

SCRAPIE: ERADICATE IT

The sheep industry's scrapie eradication efforts.

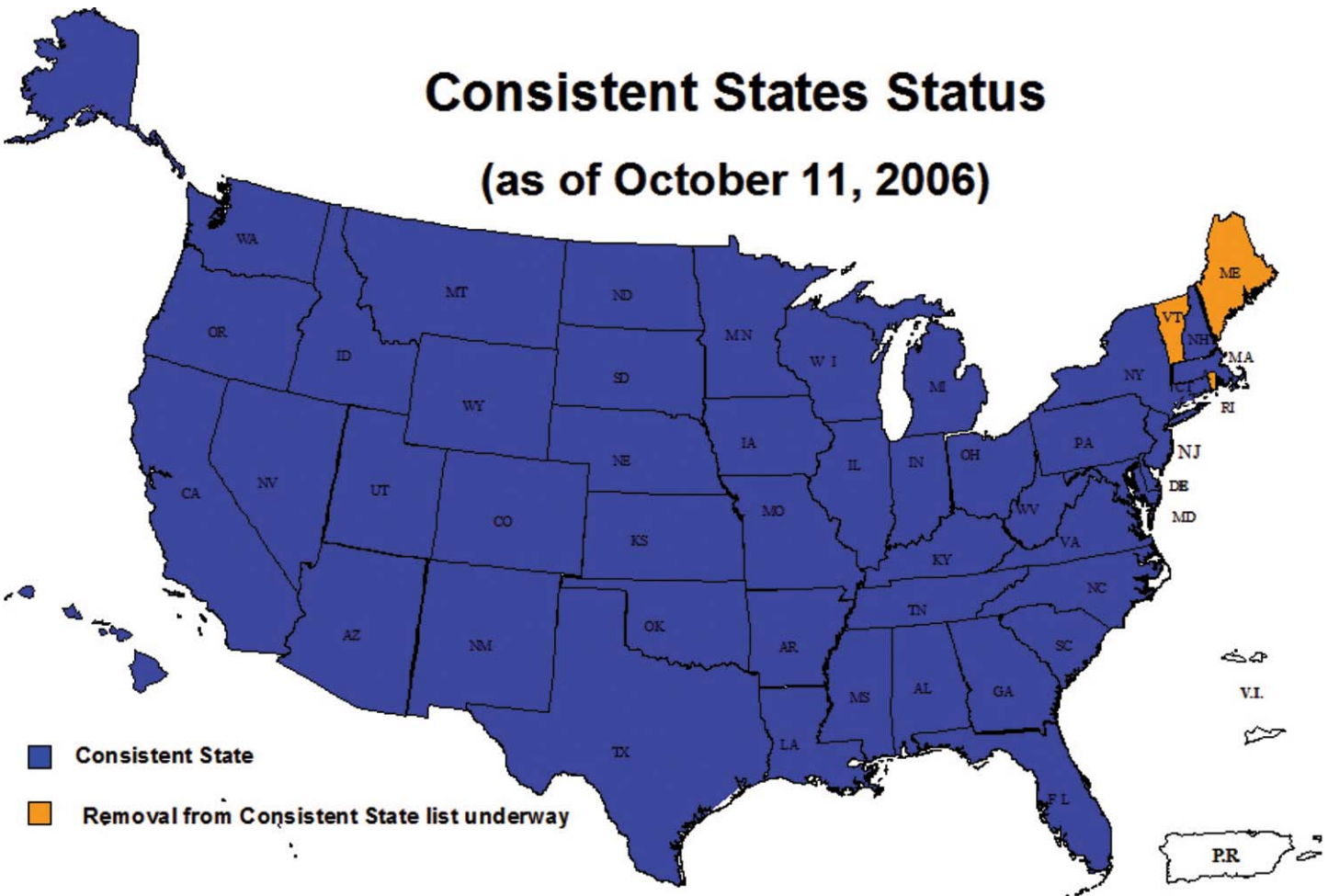
September 2006

The goal of the American Sheep Industry Association (ASI) and the U.S. sheep industry is to eradicate scrapie from our borders by 2010. In addition, it is the objective to have the World Organization for Animal Health, OIE, declare the United States scrapie free by 2017. This quarterly publication is created specifically for those of you in the field who are also working to achieve this goal.

This newsletter brings together, into one spot, current information from all 50 states, as well as from the U.S. Department of Agriculture and any other organization providing scrapie news, and reports it back to the field.

If you have first-hand accounts that you believe would be relevant for others to read or have information that you would like included in this newsletter, please let us know at either amy@sheepusa.org or judym@sheepusa.org.

