

N.D. reports record anthrax numbers

North Dakota set an unwanted record this summer when anthrax was confirmed on 103 premises in 15 counties. The number of dead animals is still unknown, but it is likely more than 500 head. Affected species include bison, cattle, donkeys, horses, farmed elk, farmed deer, llamas and sheep. The Sheyenne River Valley was especially hard hit, although cases were reported considerable distances outside of this area.

Anthrax has often been reported in North Dakota. The previous record was in 2002, when anthrax was diagnosed on 33 premises and 180 animals died.

The incubation period for anthrax can be as short as 36 hours from the time of exposure. Unfortunately, the most common characteristic of anthrax is sudden death. Infected animals found alive may display dyspnea (difficulty breathing), bloody discharge from the nose, subcutaneous swellings, aggression or depression. Animals with clinical symptoms rarely recover. The time from initial onset of clinical signs to death is usually just a few hours. Clinically ill or febrile animals should not be consumed.



This anthrax-infected animal in east-central North Dakota died shortly after this picture was taken.

Conditions this year were very conducive for anthrax. Excessive rainfall early in the summer in the hardest-hit areas is likely to blame for the high incidence. The temperature and in some cases, alkaline soil conditions, also played a role. The size of the risk area has been largely debated, but all agree that the endemic areas for anthrax have definitely grown this year in North Dakota.

Soil samples from the affected area were collected by Assistant State Veterinarian

Dr. Deidre Qual and Dr. Dwayne Jarman, a veterinarian assigned by the Centers for Disease Control and Prevention to the North Dakota Department of Health as an epidemic intelligence service officer. The samples will be analyzed to determine the prevalence of the organism in the environment.

South Dakota, Minnesota, Texas, Montana and Manitoba also reported anthrax this summer.

The vaccine has proven to be fairly safe and efficacious. The usual concerns of using any biologic, including possible anaphylactic reactions, as well as swellings and infections at injection sites, also apply to anthrax vaccine. The manufacturer, Colorado Serum Co., recommends horses be given

a half dose of the vaccine in two different locations, to decrease swelling at the injection site. Producers should add this vaccine to their vaccination protocols.

All premises with confirmed cases of anthrax are quarantined, and owners are required to vaccinate all livestock on the immediate farm or premises. The state veterinarian should be informed immediately.

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Registration underway in national animal ID effort

The State Board of Animal Health (BOAH) and the North Dakota Stockmen's Association (NDSA) have registered 728 premises with the National Animal Identification System (NAIS). This number will soon increase significantly when a batch upload processor becomes available.

Veterinarians, meat processing facilities, livestock markets, fairs, rodeos and livestock haulers will be the next focus of registration efforts. The NAIS will provide animal health officials responding to animal health emergencies with readily

available and accurate contact information to investigate and eliminate disease threats to the national livestock herd. An explanation of the NAIS can be found on Page 5 of this newsletter with a copy of the registration form on the following page

To register a livestock operation, veterinary clinic, or auction market, please contact the BOAH at (701) 328-2350 or the NDSA (223-2522). Premises registration forms can be printed from the BOAH link at www.agdepartment.com.



Animal Health News

is published by

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Dairy expert offers guidelines for vaccination program

Gary Neubauer DVM, a dairy technical service consultant for Pfizer Animal Health, offers the following guidelines for a dairy vaccination program.

- Avoid vaccinating calves less than one week of age with some of the systemic vaccines, including intramuscular and subcutaneous vaccines. "These calves simply don't respond to those vaccines very well," says Neubauer. Intranasal and oral vaccines are acceptable at one week of age.
- Never give more than two gram-negative vaccines (to prevent leptospirosis and vibriosis, and *pasteurella*, *salmonella* and *E. coli* infections) to a Holstein at the same time. "We know that when we give more than two of these vaccines, the amount of endotoxin levels creates more reactions," Neubauer says.
- Do not give viral vaccines at 3 to 4 weeks of age. Calves that were given good colostrum received maternal T cells that help prevent diseases and infections. T cells from the dam decrease to a negligible level by 3 to 4 weeks of age when calves start building their own T cells. So the calf has a very low level of T cells at 3 to 4 weeks of age and does not respond very well to vaccines then.
- Booster all vaccines that require boosters, which include most of the killed vaccines. Follow the recommended period between the initial vaccine and the booster.
- Avoid vaccinating heifers or cows within 10 days of calving. That's a big immunosuppressant time for a cow, so giving a vaccine at that time may compromise the cow's health.
- For Holsteins, avoid vibriosis-leptospirosis combinations: giving these at the same time can lead to adverse reactions.

