

Canadian Food Inspection Agency News Release (document of complete investigation below)
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BSE INVESTIGATION REACHES CONCLUSION

OTTAWA, August 24, 2006 - Investigators from the Canadian Food Inspection Agency (CFIA) have concluded their [epidemiological investigation of the 50-month-old dairy cow](#) from Alberta diagnosed with bovine spongiform encephalopathy (BSE) on July 13, 2006. No part of the animal's carcass entered the human food or animal feed systems.

The animal died of causes unrelated to BSE and would likely have lived for an additional four to six months before the onset of BSE-related clinical signs. This age range is not significantly different from that of previous Canadian cases and indicates exposure to only a very low dose of BSE infectivity. The detection of this case at the earliest possible moment demonstrates the highly sensitive nature of Canada's national BSE surveillance program, which targets cattle from the highest risk populations and has tested more than 117,000 animals since 2003.

Because the animal was exposed to BSE after the 1997 implementation of Canada's feed ban, the CFIA placed priority on conducting a comprehensive review of all potential routes of BSE exposure. In general, investigators observed good levels of compliance with the feed ban at the farm, retail and manufacturing levels. A particular incident was documented in one commercial feed facility that may have permitted the contamination of a single batch of cattle feed with prohibited material. The entire batch of feed was shipped to the BSE-positive animal's farm. While the investigation looked at all possible routes of exposure, this particular batch of feed is the most probable source of infection. The CFIA has launched an enforcement investigation.

In 2005, Canadian and American officials reviewed and confirmed the effectiveness of Canada's feed ban. In addition, the surveillance program continues to indicate that the feed ban has prevented the level of infectivity in Canada from increasing. Nonetheless, the extremely small infective dose of BSE means that even very limited opportunities for contamination may permit periodic cases. The emergence of such cases is common to almost every country reporting the disease. The enhanced feed ban announced on June 26, 2006, will further limit potential BSE spread. Potentially harmful cattle tissues-which are currently prohibited in feeds for cattle, sheep, goats and other ruminants-are being banned from all animal feeds. This action prevents more than 99% of potential infectivity from entering the top of the animal feed chain, thereby addressing any downstream contamination that could occur.

The animal component of the investigation traced 172 cattle born or raised on the same premises as the positive animal. Using Canada's cattle identification system, the CFIA fully accounted for all but eight of these animals and located 38 live cattle. Most of these animals have been humanely euthanized and incinerated. The remainder are under quarantine and will be destroyed once calving or harvesting of genetic material, as allowed by the World Organization for Animal Health (OIE), is complete.

A [complete summary of the investigation](#) is available on the CFIA's website.

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<http://www.inspection.gc.ca/english/corpaffr/newcom/2006/20060824e.shtml>

REPORT ON THE INVESTIGATION OF THE SEVENTH CASE OF BOVINE SPONGIFORM ENCEPHALOPATHY (BSE) IN CANADA

Background

On July 2, 2006, a dairy cow on a farm in northern Alberta died due to complications related to mastitis. The following day, a private practitioner sampled the cow under Canada's National BSE Surveillance Program. Brain samples from this animal were sent to the Alberta Agriculture, Food and Rural Development (AAFRD) Laboratory, where they were screened for BSE using a Bio-Rad rapid test. The preliminary test results received on July 6, 2006 did not rule out BSE. In accordance with the prescribed testing protocol, the test was repeated on July 7 and produced a second reaction. Brain samples were then sent to the National Centre for Foreign Animal Disease in Winnipeg, where BSE was confirmed by the SAF immunoblot and immunohistochemistry (IHC) procedures on July 13, 2006. The staining pattern from the confirmatory IHC tests supported the notion that this animal seemed to have been detected at an earlier stage of BSE incubation. Had the animal succumbed to BSE and not to an unrelated disease, it may have been some time before BSE symptoms would have been noted. The carcass was secured from the farm, transferred to the AAFRD laboratory and incinerated. No part of the carcass entered the human food supply or animal feed chain.