Consistent State Status Deadline Passes



At the inception of the program, the Animal and Plant Health Inspection Service (APHIS) considered all 50 states to have consistent state status in regard to the National Scrapie Eradication Program (NSEP). To be considered a consistent state, each state was required to meet all the federal standards by Sept. 30, 2006. These standards require the development and maintenance of an effective scrapie-control program within the state, including the required identification of most sheep and goats on change of ownership.

According to the APHIS's NSEP Coordinator Diane Sutton, DVM, three states, Maine, Rhode Island and Vermont, did not meet the deadline. All other states have met the regulatory requirements of the NSEP or have regulations that will meet the requirements in the process that will be published in October. APHIS has initiated regulatory action to change the status of the three states that are not in full compliance. States must have consistent state status in order for producers to move breeding sheep or goats to other states with minimal restrictions. To address this, Rhode Island is developing proposed regulations. In Maine, the scrapie board met on Oct. 5, 2006, and unanimously agreed that Maine should move ahead with developing proposed rules for intrastate movement of sheep and goats to become consistent with the NSEP. Prior to drafting proposed rules, however, the board recommended that Maine Department of Agriculture officials solicit additional public input. In order to accomplish this, the department will be conducting a series of four statewide public meetings in November and December.

There are serious implications for producers in the states that did not meet the consistent state requirements. Producers in an inconsistent state who wish to move breeding sheep across state lines will be required to be enrolled, and in good standing, with the Scrapie Flock Certification Program. Among other requirements, this program requires the producer's flock to be inspected annually by the U.S. Department of Agriculture (USDA) or state personnel. The producer will also be required to implement a record-keeping system and keep comprehensive animal identification records. In this situation, producers may face time delays moving sheep out of the state because USDA and the state animal health department will need to allocate staff, time and budget to inspect individual flocks.

Secondly, producers need to obtain a certificate of veterinary inspection (often called a health certificate) every time they wish to ship cull sheep or breeding goats out of state in addition to breeding sheep and goats commingled with sheep, as is currently required.

"Identification compliance is crucial to achieving scrapie eradication. Identifying animals to their flock of birth allows us to find infected flocks and to trace exposed animals out of these flocks to prevent the further spread of the disease," states Sutton. "The states that are no longer fully compliant with the consistent state status are placing a substantial burden on their producers."

The American Sheep Industry Association has worked with its state affiliates in the interest of seeing that scrapie is eradicated from the United States as soon as possible. Producers are encouraged to communicate with their state animal health authorities and legislators to explain the importance of this rule to their operation and to their ability to conduct interstate commerce.

Producers can Use Scrapie Resistant RR Rams and Still Protect "Economically Important Traits"

By GALE JOHNSON
Freelance Writer

With the high demand for rams with RR genotypes – which pass on scrapie resistance to their offspring – some purebred producers worry that they may be sacrificing other hard-earned genetic traits such as wool and/or meat quality and growth rate. However, this can be avoided, or at least limited, in a couple of ways:

- introduce the RR genotype over several generations rather than all at once; and
- use data from the National Sheep Improvement Program (NSIP) to select ewes to be bred to RR rams and offspring of these rams to be retained in the flock.

Generational Introduction of the RR Genotype

"Most purebred breeders have worked hard over the years to up-grade their ewe flocks," states David Notter, Ph.D., a geneticist at Virginia Tech. "So the strategy is not to replace your breeding stock, but rather to gradually introduce the resistant form of the gene over three or four generations."

Notter recommends you start by acquiring the very best RR ram you can find.

"Let's assume you use four rams, one of which has an RR genotype at codon 171, in your 200-head flock of purebred ewes. Use the RR ram on the very best of your QQ or QR ewes and you can be sure that all of the lambs produced from these ewes will be either RR or QR," he explains.

In the next generation, Notter says to select the RR ram or rams that most closely meet the goals of your breeding program. Then mate them to daughters of QQ or QR rams, thus introducing the resistant form of the gene further into the flock while maintaining genetic diversity. If a suitable RR ram is unavailable, just replacing QQ rams with QR rams as they are retired can significantly increase the amount of the resistant form of the gene in your flock and increase your chances of producing a suitable RR ram for future use.

The number of generations it will take to make most sheep in a flock RR or QR depends on how many ewes carry the R form of the gene when the process is started and whether the other rams are QQ or QR. For most flocks, about three-quarters of the sheep will be RR or QR by the third generation. At this stage, a producer should evaluate the flock as well as the market situation to determine how much further introduction of the resistant gene is needed, recommends Notter.

Combining Scrapie Resistance with NSIP Data

Scrapie resistance, of course, is only part of the total genetic picture. Producers who are enrolled in NSIP have another important tool to use. NSIP is a computerized, performance-based program for genetic selection used in various livestock species. It is designed to help purebred sheep producers identify the best genetic stock by using scientifically proven technology to measure genetic performance.

