

SCRAPIE

A TSE DISEASE OF SHEEP



South Dakota
Animal Industry Board

What is Scrapie?

Scrapie is a fatal degenerative disease affecting the central nervous system of sheep and goats. It is among a number of diseases classified as transmissible spongiform encephalopathies (TSE). Scrapie takes about two to five years to develop and it is not typically found in lambs.

Where and when was scrapie first identified?

The disease was first recognized over 250 years ago in England. It was imported to the United States in 1948.

How do Sheep get scrapie?

Sheep contract scrapie from other infected sheep or from where infected ewes have given birth. Scientists think the causative agent is passed mostly during the birthing process.

Does scrapie affect all sheep?

Scrapie does not occur in sheep of any genotype without exposure to the infectious agent. However, once exposed to the agent, the genotype of the animal has a profound effect on which sheep become infected and eventually die. Sheep have three pair of genes that affect scrapie susceptibility. One of the genotypes of sheep that affects susceptibility is: 1)QQ, 2)QR, and 3)RR at codon 171.

1. RR sheep are nearly completely resistant to scrapie. These sheep are highly unlikely to carry or transmit scrapie
2. QR sheep are susceptible to scrapie. It is unknown whether these sheep can transmit scrapie.
3. QQ sheep are highly susceptible when exposed to scrapie. Infected ewes can transmit scrapie.

Because of the varying levels of susceptibility, it is extremely important to use rams with at least a QR genotype in an effort to breed towards increased scrapie resistance in a flock.

How does scrapie cause death in sheep?

Scrapie damages the sheep's brain cells so that the sheep cannot get up and eat and drink, and all body functions can be impaired leading to death.

Which sheep would be considered to be exposed to scrapie?

Infected ewes transmit scrapie via the placenta and fetal fluids discharged during lambing. Sheep become exposed by contacting the infected materials most likely by oral means. Susceptible animals (QR & QQ) sheep incubate the disease for several months to years before showing clinical signs.

Is there any treatment for scrapie?

No, there is not. Sheep that get sick with scrapie inevitably die.

Does scrapie affect humans?

There is no scientific evidence to indicate that scrapie poses a risk to human health.

Can I Test My Sheep for Scrapie? NO**Can I Test My Sheep for Resistance to Scrapie? YES**

Each year scrapie costs American sheep producers an estimated \$20 million. Susceptibility (Resistance) testing is accomplished by taking a blood sample (purple top tube, unclotted sample 2 mls. or more) and sending to a laboratory for genetic sequencing. This genetic testing is an important eradication tool in that it provides a way for producers to breed their flocks towards scrapie resistance.

Clinical Signs

Signs of scrapie can vary greatly among individual animals and develop very slowly. Sheep may show one or many of the signs and not necessarily all signs at one time. Some of the signs of scrapie infection include:

- Subtle changes in behavior or temperament
- Scratching or Rubbing against fixed objects
- Loss of coordination
- Weakness
- Weight Loss despite retention of appetite
- Biting of feet and limbs
- Lip smacking
- Gait Abnormalities – high stepping of forelegs, hopping like a rabbit and swaying of the back end
- Wool pulling

Keep in mind several other diseases can cause clinical signs similar to scrapie, such as: Nutritional Deficiencies, Listeriosis, Rabies, External Parasites, Pregnancy toxemia and Ovine Progressive Pneumonia.

Individual Animal Identification

In order to eradicate scrapie among sheep and goats, methods for identifying infected or exposed animals must be used. Therefore, sheep and goats are subject to identification requirements before they change ownership and/or enter into interstate commerce.

The following animals are required to have official ear tags or tattoos:

- All sheep 18 months and older
- All breeding sheep
- All scrapie exposed, suspect, test-positive, and high-risk animals
- Breeding goats, except low-risk commercial goats
- All sheep and goats for exhibition

Surveillance for Scrapie

RSSS –Regulatory Scrapie Slaughter Surveillance)

ewes and rams at slaughter have tissues collected to be tested for scrapie. Positive animals are reported to the state of origin based on the scrapie identification tag. The farm of origin is contacted and an investigation initiated in the source herd. A quarantine is placed until a flock management plan is completed on the source farm. Additionally, epidemiologic tracing is completed and other flocks found through this tracing may also be quarantined until high risk animals have been removed and the flock plan is completed.

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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