOF problems, care must be taken to protect the milk from oxidation when a fat source that increases these fatty acids is fed. Lower copper and higher antioxidant levels in milk are necessary. This may explain the success some herds have in controlling SOF by feeding increased amounts of vitamin E when the problem occurs.

Timmons JS, Weiss WP, Palmquist DL, Harper WJ. Relationships among dietary roasted soybeans, milk components, and spontaneous oxidized flavour of milk. J Dairy Sci 2001; 84: 2440-2449.

Ann Godkin

Veterinary Information Alert - Bioterrorism Involving Livestock

In light of the recent events in North America, governments and the public have a heightened awareness and concern about the possibility of bioterrorism involving agriculture, including livestock. This alert is not meant to cause panic or overstate the obvious. However, veterinarians and livestock owners may be the first to diagnose the early cases of a bioterrorist act in agriculture, as livestock can be sentinels of such an exposure. At the very least this note provides further points of contact for more information.

The Centers for Disease Control and Prevention in the United States have produced a list of the most likely biological agents to be used in an act of bioterrorism (**see excerpt next page**). Many of these are pathogens shared by humans and animals, and some have agricultural significance. Other agents of concern include Foreign Animal Diseases and other reportable diseases (such as Foot and Mouth Disease, Avian Influenza). Although many of the pathogens listed as possible bioterrorism agents would cause localized or sporadic disease, some may have serious public health or trade implications.

Veterinarians should remain current and vigilant for clinical signs consistent with any reportable or foreign animal disease, as well as unusual patterns or clusters of disease from the agents listed below. The Animal Health Laboratory (U of G) and other diagnostic laboratories across Canada have been notified to be on alert for the detection of such agents. Diseases or clusters that might point to an exposure consistent with an act of bioterrorism could include: unusual demographic patterns, multiple species involvement, concurrent animal/public health problems, and unusual clusters of strains or serotypes. Points of contact for animal health information are listed below.

Foreign Animal Disease Emergency Number for veterinarians - 1-877-814-2342
Canadian Food Inspection Agency (CFIA) Ontario Region - (519) 837-9400 or your local area office
Dr. Grant Maxie, AHL, University of Guelph - (519) 824-4120 ext. 4544
Dr. David Alves, Provincial Veterinarian, Veterinary Science, OMAFRA - (519) 826-3127
Agricultural Information Contact Centre, OMAFRA - 1-877-424-1300
Health Canada:

- Information on biological agents - http://www.hc-sc.gc.ca/english/biological_agents/index.html

- Announcement of the creation of a National Advisory Committee on chemical, biological, radio-nuclear safety, security and research
  http://www.hc-sc.gc.ca/english/media/releases/2001/2001_120e.htm

US Centers for Disease Control and Prevention - www.cdc.gov

CFIA information on anthrax - inspection.gc.ca/english/anima/heasan/disemala/anthraxe.shtml

Centers for Disease Control and Prevention - Critical biological agents

Category A

The U.S. public health system and primary health-care providers must be prepared to address varied biological agents, including pathogens that are rarely seen in the United States. High-priority agents include organisms that pose a risk to national security because they

- can be easily disseminated or transmitted person-to-person;
- cause high mortality, with potential for major public health impact;
- might cause public panic and social disruption; and
- require special action for public health preparedness

Category A agents include:

- variola major (smallpox);
- *Bacillus anthracis* (anthrax);
- *Yersinia pestis* (plague);
- *Clostridium botulinum* toxin (botulism);
- *Francisella tularensis* (tularaemia);
- filoviruses,
  - Ebola hemorrhagic fever, Marburg hemorrhagic fever;
- arenaviruses,
  - Lassa (Lassa fever), Junin (Argentine hemorrhagic fever) and related viruses.

Category B

Second highest priority agents include those that

- are moderately easy to disseminate;
- cause moderate morbidity and low mortality; and
- require specific enhancements of CDC's diagnostic capacity and enhanced disease surveillance.

