National Scrapie Eradication Program
August 2022 Monthly Report
Fiscal Year 2022

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Veterinary Services
Strategy and Policy, Ruminant Health Center
Small Ruminant Health

September 15, 2022
A Note on Navigation

This presentation has hyperlinks for navigation. Text in blue is a hyperlink to the slide or website being discussed. Additionally, there are action buttons on each page:

- Return to the last slide viewed
- Return to 1st page of the Introduction

Please note the following:

- The links and action buttons only work when the presentation is viewed in slide show mode
- The links have greater reliability if only 1 monitor is in use
- The links may not have the same functionality if viewed using PowerPoint 2003 or earlier
- The links may become “frozen” if the viewer navigates through the presentation quickly; if this happens, return to the first slide and begin again to reset
**Program Summary**

*Performance Measures*¹ – No sheep or goats have tested positive at slaughter in FY 2022 out of 20,900 samples submitted (Chart 1, Chart 2).

*Scrapie Testing Results*¹ – Nor98-like scrapie was confirmed in 1 sheep sampled in August 2022. No classical scrapie has been confirmed in goats or sheep in FY 2022.

¹Samples collected between October 1, 2021 and August 31, 2022, and confirmed by September 15, 2022.
**Program Summary**

**Infected and Source Flocks** – The number of newly designated infected and source flocks by year since 1997, is shown in Chart 3. The peak was in 2005 with 179 flocks.

**Scrapie in Goats** – The total number of NVSL confirmed positive cases in goats is 44 since FY 2002. Samples from three of these positive animals were collected through RSSS, one in November 2014, the second in July 2018, and the most recent in June 2019. The remainder of the positive cases have been found through testing of clinical suspects, testing of exposed animals, and trace-out investigations. Figure 1 shows the number of positive cases by State and by fiscal year of last reported case.
Program Summary

Scrapie Free Flock Certification Program (SFCP) – As of August 31, 2022, there were 195 flocks participating in the SFCP. Statuses of these flocks were 32 export monitored, 42 export certified, and 121 select monitored flocks (Figure 2). SFCP open statuses by fiscal year of Status date\(^3\) from FY 2007 to FY 2022 are depicted in Chart 4.

\(^3\)Chart 4 represents the cumulative change in SFCP enrollment over time, and includes open and closed statuses/programs, and active and inactive flocks/herds. Previous charts of SFCP participation by year were manually updated and used the enrollment date to determine the year of participation in SFCP. With the change to Tableau charts, the start/status date is used. Many participating flocks were grandfathered into the Export category in 2013 with an earlier status date.
Surveillance activities are reported by Field Operations Districts shown in Figure 3. Surveillance minimums are based on estimated breeding sheep and goat populations in each State and their risk level. The distribution of sheep and goat populations by District is depicted in Chart 5.

Components of Scrapie Surveillance

- **Regulatory Scrapie Slaughter Surveillance (RSSS)** started April 1, 2003. It is a targeted slaughter surveillance program which is designed to identify infected flocks. Samples have been collected from 716,546 animals since April 1, 2003. As of August 31, 2022, 20,900 samples have been collected in FY 2022, 13,776 from sheep and 7,124 from goats. There have been 491 NVSL confirmed positive animals (474 classical cases – 471 sheep and 3 goats) and 17 Nor98-like cases since the beginning of RSSS.

- The number of sheep and goats collected in each District for RSSS is shown in Chart 5. Figure 4 is a hex map, representing the number of animals collected in each State. Chart 6 compares RSSS sampling by month for the current year with the monthly average of the previous 6 years.
Surveillance

Components of Scrapie Surveillance

• **RSSS Genotyping** started in November 2018 as a pilot project to decrease the costs of scrapie IHC testing in a subset of submission by only testing those animals that are genetically susceptible to scrapie. DNA is first analyzed to determine the genotype at codon 171, and tissue samples are only IHC tested if the sheep is genetically susceptible, not if it is genetically resistant/less susceptible (QR, RR, RK, or RH). The number of genotyped sheep is included in the total number of sheep tested through RSSS. To date, no samples from genetically susceptible sheep referred for scrapie testing have tested positive. The project was deemed in May 2021 to result in cost savings and RSSS genotyping will be continued indefinitely at the currently participating sites.

  • As of August 31, 2022, 2,428 have been genotyped in FY 2022; 1,660 (68.4%) of these were not genetically susceptible.