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Anthrax outbreak sets record

Continued from page 1

diately if lab tests are negative for anthrax, but the attending veterinarian diagnoses the disease. Local practitioners oversee treatment and vaccination, and ensure proper disposal of carcasses. Quarantines are released 30 days after the last official vaccination or the last death, whichever came last.

The human risk of contracting this form of anthrax from handling infected carcasses appears slight, but precautions, such as wearing gloves, boots, possibly a face mask and covering exposed skin, should be taken. Only one human case of the cutaneous form of anthrax has ever been confirmed in North Dakota.

Producers should have their veterinarians verify the necessary information for seek-

ing state reimbursement for vaccine and disposal costs. The agriculture commissioner and the State Board of Animal Health will take the request to the Emergency Commission. The expenses to the producers include thousands of doses of vaccine, disposal costs and most importantly, the loss of livestock. Not to be overlooked is the time it took to round up animals and make sure all preventative actions were taken as swiftly as possible in order to prevent further death losses. It is hoped that due to preventative vaccination, North Dakota will never again break a record for anthrax deaths. This summer should be a permanent warning of what can happen, if we become complacent, and animals are not adequately vaccinated for anthrax.

Feeding of garbage, feral swine remain program concerns

The Swine Health Program is focused mainly on the feeding of garbage to swine, as well as controlling the rapidly expanding feral swine population in the U.S.

Any incidents of garbage feeding to swine, including dead animals and waste vegetable matter from food processing, should be immediately reported to the State Board of Animal Health. Likewise, any sighting of feral swine should be reported.

The failure of livestock auction markets to properly identify and record hogs sold for slaughter is a matter of concern. Although North Dakota's swine population is small, this federal-state requirement is important for the monitoring of swine diseases. Veterinarians inspecting public livestock auction markets must see that swine that will be sold for slaughter are properly identified. Back tags furnished by USDA-APHIS can be used, although their retention rate is poor.

Assistant State Veterinarian Tom Moss recently visited with a federal veterinarian from Puerto Rico, who said there are frequent violations of the commonwealth's sanctioned program for feeding cooked garbage to swine. This is a serious matter since the Dominican Republic, with a long history of classical swine fever (hog cholera), is only 50 miles away. The federal veterinarian said it is only a matter of time before the disease appears in Puerto Rico, possibly through improperly cooked garbage. This in turn would pose a major threat to the mainland U.S., considering all the commerce and travel between Puerto Rico and the mainland.

At the state fair

North Dakota State Board of Animal Health personnel – Dr. Jim Clement, Dr. Beth Carlson, Tammy Celley and Becki Bass – staffed the 2005 North Dakota State Fair. They performed veterinary inspections, visited with producers and discussed animal health programs. Animal ID and scrapie educational materials were distributed with the help of APHIS staff.

Disease update

Bovine spongiform encephalopathy

As of Sept. 16, 2005, 260 samples have been submitted in North Dakota for BSE testing. Across the U.S., 471,691 samples have been tested as part of the enhanced surveillance.

West Nile disease

Four cases of West Nile Virus in horses have been reported in North Dakota, as of Sept. 21, 2005.

Chronic wasting disease

Since 1998, 2,954 farmed elk and 332 farmed deer have been tested for chronic wasting disease in North Dakota with no positive results reported.

Tuberculosis

Earlier this year, tuberculosis was diagnosed in a Roseau County beef herd in northwestern Minnesota. Two more herds that had fence-line contact with the initial herd were recently declared infected. An epidemiologic investigation is ongoing.

Vesicular stomatitis

On August 10, 2005, the National Veterinary Services Laboratory in Ames, IA, confirmed vesicular stomatitis (VS) in horses from a premises in Yellowstone County, Montana. By Sept. 19, a total of 39 premises had been affected. All these premises were quarantined for 21 days. A total of 131 horses and cattle have tested positive for the disease.

As a result, the exemption allowing animals to go from a producer's premise to an auction market without a health certificate has been discontinued for states affected by VS. Until further notice, all livestock from any state currently reporting VS must have a health certificate with the VS statement and a permit number to be brought to a North Dakota auction market.