Category B agents include:

- *Coxiella burnetti* (Q fever);
- *Brucella* species (brucellosis);
- *Burkholderia mallei* (glanders);
- alphaviruses,
  - Venezuelan encephalomyelitis,
  - eastern and western equine encephalomyelitis;
- ricin toxin from *Ricinus communis* (castor beans);
- epsilon toxin of *Clostridium perfringens*; and
- *Staphylococcus* enterotoxin B.

A subset of List B agents includes pathogens that are food- or waterborne.
These pathogens include, but are not limited to:

- *Salmonella* species,
- *Shigella dysenteriae*,
- *Escherichia coli* O157:H7,
- *Vibrio cholerae*, and
- *Cryptosporidium parvum*.

Category C

Third highest priority agents include emerging pathogens that could be engineered for mass dissemination in the future because of

- availability;
- ease of production and dissemination; and
- potential for high morbidity and mortality and major health impact.

Category C agents include:

- Nipah virus,
- hantaviruses,
- tickborne hemorrhagic fever viruses,
- tickborne encephalitis viruses,
- yellow fever, and
- multidrug-resistant tuberculosis.

(Adapted from: Biological and Chemical Terrorism: Strategic Plan for Preparedness and Response. Centers for Disease Control and Prevention, April 21 2000; 49(RR04): 1-14)

David Alves and Paul Innes

Biosecurity Questionnaire: Room for Improvement

At the OMAFRA display at the Outdoor Farm Show in September, visitors completed a questionnaire on biosecurity in their operation. Thirty-one responses were collected: 11 dairy, 6 beef, 7 swine, 3 poultry, 2 goat, 1 equine and 1 cervid operation. This is not a representative sample of producers, but there were some consistent points in the responses. The following is a summary of the results.

1. Only swine operations commonly provided visitors with boots/coveralls. Approximately half of the respondents use a disinfectant footbath for visitors. Many dairy respondents use footbaths as the only visitor barrier.
2. Barriers and "No Entry" signs were uncommon, except for poultry operations.
3. Quarantine and sick pens were rarely used by dairy and swine, but were utilized by more than half of the beef respondents.
4. Almost all employ some type of rodent and pest control and have regular cleaning procedures.
5. Most respondents felt confident that incoming stock are healthy (highest among swine and poultry, lowest among beef).
6. With the exception of beef, most respondents have discussed biosecurity with their veterinarian.
7. The overall level of satisfaction with biosecurity was high among poultry and swine respondents, but most dairy and beef respondents felt a need for improvement.

These results indicate some areas of concern. Awareness of visitor control has been heightened in recent months, but producers may not be adopting the most appropriate and effective measures. For example, footbaths will be of little value in keeping pathogens out of the barn if visitors are wearing contaminated clothing and muddy boots.

Producers should be concerned about outgoing as well as incoming pathogens. This includes exposure of visitors to possible zoonotic pathogens such as *Salmonella* and verotoxigenic *E. coli*. It is difficult to prevent all pathogens from being brought onto or off the farm premises, but controlling who and what enters or leaves the farm is an important step.

Many of the pathogens of concern in Ontario require direct contact, such as through infected animals, manure or feed, for infection to occur. Successful introduction of these pathogens depends on transferring contaminated material to where susceptible livestock come in contact with it. Useful barriers at this stage include restricting access to barns, using separate boots and clothing for visitors, footbaths and bootwashes at entrances, and separate quarantine facilities for introduced stock. Reducing pathogen movement around the farm on equipment and machinery is also important.

Vaccination, isolating sick animals, and the proper handling of manure can also reduce the spread of infection. Veterinary advice and guidance is critical for developing effective on-farm biosecurity practices.

The results of the questionnaire indicate a perceived need among some dairy and beef producers for an improvement in their biosecurity procedures. The level and type of biosecurity measures employed by a producer will vary with the type of operation and the commodity involved. Veterinarians play a key role in guiding producers towards an effective biosecurity plan.

Paul Innes

Mini-Review of Photosensitivity in Horses

Photosensitivity is commonly seen as a result of ingesting photodynamic agents from a number of plant and chemical toxins. Some agents are phototoxic while others are photoallergic compounds [(1)].

