



National Scrapie Eradication Program

Fiscal Year 2012 Report

October 1, 2011 to September 30, 2012

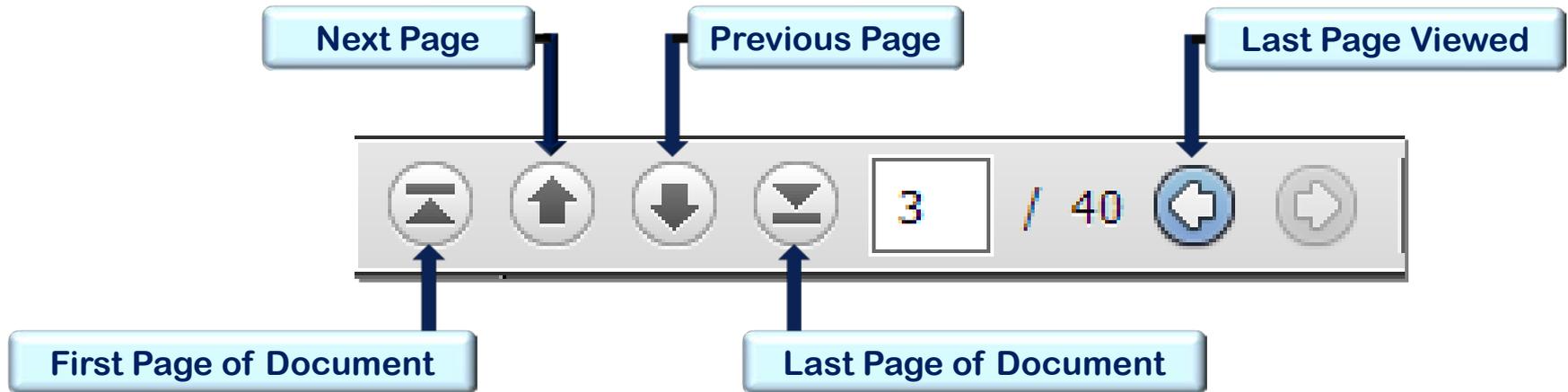
United States Department of Agriculture
Animal Plant Health Inspection Service
Veterinary Services
National Center for Animal Health Programs
Ruminant Health Programs

Prepared December 21, 2012



A Note on Navigation

This presentation has hyperlinks for navigation. Text in [blue](#) is a hyperlink to the slide or website being discussed. Additionally, the Adobe navigation bar has been activated to help readers move through this document with greater freedom. The navigation bar is located along the upper left hand border of the page. Below is a description of the action of each button activated on the navigation bar.



Introduction

The National Scrapie Eradication Program focuses on seven primary areas:

- Education and prevention
- Animal identification and compliance
- Surveillance [Regulatory Scrapie Slaughter Surveillance (RSSS) and on-farm]
- Tracing and testing positive and exposed animals
- Cleanup of infected and source flocks through genetic susceptibility testing and indemnification of susceptible exposed animals
- Monitoring of previously infected and exposed flocks
- The Scrapie Free Flock Certification Program (SFCP)

Program Successes

The National Scrapie Eradication Program continued to make excellent progress in FY 2012. In FY 2012, the percent of cull sheep found positive at slaughter, adjusted for face color, decreased to 0.0057 percent ([Chart 1](#)). This measure of prevalence has decreased 96.2 percent since slaughter surveillance started in FY 2003 and 24.7 percent since FY 2011. There was also a 47% decrease in the number of infected and source flocks identified during FY 2012 compared to FY 2011. ([Chart 2](#))

National Scrapie Surveillance Plan

In FY 2010, APHIS updated its National Scrapie Surveillance Plan to include sampling minimums for sheep based on their state-of-origin to ensure adequate geographical representation to document scrapie freedom. It also outlines the proposed approach to conducting ongoing slaughter surveillance in nonclinical goats. The plan can be viewed and downloaded at the following address:

http://www.aphis.usda.gov/animal_health/animal_diseases/scrapie/downloads/national_scrapie_surv_plan.pdf

The percentage of the sampling minimum achieved by each state is depicted in **Figure 1**; a State's percentage is based on the total number of sheep and goats sampled through Regulatory Scrapie Slaughter Surveillance (RSSS) and on-farm surveillance. Sampling minimums are based on the number of breeding sheep in each state. Calculation of the sampling minimums is described in the surveillance plan.