Humane complaints

The State Board of Animal Health has investigated 42 complaints regarding in humane treatment of animals this year.

Workshop planned for veterinary corps

Plans are underway for the fourth annual workshop for the Veterinary Reserve Corps to be held in January. An exercise in sample collections using the new mobile laboratory will be part of the workshop.

Assistant State Veterinarian Dr. Deidre Qual is presently training members of the Veterinary Reserve Corps in the use of the Private Practitioner's Portal (PPP), a web-based computer program for reporting disease investigations and humane complaints.

Dr. Qual recently attended a foreign animal disease course in Fort Collins, CO., that included several tabletop exercises, as well as a risk assessment for FAD susceptibility at a local sales barn. A simulation of a foot and mouth disease outbreak demonstrated how various factors, such as vaccine distribution, movement of animals, wind speed and destruction of infected animals can affect the outcome of the response to such an event.

Legislation aims to boost number of veterinarians

U.S. Sen. Wayne Allard (R-CO) has introduced the Veterinary Workforce Expansion Act of 2005 (VWEA) to expand capacity in veterinary medical schools, and increase the number of veterinarians working in public health and biomedical research.

“Veterinarians play a key role in protecting the health of our nation, yet there is a shortage of veterinarians working in public health and biomedical research,” Allard said. “Given the increasing dangers posed by public health threats like SARS, West Nile and monkeypox, it is critical that we address this shortage. My legislation will help our veterinary medical schools meet the increasing demand for veterinary professionals.”

Allard cited Bureau of Labor statistics predicting more than 28,000 openings for veterinarians by the year 2012, as proof of the need for new graduates.

The VWEA would create a competitive grant program for schools and institutions to increase their training capacity and ability to research high-priority diseases. The bill would appropriate \$1.5 billion over 10 years with 75 percent reserved for existing veterinary colleges to build infrastructure and research laboratories and to provide training for veterinary students in public health, food safety, food security, infectious diseases, global health, and environmental quality.

Allard himself is a veterinarian, who practiced more than 20 years in Loveland, CO, prior to his service in Congress.

The American Veterinary Medical Association (AVMA) and the Association of American Veterinary Medical Colleges support the bill.

“The present shortage of veterinarians in public practice areas endangers the public health system in the United States,” said Bonnie Beaver DVM, AVMA president. “As first responders, veterinarians are critical to preventing, diagnosing, and controlling biological agents that can be transmitted between animals and human beings.”

Article explores links to myopathy

The peer-reviewed article, “Congenital Myopathy, Cardiomyopathy and Vitamin E/or Selenium Levels in Cattle: A Retrospective Study of 1208 Abortion Cases” appeared in the June 2005 issue of The Bovine Practitioner. The authors, Behzad Yamini DVM, Jon Patterson DVM, Thomas Mullaney DVM and Howard Stowe DVM, are affiliated with the Michigan State University College of Veterinary Medicine. The abstract follows:

Congenital myopathy involving the myocardium, skeletal muscle and tongue was diagnosed in 58 of 1,208 aborted bovine fetuses submitted for necropsy between February 1983 and June 1994. Microscopic characteristics of muscle lesions were consistent with segmental nutritional

myopathy. Liver vitamin E and selenium (Se) concentrations in 40 of the 58 fetuses with myopathies were assayed, and 38 (95 percent) had either a deficiency of vitamin E (n=27), Se (n=2) or both micronutrients (n=9). Over this time period, 570 bovine fetal livers, including those from the 40 of the 58 cases with congenital myopathy, were assayed for vitamin E and Se concentrations. Vitamin E values varied from non-detectable to 57 µg/g of dry weight (DW), and Se values from 0.05-10.96 µg/g (DW), indicating placental transfer of both elements and fetal ability to sequester both nutrients in the liver. For 190 cases, deficiencies of liver vitamin E (n=119), Se (n=29), or both (n=42) were the only abnormal findings.

Colorado has first case of CWD in moose

DENVER — A bull moose, killed by an archer in northern Colorado in September, has tested positive for chronic wasting disease (CWD).

It marks the first known occurrence of CWD in moose. Previously, the disease had been found in the wild only in deer and elk. Moose, deer and elk are all members of the Cervidae family.

“This is a single case of CWD in moose, but given their social habits we believe that cases in moose are likely to be a rare occurrence,” said Mike Miller, a veterinarian with the Colorado Division of Wildlife.