Primary phototoxic containing agents such as phosphorus fertilizer, coal tar pitch, wood preservatives, pentachloro-phenols, aflatoxin B in moldy feed, as well as a number of veterinary medicines, such as tetracycline and phenothiazine tranquilizers, act as photodynamic agents by absorbing the ultraviolet light and passing the energy to adjacent cells resulting in cell damage [(1)].

Hepatogenous photosensitization occurs when damage to the liver from a number of toxins results in the inability to excrete phylloerythrin. Phylloerythrin is a porphyrin compound formed by microbial degradation of chlorophyll in the gut. It is normally excreted in the bile [(1)]. Pyrrolizidine alkaloid containing plants such as Tansy Ragwort, Groundsel, Fiddleneck, Common heliotrope, Vipers bugloss, and Rattlebox cause hepatogenous photosensitivity.

Photosensitivity of uncertain etiology includes many forage related photosensitivities. Photosensitization in cattle, sheep and horses grazing lush pasture has been reported [(2)]. Alfalfa has been incriminated in cases of secondary photosensitization in cattle, where compromised hepatic function is the prerequisite for the photosensitization [(3)]. Alsike clover is well recognized as causing photosensitization as well as oral ulcers and hepatitis. It is unclear whether the photosensitization is primarily a photodynamic agent problem or a secondary phototoxic reaction due to liver damage [(4)].

1. *Smith BP. Large Animal Internal Medicine 2nd ed. Mosby, 1996:1443.*
2. *Radostits OM, Gay CC, Blood DC, Hinchcliff KW. Veterinary Medicine 9th ed. WB Saunders, 2000:587-589.*
3. *Casteel SW, Rottinghaus GE, Johnson GC, Wicklow DT, et al. Liver disease in cattle induced by consumption of moldy hay. Veterinary & Human Toxicology 1995; 37:248-251.*
4. *Blood DC, Radostits OM. Veterinary Medicine, 7th ed. WB Saunders, 1989:1338.*

Bob Wright

Case Report: Clover and Photosensitization

In early September, three horses showed blistering and cracking of the white areas of the face and legs. One horse exhibited jaundice. The laboratory findings were indicative of an active hepatitis with an elevated total bilirubin, cholesterol, GGT, AST, ALT and ALK P. The signs and test results were consistent with photosensitization. The horses were managed by keeping them in the barn and feeding mixed hay. Treatment involved several days of therapy with NSAIDS, steroids, penicillin, zinc ointment topically, electrolytes, and an antihistamine.

Feeds and Feeding
The horses had been pastured in a field where chicken manure had been applied for at least ten years. The field was divided into a number of pastures by electric fence for strip grazing. The horses are fenced out of the old fence bottoms. Very few weeds were present in the horse pastures. The horses had been receiving some mixed hay (alfalfa-grass) and a small quantity of a commercial grain mix. They had access to a salt-mineral mix.

On Oct. 12th, the pasture consisted of 90% lush white clover, despite the high grass content of the original seed mix. White clover is identified by a horizontally growing stem and the white "V" on the leaves. The entire pasture was a bright green mass of lush white clover with very few other plants present.

The forage analysis (**Table 1**) showed a highly digestible forage with low fibre content. The protein level was twice the needs of the adult horse. The micro nutrient content was high but within tolerable limits.

Soil
The soil analysis showed very high levels of phosphorus, potassium, magnesium, zinc, manganese, copper and iron. These are indicative of a field that has been heavily fertilized with manure. This fertility level would easily meet the needs of corn with no further additions of fertilizer.

Table 1. Findings of the Forage Analysis

Test	Result on a dry matter basis	Expected range or National Research Council upper limit [1]
Nitrate	428 ppm	5,000 ppm [2]
Protein	26.05 %	10 - 12% for mature horses
Fibre- ADF NDF	24.28 35.15	28 - 37% 42 - 66%
Minerals		
Phosphorus	0.46 %	1%
Potassium	3.28	
Magnesium	0.41	0.3%
Zinc	44.03 ppm	700 ppm
Manganese	114.57	40 ppm
Energy		The calculated DE value is identical to the energy value of oats.
TDN (%)	65.89	
DE M cal/lb.	1.32	
Relative feeding value	185.21%	This is beyond the needs of the highest producing dairy cow.

