

Requirements of the Plan

1. All exposed QQ ewes, exposed female goats, and female offspring of scrapie positive ewes will be removed or will be placed under movement restrictions.
2. AV QR ewes may be required to be removed or restricted in flocks where scrapie positive VV QQ, AV QQ, or AV QR sheep have been identified. Positive animals, with a V at codon 136, in a flock indicate that exposed AV QR ewes from that flock may be susceptible to the type of scrapie that is in the flock.
3. All animals in the flock must be officially identified and entered in USDA's Scrapie National Generic Database by federal and/or state personnel.
4. Owners must have a post-exposure management and monitoring plan that includes:
 - Official identification of sexually intact animals that are sold or acquired and records of such transactions including basic information of the buyer/seller;
 - Reporting of deaths of any mature animals and submission of animals showing possible signs of scrapie for diagnostic testing;
 - Annual inspections by state and/or federal officials;
 - Owners who elect to retain restricted female animals will have to meet additional requirements including testing and restrictions on some offspring.



Third eyelid test on a cross bred QQ ewe.



First recognized as a disease of sheep in Great Britain and other countries of Western Europe more than 250 years ago, scrapie has been reported throughout the world. Only two countries are recognized by the United States as being free of scrapie: Australia and New Zealand.

The first case of scrapie in the United States was diagnosed in 1947 in a Michigan flock. The flock owner had imported sheep of British origin through Canada for several years. APHIS conducted a slaughter surveillance study from April 1, 2002, to March 31, 2003, which determined the prevalence of scrapie in mature U.S. cull sheep to be 0.2 percent or one positive out of 500 cull sheep.

In the United States, scrapie has primarily been reported in the Suffolk breed. It also has been diagnosed in a Border Leicester, Cheviots, Corriedales, a Cotswold, Dorsets, Finn sheep, Hampshires, Merinos, Montadales, Rambouillets, Shropshires, Southdowns, and a number of crossbreeds. Through October 2003, approximately 2,350 cases in sheep and 12 cases in goats have been reported.



Gus R. Douglass, Commissioner

Animal Health Division

Joe Starcher, DVM, State Veterinarian

304-558-2214



Gus R. Douglass, Commissioner

SCRAPIE



An Introduction to Scrapie and the
Genetic Based Flock Plan

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 (TSEs). Infected flocks with a high percentage of susceptible animals can experience significant production losses. Over a period of several years the number of infected animals increases and the age at which clinical signs appear decreases. The result is economically nonviable flocks. Female animals sold from infected flocks spread scrapie to other flocks. The presence of scrapie in the United States also prevents the export of breeding stock, semen, and embryos to many other countries.

The combination of all of these factors has led to the decision to develop a strong scrapie eradication program in the United States.

Epidemiology and Transmission

The agent responsible for scrapie and other TSEs is called a prion and is smaller than the smallest known virus. The scrapie agent is extremely resistant to heat and to normal sterilization processes. It does not evoke any detectable immune response or inflammatory reaction in sheep and goats.

The scrapie agent is thought to be spread most commonly from the ewe to her offspring and other lambs through contact with the placenta and placental fluids. Symptoms of the disease usually appear 2 to 5 years after the animal is infected but may not appear until much later. Sheep may live 6 months or longer after the onset of clinical signs. Death is inevitable. Genetics of the sheep affect their susceptibility to scrapie.



Clinical Signs

Clinical signs are variable and develop slowly. Nerve cell damage results in affected animals showing behavioral changes, tremors of the head and neck, rubbing, incoordination, recumbency and ultimately death.

Early signs include subtle changes in behavior or temperament. These changes may be followed by scratching and rubbing against fixed objects, loss of coordination, weakness, weight loss despite retention of appetite, biting of feet and limbs, lip smacking, and gait abnormalities, (high-stepping of the forelegs, hopping like a rabbit, and swaying of the back end.)

An infected animal may appear normal if left undisturbed at rest. However, when stimulated by a sudden noise, excessive movement, or the stress of handling, the animal may tremble or fall down in a convulsive-like state.



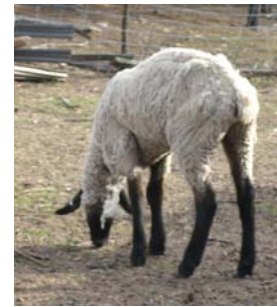
Veterinarians diagnose scrapie based on the appearance of its signs combined with knowledge of the animal's history. Scrapie can be diagnosed in the live animal by biopsy of the lymphoid tissues on the inside of the third eyelid. This test is used to determine whether exposed flocks are infected. Scrapie is most often diagnosed by microscopic examinations of brain tissue at necropsy and procedures that detect the presence of the abnormal prion protein in brain tissue.

Why Scrapie Test? — We Have a Plan!

If it has been determined that a flock, through trace back or other testing, is infected or has been exposed to scrapie, then we have a plan. Genetic testing and selection helps producers to limit their risk of acquiring scrapie. The plan allows scrapie resistant breeding stock to be preserved. It protects other flocks from exposure by requiring the removal or permanent restriction of animals that may spread scrapie. This plan permits affected producers to return to normal business practices more quickly than previous plans. The identification and use of genetically-resistant rams will break the transmission of scrapie, thereby reducing the risk of creating newly infected or source flocks.

How the Plan Works

- The sheep are genotyped through a blood sample. The sheep's genotype determines its risk for scrapie infection.
- Susceptible genotypes are checked via the third eyelid test.
- Scrapie positive and susceptible animals are removed or their movement restricted.



Aspects of the Plan

Owners whose animals must be removed from the flock will receive indemnification from the federal government based on commercial market prices reported by the Agricultural Marketing Service. An additional premium will be paid for registered animals and may be paid for

animals for which the owner can document a higher market value such as some club lamb flocks. Further, the federal government will provide testing and assistance with disposal costs. The producer is responsible for gathering and handling the sheep, applying identification, providing adequate handling facilities, cleaning and disinfecting, reporting suspect animals, and maintaining records such as sheep sales, purchases and lambing.

Genotype Susceptibility/Resistance Combinations

1. AA RR – Sheep which are resistant.
2. AA QR – Sheep which are rarely susceptible.
3. AV QR – Sheep which are susceptible to some scrapie strains*.
4. AA QQ – Sheep which are highly susceptible.
5. AV QQ – Sheep which are highly susceptible.
6. VV QQ – Sheep which are highly susceptible.

*These strains are believed to occur with low frequency in the U.S.

West Virginia law requires that all sheep involved in a change of ownership must have official identification as determined by the WVDA.