The CFIA immediately initiated an epidemiological investigation based on the most recent World Organization for Animal Health (OIE) recommended BSE guidelines. Specifically, the CFIA investigated:

- the birth cohort (all cattle born in the same herd as, and within 12 months of the birth of the BSE-positive animal);
- the feed cohort (all cattle which, during their first year of life, were reared with the BSE positive animal during its first year of life, and which investigation showed consumed the same potentially contaminated feed during the period); and
- feed to which the animal may have been exposed early in its life.

At the time that this cow was confirmed to have BSE, it was not in milk production. With respect to the milk this cow produced prior to the detection of the disease, scientific research indicates that BSE is not transmitted through cow's milk, even if the milk comes from a cow with BSE. Therefore, milk and milk products are considered safe and no action on such products was required.

Animal Investigation

The positive cow was confirmed to be a purebred dairy animal born on April 22, 2002, and was 50 months old at the time of death. It was born and lived its entire life on the index premises. The producer reported the duration of illness was two days, during which the animal displayed signs of toxic mastitis, and, despite treatment, became non-ambulatory (downer) and died. The following day, a private practitioner attended the premises to perform a post-mortem examination, which revealed the likely cause of death was toxic septicaemia attributable to the acute mastitis. Because the animal met the inclusion criteria of Canada's National BSE Surveillance Program, arrangements were made to forward appropriate samples for laboratory evaluation.

The investigation revealed that the positive cow had one male calf born during the two years prior to her death (born March 17, 2005). Based on advances in science, the OIE (Terrestrial Animal Health Code 2006) no longer recommends regulatory action with respect to calves of BSE positive cows. The hypothesized increased risk to calves born within 24 months of the onset of clinical signs in dams with BSE is not supported by ongoing research and analysis of data. Therefore, the CFIA has amended its policy regarding such calves and will no longer require their destruction. However, the CFIA will trace calves born to a positive female in respect of current export certification requirements requested by importing countries.

The index farm was a dedicated dairy operation. The birth and feed cohort was determined to comprise 172 animals that, along with the positive animal, were born or raised on the farm. The trace-out investigation of the cohort located 38 live animals on the index premises and in other herds to which they had been sold. The majority of these animals were euthanized and their carcasses disposed of by incineration, in accordance with OIE recommendations. Because testing of cohort animals is not required by OIE recommendations and has proven to be of little epidemiological value in Canada's and other countries' experience, the CFIA has discontinued the practice of testing the cohort animals. Four animals have been retained under quarantine for a short period to allow for calving or collection of valuable genetic material. As BSE is not contagious, these animals do not represent a risk of horizontal transmission to other animals. Once these animals are euthanized, their carcasses will be destroyed and excluded from the food and feed chains, as per OIE guidelines. The following is the disposition of the remaining 134 animals in the cohort:

- 113 animals were traced and confirmed to have died or been slaughtered (two animals had previously been tested under Canada's National BSE Surveillance Program with negative results);

- 13 animals were traced and presumed to have died or been slaughtered; and
- Eight animals were determined to be untraceable because of inadequate records.

The trace-out investigation is complete.

Feed Investigation

The feed investigation focussed on the critical period of susceptibility during the first year of life and encompassed all potential avenues of direct exposure to prohibited material as well as potential areas of cross contamination. Compliance with the regulatory requirements of the 1997 feed ban was assessed throughout the investigation.

Investigation at the birth farm revealed that laying hens, rabbits, cats, a horse, a dog and possibly some goats were present during the time of interest. Feed products for these species were purchased in bags and stored in original packaging in the same building as bagged products for dairy animals. The rations for the layers and rabbits did not contain prohibited material and were manufactured in a facility free of prohibited material. The cat and dog food products are presumed to have contained prohibited material but were understood to be fed as intended and away from the dairy animals. The horse and goats were not fed commercial horse or goat products.

