

## Scrapie

Scrapie is an infectious disease of sheep that attacks the central nervous system and is always fatal. It is a type of transmissible encephalopathy found in a number of animal species including humans. Upon necropsy, infected animals will have holes or vacuoles in the tissue of the brain. Scrapie has a very long incubation period of several months to a few years so the disease is seldom seen in animals less than 1½ years of age. While scrapie affects relatively few sheep, it is a disease of major concern to Federal animal health officials because it is related to BSE (mad cow disease). Consumption of meat from BSE-infected cattle has been implicated as a cause of an encephalopathy in humans (new variant CJD). Presence of the disease in North America limits the opportunities for breeding sheep exports. Certain alleles at the prion protein locus have an effect on scrapie susceptibility. Differences in amino acids of the prion protein in at least two positions or codons appear to have an effect on susceptibility of sheep to scrapie. At the 136 codon, two amino acids have been identified in sheep populations: alanine (A) decreases susceptibility and valine (V) increases susceptibility to scrapie. At the 171 codon, the amino acid arginine (R) is associated with decreased susceptibility, and the amino acid glutamine (Q) is associated with increased susceptibility to scrapie. Therefore, animals that are homozygous for alanine at codon 136 (AA) and homozygous for arginine at codon 171 (RR) would be the most resistant to scrapie and would produce progeny with the greatest probability of resistance. A list of approved labs for official USDA testing can be found at: <http://www.aphis.usda.gov/vs/nahps/scrapie/>

Excerpt taken from: “**Tools Available to Wisconsin Sheep Producers for Genetic Improvement of Their Flocks**”. By David L. Thomas, Extension Sheep Specialist, Department of Animal Sciences, University of Wisconsin-Madison, [http://www.ansci.wisc.edu/extension-new%20copy/sheep/wisline\\_07/Genetic%20Improvement%20Tools%2012-29-06.pdf](http://www.ansci.wisc.edu/extension-new%20copy/sheep/wisline_07/Genetic%20Improvement%20Tools%2012-29-06.pdf)