The testing was conducted by the veterinary diagnostic laboratory at Colorado State University, and was announced Sept. 29.

CWD is a transmissible spongiform encephalopathy that has been reported in wild deer and elk in 10 states and two Canadian provinces. No case of CWD has been reported in North Dakota, although several moose showing signs of neurologic disease have been tested with negative results.

Epidemiologists with the Colorado Department of Public Health and Environment said they have found no link between CWD and any human neurological disorders.

A wildlife division spokesman said in the past three years, Colorado tested 288 moose for CWD before getting a positive result. In just the past year, 175 of the 13,000 deer and elk tested were positive for the disease. CWD testing for moose has been mandatory since 2003. The North Dakota Game and Fish Department plans to test hunter-harvested moose this fall.

Colorado has a self-sustaining population of more than 1,200 moose. The species was re-introduced into the state in the 1970s.

Funds available for diagnostic workups

For a limited time, the State Board of Animal Health (BOAH) again has access to funds for diagnostic workups when multiple animals in a herd are affected by an unknown disease. The money is provided for syndromic surveillance through the foreign animal disease cooperative agreement between the board and the National Animal Health Monitoring System (NAHMS).

A veterinarians must first submit a request form on behalf of their clients (see below) to the state veterinarian. After notifica-

tion by phone that the request has been approved, the veterinarian can submit itemized bills . BOAH will pay producers for actual costs associated with the disease workup. Bills should be submitted within 30 days of the written request.

When all funds have been utilized the project will end. Payment is only guaranteed if this written request is approved. Payment will be made to the producer..

Request for Disease Diagnostic Assistance

(FAD/NAHMS Cooperative Agreement)

Date _____

Veterinarian: _____

Clinic: _____

Phone: _____

Fax: _____

Producer Name: _____

Producer Address: _____

Species Involved: _____

Morbidity: _____

Mortality: _____

Major Clinical Signs: _____

Diagnostic Laboratory to be used: _____

Please fax or mail this form to:

The North Dakota State Board of Animal Health
600 East Boulevard Ave. Dept. 602
Bismarck, ND 58505
FAX: (701) 328-4567

Sheep producers surveyed on genotyping program

Approximately 1,070 sheep were genotyped through an agreement between the North Dakota Department of Agriculture and the U.S. Department of Agriculture - Animal-Plant Health Inspection Service - Veterinary Services, which ran from Sept. 15, 2004 to Sept. 14, 2005.

All producers who participated in the program in the last two years were surveyed. Asked why they participated, 88 percent (42/48) said “to obtain information for selection/culling;” 79 percent said they participated “to obtain information for breeding;” eight said they had been previously involved in a scrapie traceback, and seven were encouraged by their veterinarian or by other producers. All but two producers said that they would participate again.

Ten reported difficulty receiving their results. This is most likely due to confusion over federal restrictions on who can receive results and poorly designed forms. Producers who have not received results should contact the State Board of Animal Health.

Most participants (36) raise slaughter lambs and/or breeding rams (34). Thirty-one producers sell replacement ewes; 27 sell feeder lambs; 18 sell mature breeding ewes and seven sell club lambs.

Ten producers said that they did not know the program was available this year, although all producers who have participated in the past are on NDDA’s sheep producer mailing list.

Two-third of respondents said requiring third eyelid testing of all QQ ewes would not deter producers from participating in the program.

Asked how important scrapie eradication is to the industry, 28 producers said “very important,” 17 said “somewhat important,” two said “not important” and one producer did not respond. One producer said “the cure is worse than the problem”.

Suggestions for improving the program, included:

- Involving more/all seedstock producers
- Returning results directly to producers
- Returning results quicker
- Allowing owners to draw blood/collect samples
- Subsidizing purchase of RR rams
- Using “ear tag” method of sample collection
- Promoting the program in the media
- Keep testing ewes
- Testing more sheep
- Not requiring producers to pay any costs
- Promoting “certified genotype” sales
- Telling producers about the program earlier
- Mandating that all breeding sheep be genotyped before they can be sold

Sixteen producers said producers, veterinarians and the industry in general have a good understanding of scrapie, but 19 disagreed and 13 did not respond. Many producers said purebred breeders are more knowledgeable than commercial sheep producers, and a few respondents said veterinarians do not work with sheep enough to truly understand scrapie issues.