All feed products to which the BSE positive animal had access were intended for feeding to ruminants. These consisted of farm-grown or purchased grains and forages, and feed products from three different commercial suppliers. On-farm mixing equipment consisted of a stationary mixer used to combine forages with commercial products for lactating animals and those over two months of age.

For the first two months of life, the BSE positive animal was housed by itself in a single calf hutch and fed colostrum, milk or milk replacer and a commercially prepared 20% Calf Starter. The milk replacer and calf starter were manufactured in facilities that did not receive, store or use prohibited material.

From two to six months of age, the animal was housed in an outdoor group pen with animals of similar age and fed a 16% Heifer Grower (for approximately six weeks), followed by an 18% Calf Starter (until reaching about six months of age), and forages (hay and silage). Other feed products available at this age were canola meal and, possibly, free choice mineral.

From six to fourteen months of age, the calf was fed a farm-mixed ration consisting of barley silage, canola meal, and commercial dry cow/heifer premix.

Other commercial products used on the farm included two different rations for the lactating cows and one for dry cows. These products were not fed to the index animal prior to 14 months of age, although the same mixer was used for both the index animal

and the lactating cows. Various salt blocks and miscellaneous types of bagged products from facilities not handling prohibited material were used as well.

Three different commercial suppliers were identified through the on-farm feed investigation. Investigations at the primary supplier of the calf products (manufactured the 20% and 18% Calf Starters which were fed for approximately 4 or 5 of the first 6 months of life) confirmed it to be free of prohibited material. This facility was dedicated free of prohibited material for more than ten months before manufacturing feeds during the time frame of interest. Feeds from this facility were delivered to the index farm in dedicated, company-owned trucks.

Investigations at the other two facilities-that did receive, store and use prohibited material during the period of interest-confirmed that all feed product formulations for the index farm (16% Heifer Grower, 2 different lactation rations, lactation and dry cow/heifer premixes) were not manufactured using prohibited material. Therefore, the remainder of the investigation focused on production practices and the records for manufacture and delivery of feeds specific to the index animal.

Both manufacturing facilities received prohibited material from the same rendering plant implicated in previous BSE investigations. Both facilities had procedures in place to comply with the 1997 feed ban. However, a review of production records revealed that one of these facilities failed to document a flush of equipment used to pellet 2.08 tonnes of commercial 16% Heifer Grower ration. The equipment had previously been used to pellet a feed containing prohibited materials for non-ruminants. This entire load of commercial Heifer Grower ration was delivered to the index farm (on May 25, 2002) and used in the feeding of the index animal and others on the premises at the time. An enforcement investigation into feed mill activities is underway.

Canola meal from the second facility is believed to have been fed to the index animal for a period of about two weeks when it was two to three months of age. Production records from this facility, while not pointing to any instances of potential cross contamination of this feed, were incomplete and did not allow for the desired level of certainty. The procedural error associated with the 16% Heifer Grower ration makes that feed the most likely source of infection.

Considering the feeding regime on the farm and specific production records reviewed, the most likely source of exposure to BSE infectivity appears to be the heifer ration referred to above, which could have become contaminated by prohibited material from the non-ruminant ration produced immediately before it. Because of incomplete or absent documentation, the possibility of cross-contamination during transportation being a contributing factor could not be ruled out.

Investigation Overview

Since detecting BSE in May 2003, Canada has significantly increased its targeted testing of cattle in high-risk categories (including animals which die on-farm). This effort

is directed at determining the level of BSE in Canada, while monitoring the effectiveness of the suite of risk mitigating measures in place. Canada's National BSE Surveillance Program continues to demonstrate a very low level of BSE in Canada, with seven positive animals detected among over 117,000 targeted tests conducted since 2003. Such detections demonstrate the effectiveness and integrity of Canada's surveillance system; the level of awareness existing at all levels of the animal and meat production systems; the value of financial reimbursement provided for sampling and carcass disposal; and the commitment of Canadian producers and veterinarians to eliminating this disease. Canada's surveillance program fully respects OIE guidelines.

