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## Sheep Disease Threat Can Be Eliminated

The threat of sheep scrapie can be eliminated. Scrapie costs American sheep producers an estimated \$25 million annually. Trade barriers exist with Scrapie-Free countries, such as Australia and New Zealand. Rendering companies will not pick up dead sheep because of scrapie concerns. The disease known as Scrapie has been recognized for more than 250 years. The name was coined from sheep trying to relieve the intense itching which results in 'scraping' off the wool. Scrapie was introduced into a Michigan flock through sheep imported from Britain in 1947. Scrapie has spread throughout the U.S. since that time. In 2002, new cases of scrapie totaled 259 and 5 goats were also found infected.

Scrapie is one of a family of diseases known as Transmissible Spongiform Encephalopathys (TSEs). TSEs are caused by an infectious protein called a prion. Other TSE-type diseases are Bovine Spongiform Encephalopathy (BSE) in cattle, Chronic Wasting Disease (CWD) in deer, and Creutzfeldt - Jakob disease (CJD) in humans.

Research has shown that certain genes in the DNA of sheep play a role in the development of scrapie. The testing for the resistance or susceptibility of sheep to scrapie can be done with a blood sample drawn from the sheep in question. An approved laboratory can determine the resistance or susceptibility to scrapie by examining the DNA at Codon 171 of the genetic make-up. Letter designations are reported for each strand of the DNA. An "R" at Codon 171 indicates resistance to scrapie, whereas, a "Q" indicates susceptibility. Three combinations are possible since there are two strands of DNA: RR = Highly resistant; QR = Moderate resistance; QQ = Susceptible.

By knowing the genetics of breeding animals, producers can actually breed more resistance to scrapie into their flock. Producers who retain their own replacement ewe lambs can begin influencing their flock resistance to scrapie by selecting rams that have been DNA tested and certified by an approved lab as carrying the 'RR' gene at Codon 171. In a few years, the flock resistance to scrapie will be greatly increased.

The Nebraska Department of Agriculture's Bureau of Animal Industry (BAI) has received money from the United States Department of Agriculture. These funds will be offered on a first come, first served basis and should only be used for individual flock sires or replacement sires for individual flocks. Testing will be limited to six rams per flock, unless prior approval is obtained from BAI. Testing may begin after January 1, 2004, and must be completed by August 1, 2004.

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