NSIP provides breeders with estimates of genetic merit called EPDs (Expected Progeny Differences). EPDs can be used as a guide in selection and genetic improvement programs in combination with an introduction of an RR ram. Members of NSIP receive estimates of genetic value for every animal in their flock based on its performances and all the animals that are genetically related to it over the years and management systems.

By using EPDs in a flock, producers can make genetic improvements efficiently and reliably. EPDs even allow the animals to be ranked by genetic value, which identifies high-producing replacements and poor-producing animals. By combining EPD selection with the introduction of RR sires, it is easier to identify the offspring of these rams that are providing the performance levels that are desired.

Traits (or EPDs) measured by NSIP are:

- weaning weight;
- 120-day post weaning weight;
- maternal milk;
- milk plus growth;
- number born or percent of lamb crop;
- fleece weight and grade;
- staple length; and
- carcass quality.

NSIP works with groups of breeders representing the Targhee, Suffolk, Polypay, Katahdin, Columbia, Dorset, Hampshire, Rambouillet and Romney breeds. The breeders collect the data and dues and the data is processed at Virginia Tech under Notter's supervision.

"Producers who are not enrolled in NSIP can benefit by selecting rams that have NSIP evaluations in the same way as commercial cattle producers can buy bulls with EPDs reported on them. Every producer should know the strengths and weaknesses of his/her flock and can select rams that help enhance the quality of their sheep," says Notter.

Genetic Diversity

Ron Lewis, Ph.D., of Virginia Tech, says that by concentrating too narrowly on scrapie resistance at codon 171, some genetic diversity that is not fully understood could be sacrificed.

"However, to date there is no convincing evidence that RR genotype sheep are any different in their performance than other sheep for economically important traits. With that said, if the frequency of the R allele is low in a particular breed, there is a risk of narrowing the genetic base," he explains.

Lewis goes on to suggest that breed associations — especially those representing breeds with smaller numbers — should think about storing semen from high-quality rams from all scrapie genotype categories to ensure genetic diversity for use in the future. He further notes that the discovery of strains of scrapie in Europe to which RR, QR and QQ sheep are all susceptible raises concerns.

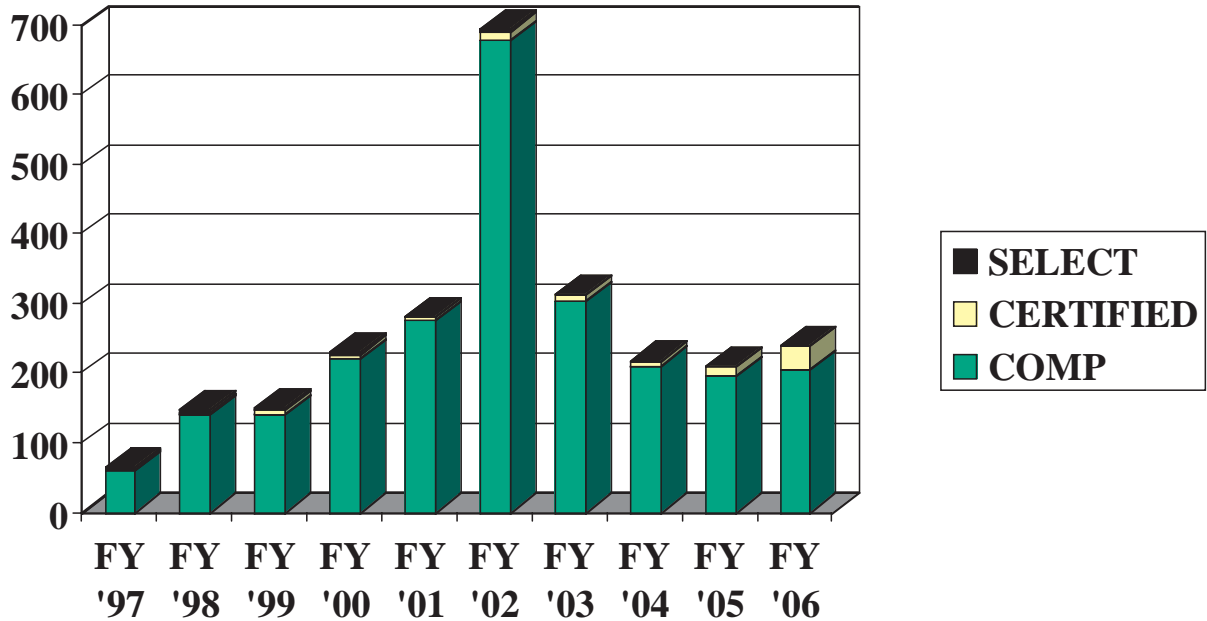
Diane Sutton, DVM, coordinator for the National Scrapie Eradication Program, agrees but points out that at this time there is no evidence that strains of scrapie affecting RR sheep exist in the U.S. flock and that QQ and QR genetics are not protective against the strains that affect RR sheep.

