Chronic Wasting Disease (CWD)

South Dakota

Animal Industry Board

Chronic Wasting Disease Fact Sheet

What is CWD?

Chronic Wasting Disease (CWD) of cervids is included in a group of diseases known as Transmissible Spongiform Encephalopathies (TSE). This group of diseases includes Scrapie (sheep), Creutzfeldt-Jacob disease (CJD) (humans), Transmissible Mink Encephalopathy (TME) (mink), Bovine Spongiform Encephalopathy (BSE) (cattle), new variant CJD (humans), Feline Spongiform Encephalopathy (FSE) (cats), Kuru (humans), and Gerstmann-Straussler-Scheinker Syndrome (GSS) (humans).

When was CWD found?

Chronic Wasting Disease has been found only in cervids (members of the deer family) in North America. A chronic wasting of body condition and death was described in animals within a Colorado Division of Wildlife research facility during nutrition studies during the late 1960's. Chronic Wasting Disease was later identified in free-ranging Colorado and Wyoming deer and elk in the wild at a prevalence of 1-30%.

Where is CWD known to exist?

With increased recent surveillance, CWD has now been identified in free-ranging deer and elk in many states across the USA and in several provinces in Canada.

Privately owned deer and elk have also been diagnosed with CWD in many States.

What has occurred with CWD in South Dakota?

CWD was initially found in 1997 in a South Dakota privately owned elk herd. Stringent regulations involving mandatory surveillance, import restrictions, movement restriction, and strict inventory control were enacted by the SD Animal Industry Board. All affected herds were depopulated. One elk herd adjacent to an infected herd was placed under quarantine and restrictions for 4 years. This herd had an animal test positive on routine slaughter surveillance 51 months after exposure and was also depopulated.

Recently, CWD has been discovered in additional cervid herds:

- 2019 - Identified single farmed elk herds in Meade County and Clark County. These two herds were depopulated in late 2019 and the fenced premises no longer have captive cervids present.

- October 2020 - Confirmed in a Captive elk herd in Custer County, South Dakota. This herd completed depopulation in November 2021.

- February 2022 - Confirmed in a Haakon County mule deer herd. The herd is under quarantine. The Animal Industry Board is cooperating with the herd owner and USDA to conduct periodic ante-mortem testing of all animals in the herd, as well as assisting with research efforts (i.e. disease spread, early test detection, potential genetic resistance) to learn more about CWD in mule deer.

- September 2023 - CWD was detected in a captive whitetail deer herd in Aurora County. The herd was quarantined until the results were confirmed by National Veterinary Services Laboratory in Ames, IA. In cooperation with USDA-Veterinary Services the herd was depopulated in November 2023. The facility no longer has cervids on-site.

Is CWD in South Dakota free-ranging deer or elk?

A 2001 hunter-harvested white-tail doe in Fall River County was the first animal diagnosed with CWD in South Dakota. Subsequently, a CWD positive cow elk was diagnosed in Wind Cave Park in 2002 and in a white-tail buck in Rapid City (city limits) in the fall of 2002.

Since then, CWD has been detected in free-ranging wildlife in twenty South Dakota counties - including Custer State Park and Wind Cave National Park. A map of the known distribution of CWD within free-ranging deer and elk can be found at the bottom of https://gfp.sd.gov/chronic-wasting- disease/ under “Related Maps.

What about other animals?

Elk, mule deer, and white-tailed deer have been diagnosed with CWD. No other free-ranging or domestic ruminant has been identified with CWD. There is no evidence of CWD transmission to livestock by direct or indirect contact in wildlife research facilities or in the wild. Research continues, but no evidence of transmission other than by direct brain inoculations has been shown to occur.

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What causes CWD?

The causative agent for CWD (and other animals TSEs, such as scrapie and bovine spongiform encephalopathy) has been called a prion, an abnormal form of a normal protein, known as cellular prion protein, most commonly found in the central nervous system. The abnormal prion proteins "infect" the host animal by promoting conversion of normal cellular prion protein to the abnormal form. The CWD agent is smaller than most viral particles and does not evoke any detectable immune response or inflammatory reaction in the host animal. Based on experience with other TSE agents, the CWD agent is assumed to be quite resistant to enzymes and chemicals that normally breakdown proteins, as well as to heat and normal disinfection procedures.

What are the signs of CWD?

Chronic Wasting Disease is progressive and always fatal. Weight loss over time is the consistent clinical sign. Other behavioral changes may occur such as decreased interaction with herd mates, listlessness, lowering of head, blank facial expression, pacing, hyperexcitability, and nervousness. Animals continue to eat and drink. Other clinical signs may include frequent urination, excessive salivation, grinding of teeth, increased drinking, coughing, and dyspnea.

How can CWD be treated?

There are no effective drugs or vaccines available to treat animals for CWD.

How is CWD diagnosed?

Diagnosis is based on post-mortem examination (necropsy) and testing. Scientists use a technique called immunohistochemistry to test brain tissue for the presence of the abnormal prion protein to diagnose CWD. Microscopic examination of brain tissue shows lesions that resemble other TSEs. Certain lymph nodes of the head have shown to be useful in testing and research is on-going in attempts to validate a test for live animals.

Gross examinations frequently show aspiration pneumonia as the cause of death. This is a common manifestation of CWD in clinically ill animals. No live animal test exists.

Are precautions recommended to hunters?

CWD has not been diagnosed in any other species except cervids. Evidence shows humans have not contracted this TSE. Standard personal safety procedures apply when processing cervid carcasses. Rubber gloves, soap and water, and good cleanliness should be standard practices with all wildlife kills. Avoidance of brain, spinal cord, and major peripheral nerves should be a standard practice for all wild game processing. South Dakota Game Fish and Parks rules for disposal of carcass parts from wild deer and elk can be found on their website.

What are some recommendations for Meat Processors?

1. Minimize handling brain, spinal cord, and major nerve complexes.

2. Wear latex, vinyl, or rubber gloves; change between carcasses.

3. Discard major lymph nodes from meat products during processing.

4. Possibly request boned-out meat be submitted for processing.

5. Maintain separation of carcasses and separation of processed meat from each carcass in the plant.

6. Clean and sanitize tables, equipment, and utensils between carcasses during processing.

7. Maintaining good sanitation is useful for many disease concerns: E. coli, Leptospira, Salmonella, Listeria, Campylobacter, CWD, etc.

8. Maintain accurate records of owner, species of animal, condition of carcass/meat, weight, date accepted, date processed, and recipes used.

9. Attempt to keep ground-mixed products separate regardless of batch size – sausage, "slim-jims", hamburger.

10. Encourage hunters to get their deer and elk checked for CWD through their local Game, Fish, and Parks Conservation Officer, if the animal was killed in a SD Game, Fish, and Parks Hunter Surveillance Area.

Making product from blended game meat (several different hunters) should be discouraged. Optimal conditions would dictate that each hunter shall get only products produced from their own game animal.

CONTACT INFORMATION

South Dakota Animal Industry Board

411 South Fort Street
Pierre, SD 57501

Phone: 605-773-3321
Fax: 605-773-5459

Email: AIBmail@state.sd.us
Website: www.aib.sd.gov

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