The detection of this case at an early stage demonstrates the highly sensitive and robust nature of Canada's BSE surveillance program. This animal was detected and diagnosed with BSE during a pre-clinical phase of the disease. The normal disease course to expression of clinical signs in this animal would be expected to have included an additional three to six months of incubation followed by an additional one to two months of clinical expression prior to being recognized as symptomatic of BSE and targeted for testing. Had an unrelated disease not hastened her entry into the surveillance stream, this animal would most likely have demonstrated clinical signs sometime between 54 and 56 months, not significantly different from the age range of previous cases.

It is important to recognize that the incubation period seen internationally ranges from 21 months of age to 216 months of age and is thought to be a function of the age of an animal when exposed and the dose of exposure. With an age range of 50 months to 180 months or more, Canada's cases are consistent with international data suggesting low dose exposures.

The location of Case 7's birth farm in northern Alberta and the possible relationship with a previously identified source of prohibited material make this occurrence consistent with the previously identified geographic cluster.

Other Relevant Information

Regarding the nature and effectiveness of Canada's ruminant feed ban, it is recognized that any potential BSE infectivity entering the beginning of the animal feed supply chain requires management throughout a complex feed and animal production system. As such, the current framework of the ban provides limited potential opportunities for prohibited animal proteins to contaminate feeds for ruminants, particularly when errors are made during mixing and manufacturing in multi-purpose facilities. Given the nature of the ban and these opportunities, the detection of BSE cases in Canadian cattle born after the implementation of the ban is consistent with the experiences of other countries that have detected a small number of domestic cases of BSE in recent years. International experts have agreed that the proactive implementation of the 1997 mammalian to ruminant feed ban in Canada has been a critically important factor in limiting the spread and preventing the amplification of BSE in the feed system.

Since the year 2000, the CFIA has significantly increased the frequency of inspections of the animal feed system. For example, the inspection frequency for commercial feed mills has increased from once per year to twice per year for all mills and is being increased further, to up to four times per year for higher risk facilities. Internal and external reviews have been conducted to assess inspection activities and the ban's effectiveness. Both the United States Department of Agriculture (USDA) and Canadian Food Inspection Agency's (CFIA) reviews in 2005 concluded that the ban, as designed, implemented and currently applied, is providing an effective barrier that is contributing to reducing the risk of BSE.

In 2005, the CFIA received additional funding to increase inspection and enforcement activities associated with the ban and to work toward implementing enhancements to the existing feed ban proposed by the CFIA in December 2004. Throughout 2005-06, additional inspection staff have been recruited, trained and deployed to augment feed ban-related programs.

Inspection activities are focussed on renderers, commercial feed manufacturers, retail and on-farm locations. Currently, there are approximately 30 renderers, 515 feed mills, 1300 retailers and over 100,000 farms (ruminants) in Canada. Approximately 115 new staff are working in this area. This is in addition to the approximately 70 cross-utilized inspection staff who worked in the program in the year 2000. These new inspection resources are deployed on a risk basis with emphasis on facilities that receive, store, use and distribute prohibited material.

Regulations to enhance Canada's feed ban were announced on June 26, 2006. The most important enhancement will require the removal of specified risk material (SRM) from all animal feeds, pet food and fertilizer. The enhancement will significantly accelerate Canada's progress toward eradicating BSE from the national cattle herd by preventing more than 99% of any potential BSE infectivity from entering the Canadian feed system. For further information, please see the fact sheet, "[Canada's Enhanced Feed Ban](#)", available at <http://www.inspection.gc.ca/english/anima/feebet/rumin/enhrene.shtml>.

The safety of beef produced in Canada is assured by public health measures enacted in 2003, following the first detection of BSE in Canada. The removal of SRM from all animals slaughtered for human consumption in Canada is the most effective single measure to protect consumers in Canada and importing countries from exposure to BSE infectivity in meat products.

<http://www.inspection.gc.ca/english/anima/heasan/disemala/bseesb/ab2006/7investe.shtml>