Regulatory Scrapie Slaughter Surveillance (RSSS)

RSSS started April 1, 2003. It is a targeted slaughter surveillance program which is designed to identify infected flocks. Samples have been collected from 354,864 animals since April 1, 2003. There have been 461 NVSL confirmed positive animals (453 classical cases and 8 Nor98-like cases) since the beginning of RSSS. In FY 2012, 40,792 samples were collected at 163 sites in 37 states; 3,610 of these samples were collected from targeted goats. Collection site locations and the states that comprise the Eastern and Western Regions are shown in [Figure 2](#). The number of RSSS samples collected for FY 2012 by month and by region where collected is shown in [Chart 3](#). A monthly comparison of RSSS collections by fiscal year is displayed in [Chart 4](#). [Chart 5](#) depicts RSSS collections by region of collection and by region of eartag origination from FY 2003 through FY 2012. Percent of RSSS samples collected by face color and species from FY 2003 through FY 2012 is plotted in [Chart 6](#). The map in [Figure 3](#) shows RSSS sampling by state of collection; [Figure 4](#) shows RSSS sampling by state of origination (application).

Six RSSS cases tested positive for scrapie in FY 2012 [5 black-faced and 1 mottled-faced sheep (10 – 40% black)]. The distribution of positive cases by state of tag origination (application) is depicted in [Figure 5](#). [Chart 7](#) and [Chart 8](#) show the percent of samples that have tested positive for each face color from FY 2003 through 2012; [Chart 1](#) shows the percent of cull sheep found positive at slaughter and adjusted for face color. Positive animals from the same flock and Nor98-like cases are not included in these charts. A retrospective 6 month rolling average of the percent positive, black-faced sheep sampled at RSSS collections sites is shown in [Chart 9](#). Success in tracing RSSS positive animals to flock of origin is shown in [Chart 10](#). The increase in traceability is not statistically significant due to the small numbers involved.

On-Farm Surveillance

Testing of animals in the field has always been part of scrapie surveillance (regulatory field cases and live-animal testing). As the National Scrapie Eradication Program moves closer towards meeting the goal of identifying the last remaining cases of classical scrapie by 2017, finding and testing all sheep and goats meeting targeted sampling criteria is even more important. In FY 2012, 1,074 sheep and 433 goats were tested through on-farm surveillance. Of those, 5 white-faced sheep (4 Finns and 1 Katahdin) and 10 black-faced sheep tested positive for scrapie. These 15 cases were found as a result of RSSS trace backs and a suspect animal investigation. The number of animals tested on-farm by month and by species for FY 2012 is shown in [Chart 11](#).

Scrapie Testing

In FY 2012, 42,299 animals were sampled for scrapie testing: 40,792 RSSS samples and 1,507 on-farm samples [includes regulatory testing (necropsy and live-animal) and on-farm surveillance]([Chart 12](#)). Distribution of sampling by type (RSSS or on-farm) and by species is shown in [Chart 13](#).

Positive Scrapie Cases

In FY 2012, 21 cases of classical scrapie in sheep were confirmed by the National Veterinary Services Laboratories (NVSL); 6 were Regulatory Scrapie Slaughter Surveillance (RSSS) cases and 15 were field cases (**Table 1** and **Figure 6**). No goats were diagnosed with scrapie in FY 2012. Thirty one cases of scrapie in goats have been confirmed by NVSL since implementation of the regulatory changes in FY 2002 (**Figure 7**). Field cases are positive animals that were tested as part of a disease investigation including potentially exposed, exposed and suspect animals and other animals sampled on-farm.

Infected and Source Flocks

At the beginning of FY 2012, there were 3 flocks with open infected or source statuses (**Table 2** and **Figure 8**). During the year, 7 new source flocks and 1 new infected flocks were reported (**Figure 9**) and 8 flocks completed a clean-up plan and were released (**Figure 10**). As of September 30, 2012, 3 scrapie infected and source flocks had open statuses (**Figure 11**). The ratio of infected and source flocks released to newly identified infected and source flocks for FY 2012 = 1 : 1. New infected and source statuses from FY 1997 to FY 2012 are shown in **Chart 2**.

Indemnity

Approximately 215 sheep and goats were indemnified in FY 2011. A breakdown by species and registration status is depicted on **Chart 14**. The average cost for indemnity and disposal was approximately \$311 per animal.