  • In FY 2019 - 2021, a total of 8,065 sheep were genotyped; 5,768 (71.5%) of these were not genetically susceptible.
Surveillance

Components of Scrapie Surveillance (continued)

- **On-farm Surveillance** includes both regulatory testing of scrapie exposed and potentially exposed sheep and goats and testing sheep and goats on farm for routine surveillance. As of August 31, 2022, 647 sheep and 717 goats have been tested on-farm for FY 2022.

Surveillance Goals

The annual target is to test at least 40,000 animals each year for scrapie. As of August 31, 2022, 20,900 animals have been sampled for scrapie testing in FY 2022.

- 19,536 RSSS samples and 1,364 on-farm samples
- Of which 13,776 were sheep and 7,124 were goats.

Progress towards meeting the national surveillance target is depicted in **Chart 8**. Distribution of sampling by type (RSSS or on-farm) and by species is shown in **Chart 9**. **Chart 10** and **Table 1** is a breakdown by face-color (sheep) and type (goats) by age.
Surveillance

State Sampling Minimums
The National Scrapie Eradication Program establishes annual sheep sampling minimums for each State and tracks the States’ level of compliance with meeting these minimums. These State minimums were implemented in FY 2010 to ensure adequate geographical representation, so that APHIS can find the last remaining cases and document freedom from scrapie. State sampling minimums are established based on the population demographics of mature sheep and goats in each State. The calculations used to derive the sampling minimums are described in the National Scrapie Surveillance Plan. The State sampling minimums for sheep and goats, and the total number of animals sampled by State of Animal ID, are listed in in the following slides:

| District 1 | District 2 | District 3 | District 4 |

The percent sampling minimum for sheep and goats achieved by each State in FY 2021 are depicted in Figure 6 and Figure 7.

This report is based on information and test results available at the time of report generation. Numbers are subject to change due to later reporting of test results and updates in the database.
Percent of RSSS Sheep Samples that Tested Positive for Classical Scrapie - By Face Color

FY 2003 – FY 2022*

* As of August 31, 2022. Adjusted to exclude multiple positive animals from same flock. Mottled- and white-faced combined. Does not include Nor98-like scrapie cases found through RSSS.
Percent of RSSS Sheep Samples that Tested Positive for Classical Scrapie - Weighted by Face Color

FY 2003 – FY 2022*

* As of August 31, 2022. Adjusted to exclude multiple positive animals from the same flock. Does not include Nor98-like scrapie cases found through RSSS.
Infected and Source Flocks
New Statutes by Year – *Fiscal Years 1997 to 2022*

* As of August 31, 2022
Scrapie Cases in Goats
FY 2002 – FY 2022

(Figure 1)

Color code indicates fiscal year of last case by State. 44 NVSL confirmed cases.

* States with 1 RSSS positive goat; samples collected November 2014, July 2018, and June 2019
Scrapie Free Flock Certification Program (SFCP): Participating Flocks and Herds*

* As of August 31, 2022

(Figure 2)
SFCP Participating Flocks Based on Status Date

*FY 2007 to FY 2022*

* As of August 31, 2022. Represents the cumulative change in SFCP enrollment over time, and includes open and closed statuses/programs, and active and inactive flocks/herds. Chart is based on current or last status date; many participating flocks were grandfathered into Export program in 2013 with earlier status date.
Total Breeding Adult Sheep and Goat Populations by District*


** Does not include sheep and goats residing on the Navajo Nation.
Total RSSS Samples Collected by District

FY 2022*

* As of August 31, 2022
Total RSSS Samples Collected by State

FY 2022*

* As of August 31, 2022

(Figure 4)
Comparison by Month of RSSS Samples Collected in FY 2022* to Average of FY 2016 – FY 2021

* As of August 31, 2022.
Cumulative Number of Animals Sampled by Month

FY 2022*

* As of August 31, 2022.
RSSS & On-Farm Surveillance Sampling by Species

FY 2022*

RSSS

19,536 Total

67%

33%

On Farm

1,364 Total

53%

47%

* As of August 31, 2022.

(Chart 8)
RSSS and On-Farm Surveillance Testing by Species

FY 2022*

* As of August 31, 2022.

