



# Scrapie in Goats

"Fatal Degenerative Disease"

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# What is Scrapie?

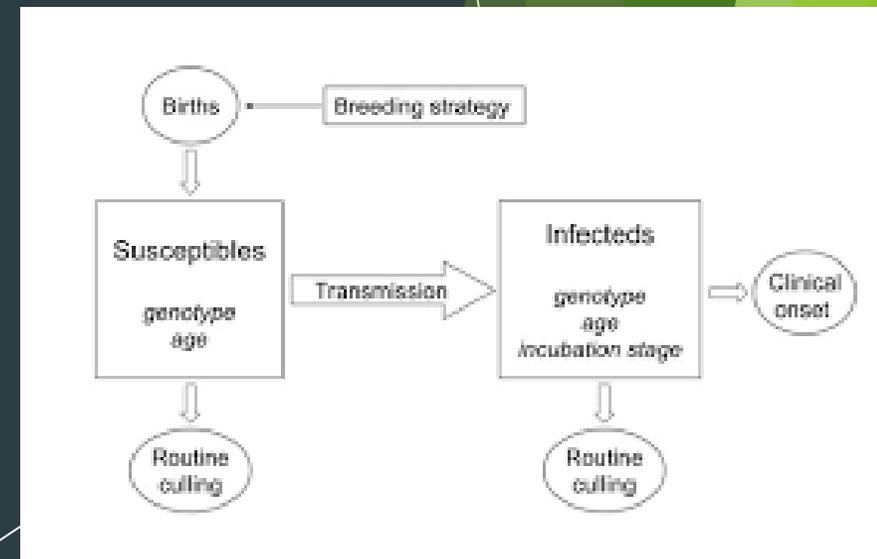
- ▶ Scrapie is a TSE (transmissible spongiform encephalopathy) Prion Disease that is very similar to BSE or “Mad Cow Disease.”
- ▶ It is difficult disease to diagnose and is always fatal.
- ▶ There were 2 cases of classical scrapie in the United States in 2019 in goat herds.
- ▶ There is no treatment or cure.

# Quick Facts

- ▶ Scrapie was first recognized as a disease of sheep in Great Britain and other countries of Western Europe more than 250 years ago.
- ▶ In the United States, scrapie has primarily been reported in the black-face sheep, however that has changed over the years.
- ▶ The first case of scrapie in the United States occurred in 1947 in a sheep flock in Michigan.

# Transmission

- ▶ Scrapie is believed to be spread primarily vertically through direct contact between breeding stock and their offspring.
- ▶ The cause is most likely a prion, which is a sub-viral protein particle.
- ▶ It is transferred through contact with the placentas or fetal fluids of infected dams.
- ▶ The prion first invades the lymph nodes and then the nervous system.



# Controlling Scrapie

- ▶ To control the spread of scrapie within the United States, the Animal and Plant Health Inspection Service (APHIS), United States Department of Agriculture (USDA), administers regulations at 9 CFR part 79, which restrict the interstate movement of certain sheep and goats.
- ▶ Scrapie resistant genes have been identified in goats and DNA tests have been done for the past year and a half

# Testing

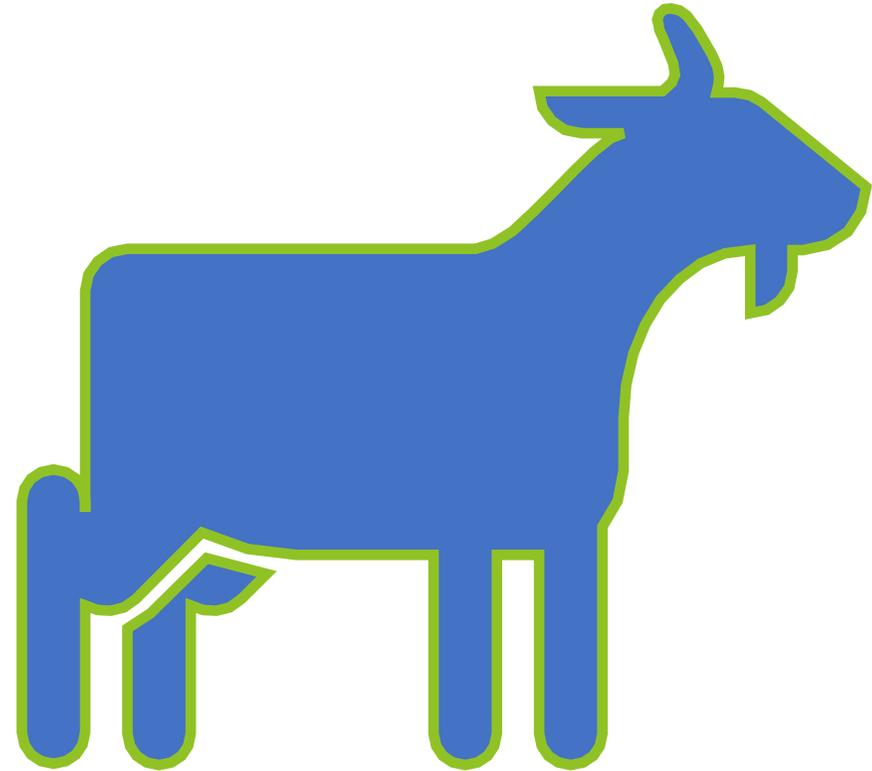
- ▶ The official test used for scrapie diagnosis in the United States is immunohistochemistry.
- ▶ Histopathology, Western Blot, and ELISA may be used as supplemental tests or when tissues are not suitable for immunohistochemistry.
- ▶ Pathological changes of scrapie are confined to the central nervous system.



# Scrapie Infected Goats

# Clinical Signs

- ▶ Usually progress slowly over a period of one to six months
- ▶ Has not been seen in goats less than 2 years old
- ▶ Animals suspected to have scrapie may show changes in gait, tremors of the head and neck
- ▶ Genetic testing can be used in sheep to identify a scrapie susceptibility gene; however, such a gene has not yet been identified in goats.



# Types of Identification

- ▶ Ear tags: plastic or metal
- ▶ Tattoos
- ▶ Microchip or electronic ear tag
- ▶ All IDs must be approved by USDA APHIS

Plastic Flock ID Tags:



Scrapie 840 RFID Ear Tags:



Metal Flock ID Tags:



Serial Tags:



\*All Ear Tags must have the US Shield to be Considered Official

# The National Scrapie Eradication Program

- ▶ **Identification of Goats:** If a goat crosses state line, they must be identified with the Scrapie Eradication Program
- ▶ **Exceptions:** Castrated goats do not have to identified
- ▶ **Means of Identification:** Ear tags, microchips, tattoos
- ▶ **Recordkeeping:** Good record keeping requires sex, identification number (and date applied), breed, date animal was acquired, address of previous owner, date sold, and address of new owner must be kept in farm records for 5 years
- ▶ **Tracing of Infected Animals:** Infected animals are traced back to their flock
- ▶ **Clean-up Strategies:** The preferred method of scrapie infection cleanup is breeding stock alive, live animal testing, genetic testing, and individual destruction of infected flock members.

# REFERENCES

- ▶ <https://goats.extension.org/scrapie-in-goats/>
- ▶ <https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/nvap/NVAP-Reference-Guide/Control-and-Eradication/>
- ▶ <https://www.tennesseeameatgoats.com/articles2/scrapie.html>
- ▶ <https://americangoatfederation.org/>