Scrapie Flock Certification Program

At the end of the FY, there were 1,316 flocks enrolled in the SFCP—688 complete monitored, 560 certified, 51 export monitored, 10 export certified, and 7 selective monitored (**Figure 12**). SFCP open statuses by fiscal year from FY 1997 to FY 2012 are depicted in **Chart 15**.

Sheep and Goat Premises in Scrapie Database Compared to NASS 2007 Census Data

Figure 13 and **Figure 14** are maps showing the percent of sheep and goat flocks/herds by state that have been assigned premises/flock identification numbers in the scrapie database.

RSSS Genotyping Study

In 2002-2003, VS assessed the genotype frequency of U.S. sheep as part of the Scrapie Ovine Slaughter Surveillance (SOSS) study. Between 2010 and 2011, VS again assessed the genotype frequency of U.S. sheep to determine if there has been a measurable shift in the scrapie genetic susceptibility of the US sheep population. Overall, the study indicates that the percentage of genetically resistant sheep (171 RR) has increased and the percentage of genetically susceptible sheep (171 QQ) has decreased in the past 8 years. In 2013, VS intends to publish a full analysis of the results.

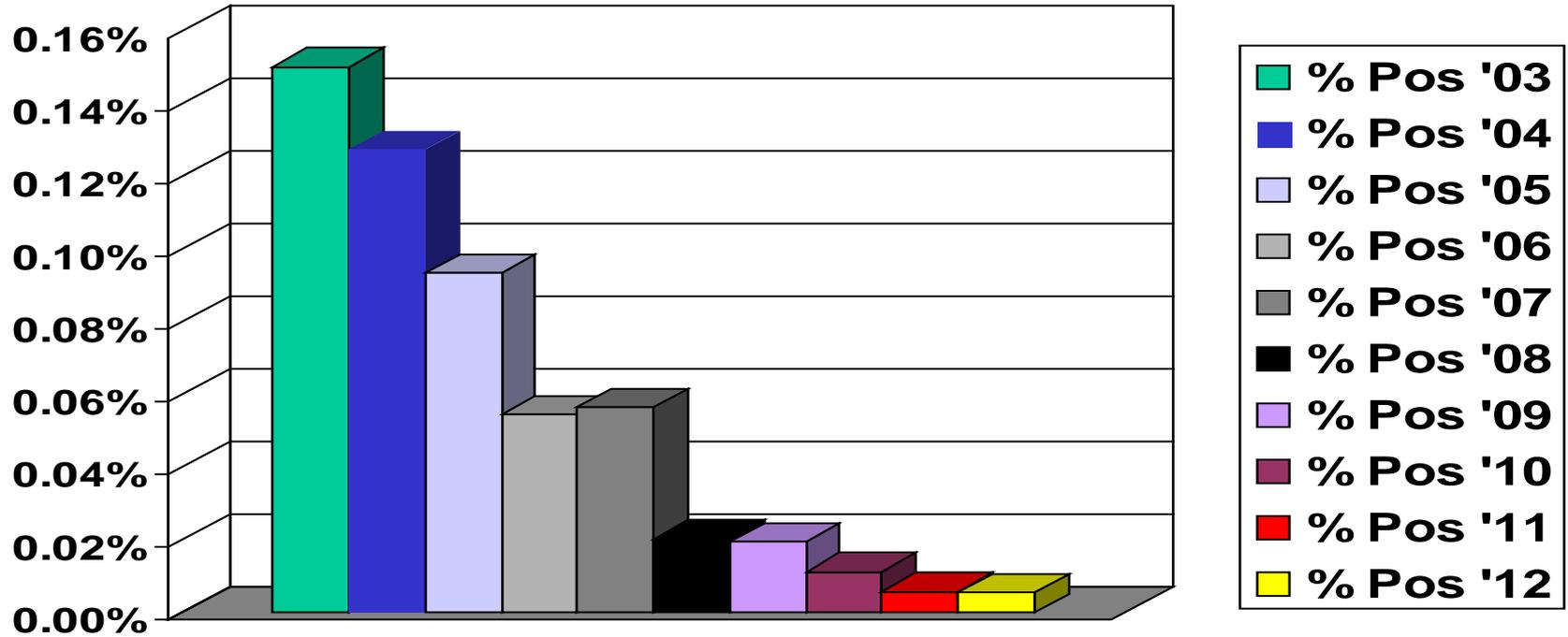
This report is based on data available in the database and test results reported at the time final year-end reports were generated. As a result this report is not identical to the September 2012 monthly report since it contains updates to data not available at the time the monthly report was generated. RSSS positives are reported based on collection date and may have been confirmed after September 30, 2012.