Finally, producers were asked if they were happy with the various types of scrapie tags. Results are summarized in the table below.

	Yes	No	% satisfied
Small plastic	12	18	40%
Plastic bangle	12	5	71%
Metal	10	7	59%

Canine flu linked to equine virus

A highly contagious, potentially deadly, canine flu is spreading around the country. From January to May 2005, outbreaks occurred at 20 race-tracks in Florida, Texas, Arkansas, Arizona, West Virginia, Kansas, Iowa, Colorado, Rhode Island and Massachusetts, as well as at kennels around the country.

The disease resembles kennel cough. Symptoms may include high fever, persistent cough, and nasal discharge.

Scientists at Cornell University isolated the virus causing the disease, The Centers for Disease Control and Prevention (CDC) in Atlanta sequenced the entire genome of the virus and found all the segments were from the equine influenza virus. A paper in the Sept. 26, 2005 issue of *Science Express*, the online version of *Science* magazine, claimed this is the first time an equine flu virus has been found to jump species.

At this time, the Cornell School of Veterinary Medicine’s Animal Health Diagnostic Center is the only diagnostic laboratory testing for the disease. For more information, see www.vet.cornell.edu/news/dogflu.

FDA bans Baytril® for use in poultry

The U.S. Food and Drug Administration has banned the use of enrofloxacin to treat respiratory infections in poultry after determining that the antimicrobial causes resistance in *Campylobacter jejuni*. The ruling does not affect other approved uses of the drug, which is marketed by Bayer Corp. under the name Baytril®.

The final rule withdrawing approval of enrofloxacin for treating bacterial infections in poultry can be found at www.fda.gov/oc/antimicrobial/baytril.pdf.



Register your livestock operation in The National Animal ID System (NAIS)

Why register your premises?

North Dakota can register a large percentage of its livestock premises by the end of the year. This would give the state the advantage of guiding development of the more sensitive issues surrounding the NAIS.

Regardless of the role brand plays in North Dakota, accurate premises information will be needed to do accurate and timely disease traceback and traceforward.

Goals of the NAIS

- 48-hour traceback of diseased or exposed animals in animal health emergencies
- Minimizing financial losses due to animal disease
- Maintaining public confidence in animal agricultural products
- Improving access to export markets.

NAIS premises registration information

- Name of operation
- Contact persons
- Contact Phone #
- Address of premises
- Species of livestock
- Premises # (ex. A23L449)
- Date made active or inactive
- Reason inactive (if applicable)

Producers can request a NAIS premises registration form by calling the State Board of Animal Health (BOAH) or print a premises registration form from the BOAH link at www.agdepartment.com.

Registration can be completed by submitting a completed NAIS Premises Registration form to the BOAH or contacting the BOAH. If you have cattle, horses, or mules, you can also contact the North Dakota Stockmen's Association (NDSA) for NAIS premises registration.

Privacy in the NAIS

- No proprietary or production information will be stored in the NAIS database. Only information necessary to trace animal and group identification numbers from premises to premises will be held. The information held within the NAIS database is similar to the information held in other livestock program databases such as those at the Farm Service Agency (FSA).
- State law (ND Century Code 36-09-28) requires that all information held within the NAIS database is confidential and not available as an open record. Strict guidelines restrict access to information.
- Federal legislation is currently pending to exempt the NAIS database from freedom of information requests and access by anyone except state or federal animal health officials in pursuit of official duty. Federal agencies such as the IRS, BLM and EPA would be denied access.
- The North Dakota Stockmen's Association is the state's administrator and allocator for that portion of any federally sponsored animal ID program which pertains to cattle, horses and mules. The BOAH and the NDSA will share cattle, horse and mule information with each other.

For more information on the NAIS, go to www.usda.gov/nais or give us a call.

