
RESOLUTION NUMBER: 26

APPROVED

SUBJECT MATTER: Need For Ongoing Scrapie Research

BACKGROUND INFORMATION:

While the National Scrapie Eradication Program (NSEP) has been successful in decreasing the prevalence of scrapie in the United States, eradication of scrapie has not yet been achieved. With all disease eradication programs, as prevalence of the disease declines, the ability to identify the remaining cases becomes an ever greater challenge. With the 2019 publication of the NSEP standards, continued discovery of unique features of goat scrapie, improved live animal diagnostics and understanding of nonclassical scrapie are needed to achieve scrapie eradication.

We appreciate that scrapie program leaders have incorporated scientific discovery into pilot projects and the evolution of eradication program standards. Scrapie research continues to be valuable in efforts toward scrapie eradication. Research on the genetics of scrapie susceptibility/resistance in sheep and goats, differences in clinical signs and incubation periods in sheep and goats and live animal diagnostics are of continued importance. Research on the identification, diagnosis and epidemiology of nonclassical scrapie is also vital to achieving eradication of classical scrapie in the United States. Given the long incubation period of the disease, scrapie research requires multi-year commitment to carry out research on the epidemiology and pathogenesis of scrapie infection.

RESOLUTION:

The United States Animal Health Association (USAHA) urges the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS) and the USDA, Agricultural Research Service to work together to continue research into the pathogenesis, clinical signs, diagnosis and genetic resistance to disease of scrapie in sheep and goats, and validate and implement new approaches into the National Scrapie Eradication Program.

INTERIM RESPONSE:

USDA, APHIS, VS understands the concerns of the USAHA and appreciates the opportunity to respond. VS is evaluating using genotype to focus diagnostic testing on more susceptible sheep. The National Veterinary Services Laboratories (NVSL) is conducting a pilot project using swabs taken in the brain after the obex has been removed, with the samples then run on high through PCR to determine scrapie

resistance. Determining susceptible and resistant genotypes will allow for better targeted testing and reduced costs for slaughter surveillance.

VS is also developing genotype testing for goats. Currently, there are two ongoing goat projects. The first project, with 3,000 goats, is designed to measure the susceptibility of the U.S. goat herd to classical scrapie. We are receiving samples from all 50 states, proportional to their required scrapie surveillance numbers. Utilizing this data, NVSL is developing a real-time PCR based assay to enable more cost effective and rapid characterization of susceptible animals. We are working with and modifying the assay developed by Canada. The second project, related to the National Animal Health Monitoring System (NAHMS), has received over 4,000 goat samples from NAHMS' participants. The NVSL is sequencing the samples and the data will be released to the owners. These projects will achieve two objectives: 1) build a background database of the frequency of susceptible scrapie alleles in the U.S. and 2) build capacity with regard to experience running the test and sufficient samples to validate the new real-time PCR assay. Both are critical components of strengthening the goat scrapie eradication program. Both of these projects for goats are ongoing and completion is expected in approximately one year.

FINAL RESPONSE:

USDA, APHIS, VS understands the concerns of the USAHA and appreciates the opportunity to respond. VS is evaluating using genotype to focus diagnostic testing on more susceptible sheep. The National Veterinary Services Laboratories (NVSL) is conducting a pilot project, in collaboration with a National Animal Health Laboratory Network laboratory. The project uses swabs taken from the brain after the obex has been removed from the samples, then it is ran on high throughput PCR to determine scrapie resistance. Determining the genetic status of the submitted sample will allow the laboratory to focus resources on genetically susceptible animals leading to reduced costs for the slaughter surveillance program.

VS is also developing genotype testing for goats. Currently, there are two ongoing goat projects. The first project, with 3,000 goats, is designed to determine the genetic susceptibility of the U.S. goat herd to classical scrapie. The National Veterinary Services Laboratories (NVSL) is receiving samples from all 50 states, proportional to their required scrapie surveillance numbers. Utilizing this data, NVSL is developing a real-time PCR based assay to enable more cost effective and rapid characterization of susceptible animals. NVSL is working with and modifying the assay developed by Canada. The second project is related to the National Animal Health Monitoring System (NAHMS). NVSL has received and characterized over 4,000 goat samples from NAHMS' participants. The results will be released to the participants. These projects will achieve two objectives: 1) build a background database of the frequency of susceptible scrapie alleles in the United States and 2) build capacity and experience running the test. The samples collected will provide an enough samples to validate the new real-time PCR assay. Both are critical components of strengthening the goat scrapie eradication program. These projects for goats are ongoing and completion is expected in approximately one year.