(Chart 9)
### RSSS and On-Farm Surveillance Testing by Species

**FY 2022***

<table>
<thead>
<tr>
<th>Species</th>
<th>Type</th>
<th>&lt;2 Years</th>
<th>2 to &lt;6 Years</th>
<th>6+ Years</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goat</td>
<td>Dairy</td>
<td>59</td>
<td>2,157</td>
<td>48</td>
<td>2,264</td>
</tr>
<tr>
<td></td>
<td>Fiber</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Meat</td>
<td>386</td>
<td>2,448</td>
<td>131</td>
<td>2,965</td>
</tr>
<tr>
<td></td>
<td>Multipurpose</td>
<td>80</td>
<td>1,400</td>
<td>58</td>
<td>1,538</td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
<td>31</td>
<td>317</td>
<td>2</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>558</td>
<td>6,325</td>
<td>241</td>
<td>7,124</td>
</tr>
<tr>
<td>Sheep</td>
<td>Black Face</td>
<td>343</td>
<td>3,696</td>
<td>554</td>
<td>4,593</td>
</tr>
<tr>
<td></td>
<td>Mottled Face, &lt; 1% Black</td>
<td>7</td>
<td>727</td>
<td></td>
<td>734</td>
</tr>
<tr>
<td></td>
<td>Mottled Face, &gt;= 1% Black</td>
<td>86</td>
<td>1,655</td>
<td>21</td>
<td>1,762</td>
</tr>
<tr>
<td></td>
<td>White Face</td>
<td>274</td>
<td>4,208</td>
<td>327</td>
<td>4,809</td>
</tr>
<tr>
<td></td>
<td>Other Sheep</td>
<td>220</td>
<td>1,358</td>
<td>112</td>
<td>1,690</td>
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<tr>
<td></td>
<td>Unknown</td>
<td>28</td>
<td>132</td>
<td>28</td>
<td>188</td>
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<tr>
<td></td>
<td><strong>Total</strong></td>
<td>958</td>
<td>11,776</td>
<td>1,042</td>
<td>13,776</td>
</tr>
<tr>
<td></td>
<td><strong>Grand Total</strong></td>
<td>1,516</td>
<td>18,101</td>
<td>1,283</td>
<td>20,900</td>
</tr>
</tbody>
</table>

*As of August 31, 2022. Darker shading represents greater number of animals tested that met targeting criteria.

(Table 1)
FY 2022* Sheep and Goat State Sampling Minimums and State Collections - District 1

* As of August 31, 2022. Note that all surveillance samples may not yet have been credited to the State.

(Table 2)
FY 2022* Sheep and Goat State Sampling Minimums and State Collections - District 2

* As of August 31, 2022. Note that all surveillance samples may not yet have been credited to the State.

### Table 3

<table>
<thead>
<tr>
<th>State</th>
<th>Sheep Total Sampled FY 2022</th>
<th>Sheep Sampling Minimum FY 2022</th>
<th>Goat Total Sampled FY 2022</th>
<th>Goat Sampling Minimum FY 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illinois</td>
<td>270</td>
<td>140</td>
<td>117</td>
<td>82</td>
</tr>
<tr>
<td>Indiana</td>
<td>453</td>
<td>246</td>
<td>110</td>
<td>120</td>
</tr>
<tr>
<td>Iowa</td>
<td>681</td>
<td>360</td>
<td>283</td>
<td>157</td>
</tr>
<tr>
<td>Kentucky</td>
<td>671</td>
<td>140</td>
<td>155</td>
<td>144</td>
</tr>
<tr>
<td>Michigan</td>
<td>469</td>
<td>282</td>
<td>28</td>
<td>69</td>
</tr>
<tr>
<td>Minnesota</td>
<td>358</td>
<td>256</td>
<td>168</td>
<td>93</td>
</tr>
<tr>
<td>North Dakota</td>
<td>491</td>
<td>172</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>Ohio</td>
<td>503</td>
<td>456</td>
<td>122</td>
<td>130</td>
</tr>
<tr>
<td>South Dakota</td>
<td>1022</td>
<td>612</td>
<td>55</td>
<td>39</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>204</td>
<td>312</td>
<td>410</td>
<td>224</td>
</tr>
</tbody>
</table>

(Table 3)
FY 2022* Sheep and Goat State Sampling Minimums and State Collections - District 3

* As of August 31, 2022. Note that all surveillance samples may not yet have been credited to the State.
FY 2022* Sheep and Goat State Sampling Minimums and State Collections - District 4

* As of August 31, 2022. Note that all surveillance samples may not yet have been credited to the State.
Percent of Sampling Minimum Achieved in FY 2022* - RSSS and On-farm Surveillance Sheep

* As of August 31, 2022. Percentage of sampling minimum achieved is based on 92% of the annual sampling minimum.

(Figure 6)
Percent of Sampling Minimum Achieved in FY 2022* - RSSS and On-farm Surveillance Goats

* As of August 31, 2022. Percentage of sampling minimum achieved is based on 92% of the annual sampling minimum.

(Figure 7)