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 STATE BOARD OF ANIMAL HEALTH
 SFN 54250 (5-05)

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 (701) 328-2350
 1-800-242-7535
 FAX (701) 328-4567
 Dr. Jim Clement - jcclement@state.nd.us
 Becki Bass - rbass@state.nd.us

For Official Use Only

Account Number: _____
Premises Number: _____

Premises or Business/Farm/Ranch Account Information This is the contact information for your livestock business entity. This may be different than the location where the animals are kept.			
Business/Farm Name			
Business/Farm Mailing Address			
City	State	Zip Code	County
Business Telephone		Business Email	
Primary Contact: First Name		Middle Name	Last Name
Telephone Number		Fax Number or Email	
Secondary Contact: First Name		Middle Name	Last Name
Telephone Number		Fax Number or Email	

Business Type - Optional (for indemnity purposes only)	<input type="checkbox"/> Individual	<input type="checkbox"/> Limited Liability Corporation	<input type="checkbox"/> Non-profit Organization
	<input type="checkbox"/> Partnership	<input type="checkbox"/> Limited Liability Partnership	<input type="checkbox"/> Incorporated
Operation Type: (check all that apply)	<input type="checkbox"/> Producer Unit/Farm/Ranch	<input type="checkbox"/> Clinic	<input type="checkbox"/> Exhibition
	<input type="checkbox"/> Market/Collection Point	<input type="checkbox"/> Port of Entry	<input type="checkbox"/> Tagging site
	<input type="checkbox"/> Non-producer Participant	<input type="checkbox"/> Rendering	<input type="checkbox"/> Laboratory
Species at Premises (check all that apply)	<input type="checkbox"/> Cattle	<input type="checkbox"/> Bison	<input type="checkbox"/> Sheep
	<input type="checkbox"/> Swine	<input type="checkbox"/> Horses	<input type="checkbox"/> Llama
		<input type="checkbox"/> Deer & Elk	<input type="checkbox"/> Other _____
			<input type="checkbox"/> Goats
			<input type="checkbox"/> Emu
			<input type="checkbox"/> Poultry

Premises Information (if different than account information):			
Premises Name/Description: (Primary location where animals are housed. i.e. farm/ranch/headquarters, feedlot)			
Premises Address			
City	State	Zip Code	County
Legal Land Description: Township	Range		Section
Name	Telephone Number		Fax Number or Email

Comments:

Producer/Contact Signature	Date
----------------------------	------

New forms mailed for Johne's program

New agreement forms and a summary of program guidelines have been sent to all producers and certified veterinarians participating in the North Dakota Voluntary Johne's Disease Herd Status Program.

Producers must complete all sections of the form and sign it. Some sections, such as that dealing with public disclosure, are not being completed. The signed agreement and the completed risk assessment/herd management form must be sent to the state office before any reimbursements can be paid. The risk assessment and herd management plan are to be com-

pleted, shared with the owner and sent to the state office within a month of the annual herd test.

It is recommended that eligible herds enter the test negative component of the program, provided the owners agree to properly test herd additions according to program standards.

No certification course will be offered this fall. Any non-certified veterinarian who wishes to become provisionally certified until the course is offered should contact Dr. Thomas Moss at (701) 220-0151. Dr.

Moss also welcomes calls requesting assistance by program veterinarians to conduct on-sight risk assessments and help develop herd plans.

USDA Veterinary Services has approved North Dakota's request for a separate cooperative agreement to fund a demonstration Johne's beef herd. The project will begin this fall. A protocol of events, including environmental testing, has been established. Suggestions for research with this herd are welcome and should be forwarded to Dr. Moss..

Ear infection may spell *Mycoplasma bovis*

John H. Kirk, DVM, MPVM

Ear infections have been reported in calves due to bacteria, mites and mycoplasma. *Mycoplasma bovis* has drawn much attention in the last few years. The disease has been reported to occur as early as 4 days of age up to 10 weeks of age in pre-weaned calves. It has also been reported in post-weaned calves up to 18 months of age.

Affected calves may have facial paralysis shown by ear droop, head tilt and excessive tearing. Purulent material may also be present in the ear canal and on the external ear. In some cases, the infection involves the inner ear and brain resulting in wobbly, unsure gait, downers, uncontrolled eye movements, abnormal body posture and death. The infection may cause purulent material to be found in the inner ear and perhaps changes in the bones around the ears. The infection may affect one or both ears. In herds with ear problems there may also be multiple joint infections, mastitis, pneumonia, genital infections and abortions. When mastitis occurs, the mycoplasmas are shed in the milk. Mastitis may be clinical with obvious changes in the milk and udder or subclinical with normal appearing milk. In either case, the milk may contain the mycoplasma.