Summary:

- The clinical history and signs are consistent with a photosensitivity.
- The concurrent hepatitis could suggest that the photosensitivity is secondary to the hepatitis.
- The pasture was mainly white clover and the analysis indicates that its nutrient content far exceeds the needs of these horses.
- No poisonous plants were being grazed by the horses.
- The soil analysis shows a high soil fertility with high levels of the micro minerals.
- The horses have improved since they have been removed from the pasture and are being fed hay. No other changes to management have occurred.

Discussion:

The high percentage of clover may have occurred because of the growing conditions in the seeding year, as well as this year's warm wet fall. Drought during the seeding year may have reduced the survivability of the more delicate grass seedlings.

The pasture contained white clover and not alsike clover. White clover has not been recognized as causing photosensitivity. However, the high fertility level of the soil coupled with a warm wet fall promoted lush growth of the white clover. Since the horses were consuming almost exclusively white clover, it may be that the white clover, its metabolites, or mycotoxins associated with the white clover, were responsible for the photosensitization reaction. Recommendations to the owners included the reduction of white clover in the pasture with herbicides.

Further information and details on how to differentiate between the different clovers are available in the information sheet, *Alsike Clover Poisoning, Photosensitization or Photodermatitis in Horses* which is available on the OMAFRA web site, www.gov.on.ca/OMAFRA/livestock

1. *Nutrient Requirements of Horses. National Research Council. National Academy Press, Washington D.C., 1989.*
2. *Lewis LD. Feeding and Care of the Horse, Lea & Febiger, 1982.*

Bob Wright

Resources

Biosecurity Resource at Purdue University. The USA National Biosecurity Resource Center for Animal Health Emergencies is hosted by Purdue University.
http://www.biosecuritycenter.org/nbrctoc.htm

Beef Stocker and Backgrounding Resources. Information about management, health, research, business, and news items. Kansas State University and Beef Magazine. http://www.beefstockerusa.org

DASEES - Dairy and Animal Science Electronic Executive Summaries. Each DASEE focuses on a topic of current interest in one of six interest areas: dairy foods, dairy production, large animal health, large animal nutrition, beef production, swine production, and meats. http://www.fass.org/dasees/

The National Animal Health Monitoring System (NAHMS - USA). Four New Beef-Related and Four Equine-Related Information Sheets
http://www.aphis.usda.gov/vs/ceah/cahm/What's_New/new.htm

1. Treatment of Respiratory Disease in U.S. Feedlots
2. Salmonella in United States Feedlots
3. Escherichia coli O157 in United States Feedlots
4. Prevalence and Antimicrobial Susceptibility Patterns of Salmonella from Beef Cows
5. National Economic Cost of Equine Lameness, Colic, and Equine Protozoal Myeloencephalitis (EPM) in the United States
6. Incidence of Colic in U.S. Horses
7. IURD in U.S. Horses: Disease Frequency
8. IURD in U.S. Horses: Lab Results for Influenza Serology and Nasal Swab Culture for Streptococcus Isolation

