



## Scrapie Eradication Program in the United States



Cooperative Extension

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### What is Scrapie?

Scrapie is a fatal brain disease affecting the central nervous system of sheep and goats. Affected animals show clinical signs such as scratching and rubbing against fixed objects, loss of coordination, restlessness, unusual excitement to external stimuli, biting of feet and limbs, lip smacking, gait abnormalities (hopping like a rabbit, high-stepping of forelegs, swaying of the back end), resistance to handling and eventually death. There is no cure or treatment for the disease. Scrapie is the major cause for international trade restriction of lamb and mutton meat in most countries in the world. Only Australia and New Zealand are recognized as scrapie free countries by the U.S.

### Transmission

Scrapie is believed to be transferred from a doe or ewe to a newborn through the placenta and placental fluid. Adult animals can also become infected. It will take three to five years before animals will show clinical signs. Once infected, animals will carry the disease throughout their life.

### Diagnosis in live and dead animals

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### Process for sample collection for lab diagnosis

Contact your state veterinarian (<https://www.usaha.org/saho>) if your sheep or goat is older than 12 months of age and exhibits clinical signs of scrapie. All the costs for tissue sampling, shipping, and analysis are free and details for the process are available on the USDA-APHIS website under Q and A: Testing for Scrapie Section at [https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/sa\\_animal\\_disease\\_information/sheep-goat/sample/sample](https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/sa_animal_disease_information/sheep-goat/sample/sample).

### Public concern about the disease

There is no scientific proof that scrapie can transfer from sheep or goats to humans. Consumers are concerned after bovine spongiform encephalopathy (BSE) — a fatal brain disease of cattle that resembles scrapie in sheep and goats — was transmitted to humans in the United Kingdom.

### Why do we need to get rid of scrapie?

Scrapie is always fatal leading to the death of an animal. Additional economic losses include production loss, loss of breeding stock, export loss (live animals, semen, embryos) and the cost of disposal of dead animals. The annual cost of scrapie in the United States is estimated to be between \$10-\$20 million.

### Scrapie Eradication Program in the U.S.

To avoid losses, the Scrapie Eradication Program was introduced to promote the selection of scrapie resistant animals for breeding, to test suspected animals and to provide compensation for infected animals that the owner agrees to destroy.

### Compensation for the scrapie-infected flock

USDA Scrapie Eradication Program provides compensation for infected animals that the owner agrees to destroy. The process for determining compensation is simple, unified, and transparent. A detailed step-by-step guide for the process is available in the “USDA Scrapie Program Standards Volume 1: National Scrapie Eradication Program” at [https://www.aphis.usda.gov/animal\\_health/animal\\_diseases/scrapie/downloads/nsep-program-standards-final-rule.pdf](https://www.aphis.usda.gov/animal_health/animal_diseases/scrapie/downloads/nsep-program-standards-final-rule.pdf).



Sample collection from dead lamb.



Animal about to die from unknown cause.

### What do you need to do to avoid scrapie in your flock?

Scrapie does not occur in all genotypes (set of genes) in sheep. Genotype testing and culling (removal from the flock) of susceptible animals are the key requirements for scrapie eradication. Sheep with genotype QQ are most susceptible (can transmit disease) while those with RR are resistant (less likely to get affected or transmit disease). Genotypes AA RR (resistant), AA QR (rarely susceptible), AV QR (somewhat susceptible), AA QQ, AV QQ and VV QQ (all are highly susceptible). USDA APHIS has listed the requirements, procedures and approved labs for genotyping at [https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/sa\\_animal\\_disease\\_information/sheep-goat/sample](https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/sa_animal_disease_information/sheep-goat/sample). Scrapie genotype testing in goats has recently started in the United States. Based on the preliminary results, goats carrying one of the favorable variants of a gene, 146S or 146D or 222K, appear to be less susceptible to scrapie.

### Progress controlling scrapie in the U.S.

Slaughter and surveillance of scrapie in sheep and goats in the U.S. began in 2003. In 2003, the prevalence of scrapie in culled sheep nationwide was high but decreased significantly in 2016-2018. The potential likelihood of prevalence from regulatory scrapie slaughter surveillance was < 0.1% in 2007-2008 and was almost eradicated in 2016-2018. Active surveillance, tracing infected animals, testing those potentially exposed, and depopulating high-risk animals promotes the eradication of scrapie in the United States.

[All pictures were printed with permission from Ms. Susan Schoenian]



A doe in distress.



Deceased lamb.