"It's important to be prudent, but individual producers whose flocks are at risk for scrapie can still benefit from concentrating on protecting their flocks from the types of scrapie known to exist in the United States. This can be accomplished by genetic selection, maintaining closed-ewe flocks and utilizing good management practices including lambing hygiene," states Sutton.

Assignment of Premises Identification Numbers and Distribution of Official Ear Tags

As of Oct. 1, 2003 (program start)	As of Sept. 1, 2006
79,810 sheep and/or goat premises in the Scrapie National Generic Database 55,776 requests to be shipped official premises ear tags	117,671 sheep and/or goat premises in the Scrapie National Generic Database 86,936 requests to be shipped official premises ear tags

SFCP New Statuses by Year *FY 1997 to 2006**



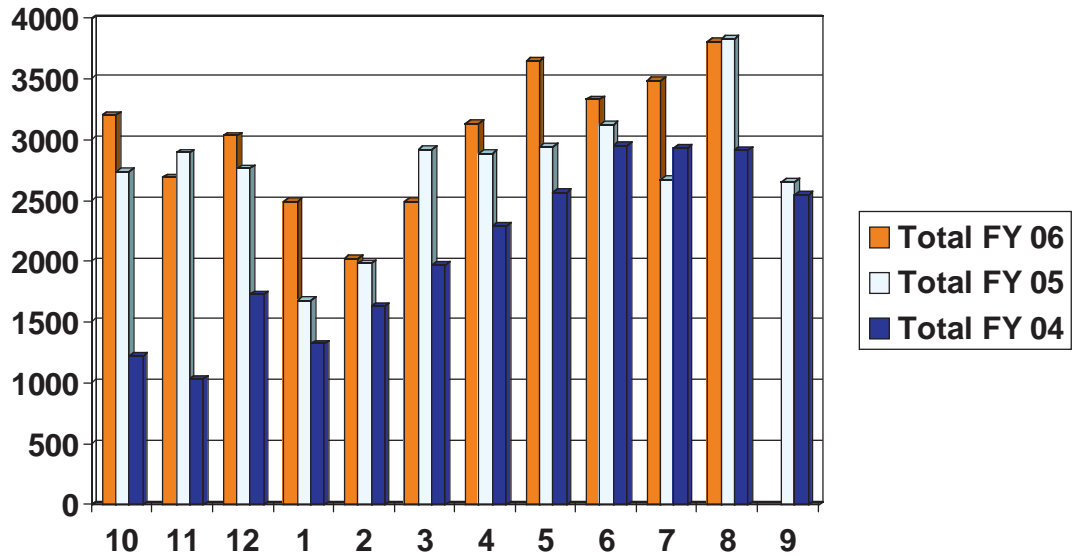
*Through August 31, 2006

New Status Report *Scrapie Program FY 2006**

Status of Flock	1 st Quarter	2 nd Quarter	3 rd Quarter*	4 th Quarter	Year 2006
Complete Monitored	66	51	64	26	206
Certified	10	8	6	9	33
Selective Monitored	0	1	0		1
Source	19	14	15	9	56
Infected	11	22	17	9	59
Removed from Infected or Source	31	26	19	16	92

* Through August 31, 2006

Slaughter Surveillance Samples Collected by Month, FY 2004 to FY 2006



The Animal and Plant Health Inspection Service's goal is to collect 4,000 slaughter surveillance samples each month from around the United States.

Regulatory Scrapie Slaughter Surveillance (RSSS) Statistics through August 31, 2006

Since April 1, 2003:	In FY2006:	In August 2006:
100,357 samples collected 267 NVSL* confirmed positive 110 plants participating	33,395 samples collected 52 NVSL confirmed positive	3,812 samples collected 6 NVSL confirmed positive

*National Veterinary Services Laboratories

Web Sites Dedicated to the Eradication of Scrapie

Animal and Plant Health Inspection Service
www.aphis.usda.gov/vs/naahps/scrapie

Maryland Small Ruminant Page
www.sheepandgoat.com/scrapie.html

National Institute of Animal Agriculture
<http://www.animalagriculture.org/scrapie/Scrapie.htm>

Scrapie QuickPlace

<https://qp01.aphis.usda.gov/QuickPlace/scrapie/Main.nsf?OpenDatabase>
*State and federal employees can access this password-protected site by e-mailing
 Susan.E.Ledford@APHIS.USDA.gov to receive a password.*



American Sheep Industry Association
www.sheepusa.org