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Continuing Education

Jan 24 - 26, 2002	Ontario Veterinary Medical Association Conference. Westin Harbor Castle Hotel, Toronto. (905) 875-0756 www.ovma.org
Jan 12 - 16, 2002	North American Veterinary Conference. Orlando, Florida. (353) 375-5672 www.navconline.com
Jan 16 - 19, 2002	Western Canadian Association of Bovine Practitioners meeting. Saskatoon, SK. Dr. Ray Butler (306) 651-3382 www.cattle.ca
Feb 3 - 6, 2002	National Mastitis Annual Meeting, Orlando, Florida. Phone (608) 224-0622. Meeting information and program at www.nmconline.org
Feb 13 & 14, 2002	Freestall Dairy Housing Seminar, OMAFRA. Woodstock OMAFRA Call (519) 537-6621 to register. For information contact jack.rodenburg@omafra.gov.on.ca
Feb 26 & 27, 2002	Freestall Dairy Housing Seminar, OMAFRA. Holiday Inn, Trenton Call (519) 537-6621 to register. For information contact jack.rodenburg@omafra.gov.on.ca
Mar 5 & 6, 2002	Freestall Dairy Housing Seminar, OMAFRA. Knight's of Columbus, Casselman. Call (519) 537-6621 to register. For information contact jack.rodenburg@omafra.gov.on.ca
Mar 5 - 8, 2002	Western Canadian Dairy Seminar. Red Deer, Alberta. Phone: (780) 492-3236 Fax: (780) 492-9130 www.afns.ualberta.ca/wcds/wcd2002/program.htm
Mar 20 - 22, 2002	The First North American Conference on Robotic Milking. Regal Constellation Hotel, Toronto, Ontario. Phone (519) 826-4047 or e-mail to rmilking@omafra.gov.on.ca Conference program and registration information at www.ontariodhi.com/robotics/
Mar 21 - 23, 2002	Professional Dairy Heifer Growers Association, Dairy Calf and Heifer Conference, Baltimore, Maryland. www.pdhga.org
April 11, 2002	Ontario Association of Bovine Practitioners conference. www.oabp.ca
May 29 - June 1, 2002	ACVIM Continuing Education Forum - Large Animal Program, Dallas, TX. www.acvim.org/wwwfp/forum2002/forumhome.htm
June 11 - 14, 2002	Seventh International Colloquium on Paratuberculosis, Bilbao, Spain www.paratuberculosis.org/index.htm

Continuing Education (cont'd)

July 21- 25, 2002 — American Dairy Science Association and American Society of Animal Science joint meeting, Quebec City. www.adsa.org

July 28 - 31, 2002 — Joint Meeting of the American Society of Agricultural Engineers and the International Commission of Agricultural Engineering, Chicago, Illinois. www.asae.org/meetings/

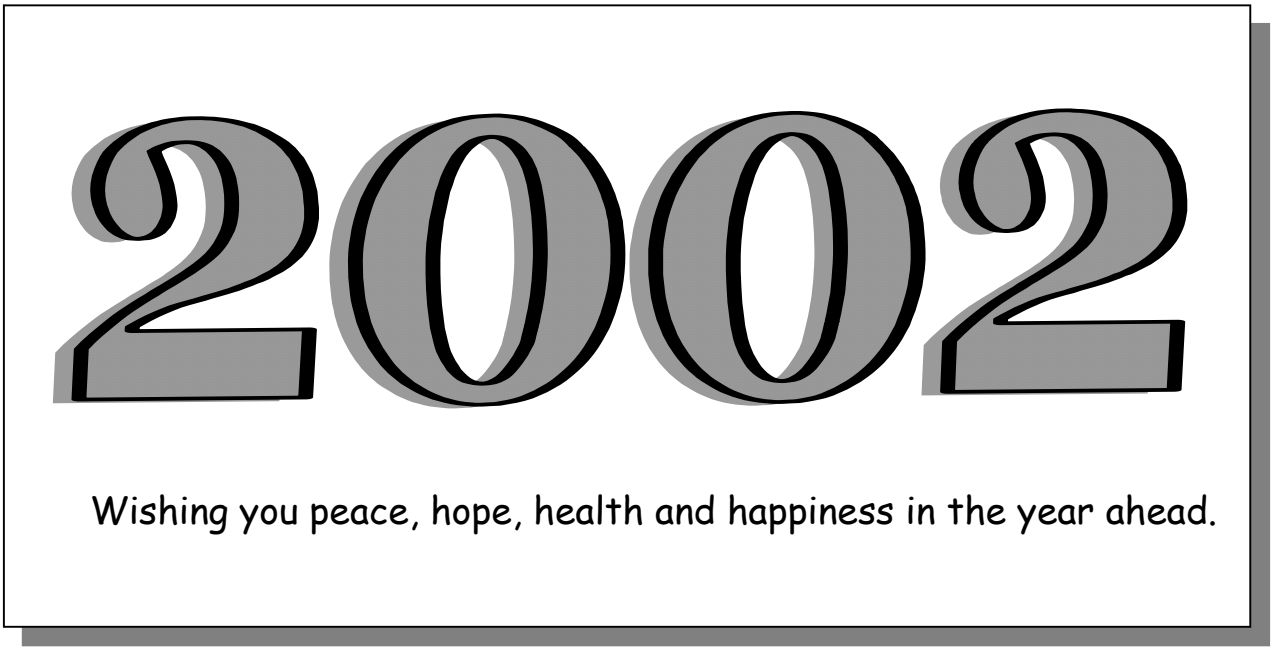
Aug 18 - 23, 2002 — The XXII World Buiatrics Congress, Hanover, Germany. www.wbc2002.de