Percent of RSSS Samples that Tested Positive for Classical Scrapie

Weighted by Face Color

Fiscal Year (2003 – 2012)



(Chart 1)

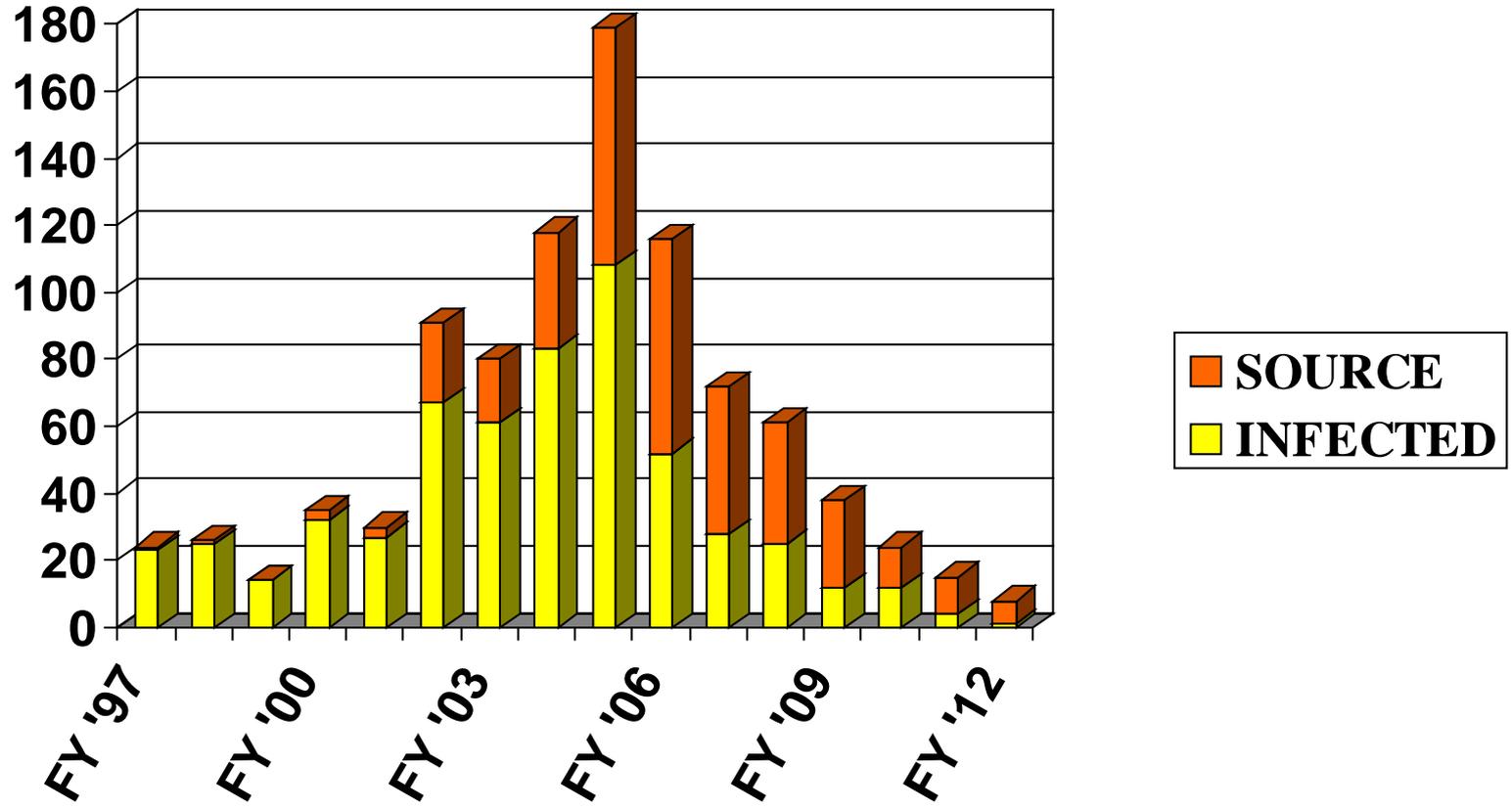
Adjusted to exclude multiple positive animals from the same flock. Does not include Nor98-like scrapie cases found through RSSS (2 in FY 2007, 1 in FY 2008, 4 in FY 2010, 1 in FY 2011).