In a 1997 report about a Michigan dairy milking approximately 600 cows, ear infections had occurred sporadically for about 2 years. Calves on this dairy received about two gallons of colostrum in three feedings during the first 24 hours of life. Thereafter they were fed waste milk when available or a commercial milk replacer. The ear infections were first noted between 2 and 5 weeks of age. The initial signs were ear droop and excessive tearing. Soon the calves were unable to stand and lay with their necks extended. None of the calves had pus in the external ear. Up to 10 percent of the calves were affected and 50 percent died within two weeks. Four out of five calves examined had pure cultures of *M. bovis* isolated from the inner ear. It was speculated that the mycoplasma entered the calves in the colos-

trum or waste milk and initially infected the upper throat. Later it extended to the inner ear.

In a more recent outbreak in Japan, between 8-40 percent of the calves on four calf ranches were affected with inner ear infections due to *M. bovis*. Calf numbers on the ranches ranged up to 2,300. Between 30-100 percent of the affected calves died over a two year period usually within 21 days after arrival on the ranch. A detailed examination was done on eight calves between 30-90 days of age. These calves had weakness when walking, purulent ear infections, head tilt, abnormal eye movements and drooping of one or both ears. All calves that showed signs of coughing and nasal discharge were treated immediately with antibiotics. There was some improvement following treatment with tetracyclines. *M. bovis* was isolated from the ears, lungs, nose, head and lung lymph nodes, brain, and heart. Other tests demonstrated the organisms in the kidneys suggesting that the mycoplasma could be shed in the urine and contaminate the environment. Mycoplasma was also isolated from the feeding equipment.

Pasteurization of waste milk fed to calves will significantly reduce risk of inner ear infections as well as infections in other body organs. Pasteurization at 158 F for one minute or 148 F for 2 minutes has been shown to kill mycoplasma. Pasteurization is strongly recommended for dairies known to have mycoplasma mastitis. By preventing contamination of feed by pasteurization and reducing exposure to the calves, it will also be anticipated that less contamination of the environment will occur. Treatment options for suspected inner ear infections should be discussed with the herd veterinarian. Early detection can be expected to increase the effectiveness of treatments.

The author recently retired as an extension veterinarian with the School of Veterinary Medicine, University of California-Davis, Tulare, CA.

Canine leptospirosis cases seem to be on the rise

By Lori Luechtefeld - Veterinary Practice News

Veterinarians across the country have noticed a rise in cases of leptospirosis in dogs, and some say this year might see the most dramatic increase in recent memory.

Because leptospirosis is not a reportable disease, solid numbers on its prevalence are hard to determine. Many veterinarians wonder whether they're seeing an actual rise in incidence or if grater awareness has led to more diagnoses.

Veterinarians at Banfield Hospitals nationwide are seeing more positive cases of leptospirosis in dogs this year than in previous ones. (Banfield is the largest privately owned veterinary practice in the world with more than 500 locations in the U.S.)

In 2004, 21 of 125, or 17 percent, of leptospirosis tests performed in Banfield clinics turned up positive. As of May of this year, 29 of 74 tests, or 40 percent, had turned up positive.

"It could be that our doctors are getting better at picking the cases, or that the disease actually is more common," said Darrell Phillips, DVM, vice president of medical leadership for Banfield. "My gut feeling is that we're actually seeing more cases."

Since 2000, Banfield's positive leptospirosis test percentages have ranged from 9 percent (2001) to 20 percent (2000).

The Banfield cases in 2005 have been spread across the country, led by Texas with six and Georgia with five, followed by

Maryland and Illinois with four each. Florida and Minnesota each had two cases; California, Nevada, Arizona, Colorado, Ohio and Virginia each had a single case.

"Veterinarians in the Southeast and Midwest have it more on their minds," Phillips said. "There's a misconception that it's not in the West, but we're finding it there. It's pretty much everywhere dogs are."

Although the numbers are insufficient to prove a definitive rising incidence throughout the country, Phillips says veterinarians should be aware of the numbers and take proper precautions.

"We're afraid some are still not vaccinating against it and creating a native population of pets," he said.

Regardless of vaccination, Phillips said some positive cases indicate leptospirosis serovars for which there has yet to be a vaccine. Because leptospirosis is a zoonotic disease, client and staff education is particularly important to protecting human health.

Phillips said Banfield's protocol is to recommend testing for leptospirosis whenever an animal shows clinical signs, produces abnormal liver or kidney test results, or when any other lab work might indicate the disease's presence.

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