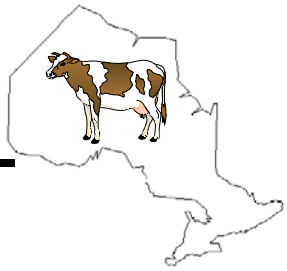
Training courses from Ontario Agricultural Training Institute (OATI): For registration information, call OATI at (519) 763-3160; 800-668-6284, ext. 227, or check OATI's web site at www.oati.com

Jan 24, 2002 — Powerful Personal Communicating. A one-day course designed to improve your business communication skills from one-to-one conversations, in meetings, teams, presenting ideas, customer service and informal negotiating. Guelph, Ontario

Feb 6 & 7, 2002 — Participative Training Techniques: A 2-day course designed for anyone in a leadership role. Guelph, Ontario

March 12, 2002 — Interacting with True Colors®: This 3-hour session will focus on identifying your individual characteristics and styles and how they impact on interacting with others…in your professional and personal lives. Guelph, Ontario





Press Release for immediate distribution

From: Dr. Clarice Lulai, President

Re: ***Ontario Association of Bovine Practitioners – Incoming Officers and Directors***

Please be notified that, at the fall annual business meeting of the Ontario Association of Bovine Practitioners (OABP), a new executive slate was elected. OABP has increased director numbers to accommodate more representatives from Eastern Ontario. Our representatives, listed below, welcome discussion of issues of joint concern to veterinary practitioners, cattle and milk producers and the animal agriculture support industry.

President :	Dr. Clarice Lulai, Barrie, (705) 733-1422
Vice-President :	Dr. Ann Godkin, Fergus, (519) 846-3409
Secretary-Treasurer:	Dr. Randy Graham, Orangeville, (519) 941-1030
Past-President:	Dr. Nancy Charlton, Linwood, (519) 698-2610
Directors:	Dr. Phil Garriock, Blyth, (519) 523-9551 Dr. Ken Bridge, Ripley, (519) 395-2906 - OVMA liason Dr. Todd Duffield, Guelph, (519) 823-8800 - OVC. Continuing education Dr. Randy Bagg, Guelph, (519) 821-0277 - Continuing education Dr. Ed Empringham, Guelph, (519) 824-5600 - CVO contact Dr. Jim Fairles, Mount Forest, (519) 323-4422 Dr. Barry Sutherland, Guelph, (519) 822-9398 Dr. Brent McLaughlin, Cannington, (705) 432-3392 - Newsletter editor Dr. Willy Armstrong, Winchester, (613) 774-2159 Dr. Scott Robertson, Perth, (613) 267-7373 Dr. Brian MacNaughton, Williamstown, (613) 347-3930 Executive secretary - Ruth Cudmore, (519) 846-2290

The OABP is a voluntary association that assists in the formulation of opinions, and represents the interests of veterinarians working in the dairy, beef and veal cattle industries. The mission of the OABP is to promote the role of the veterinarian as an essential part of a successful cattle industry that produces safe, healthy food in Ontario. The OABP organizes technical and professional continuing education for its members and provides considered veterinary opinions in stakeholder and veterinary meetings. OABP activities are designed to enhance interaction between all members of the cattle industry and its veterinary members.

For more information about this press release, please contact Dr. Lulai, (705) 733-1422 .

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Tel: (519) 846-3409 Fax: (519) 846-8101 E-mail: ann.godkin@omafra.gov.on.ca

Topics for future issues include: . . . . . .

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Deadline for next issue: March 8, 2002

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