Infected and Source Flocks

New Statuses by Year

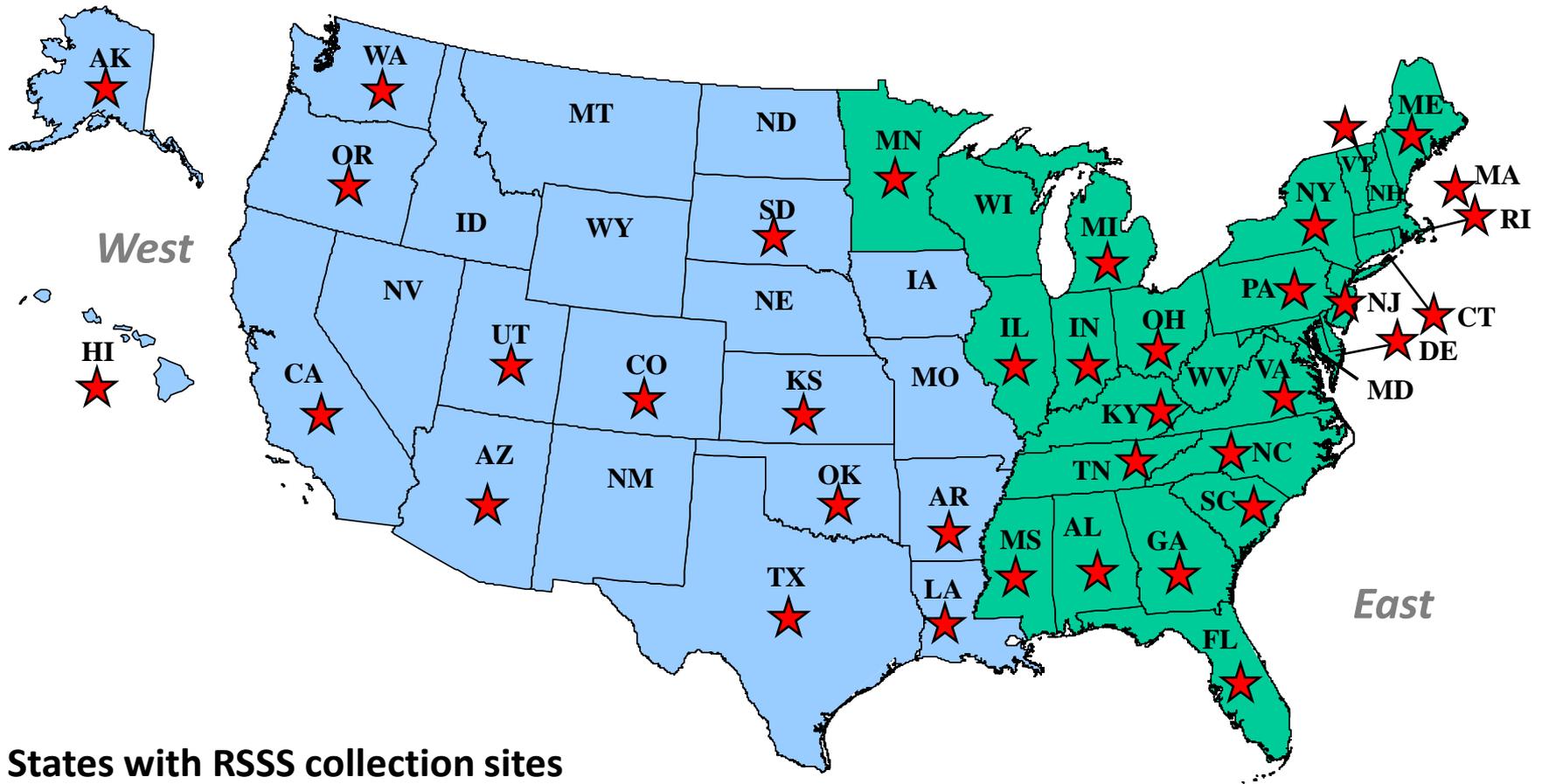
FY 1997 – FY 2012



(Chart 2)

RSSS Sample Collections FY 2012

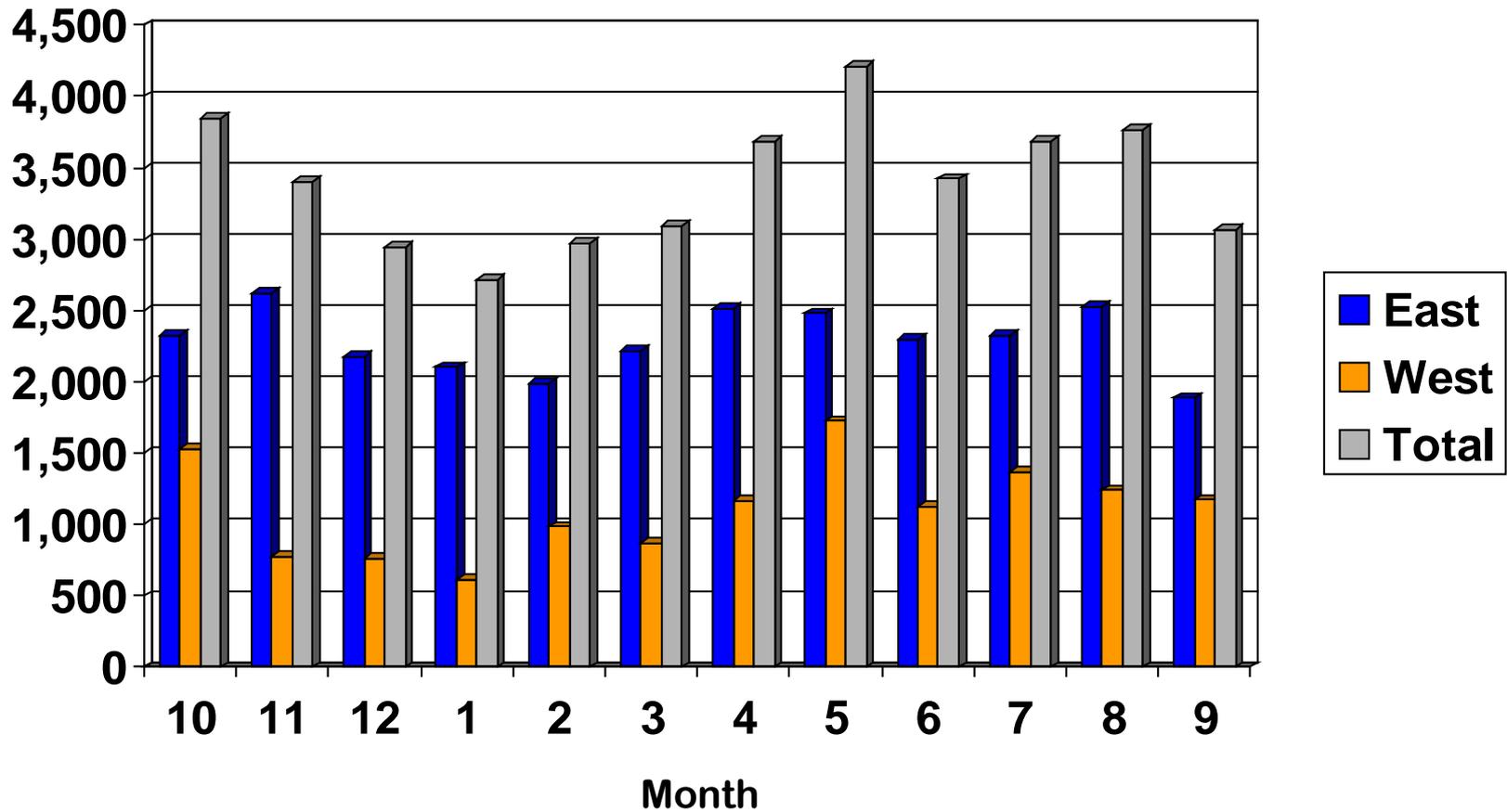
163 collection sites in 37 states & sent to 15 laboratories



(Figure 2)



Slaughter Surveillance Samples Collected by Month, VS Region Where Collected, and Total *FY 2012*



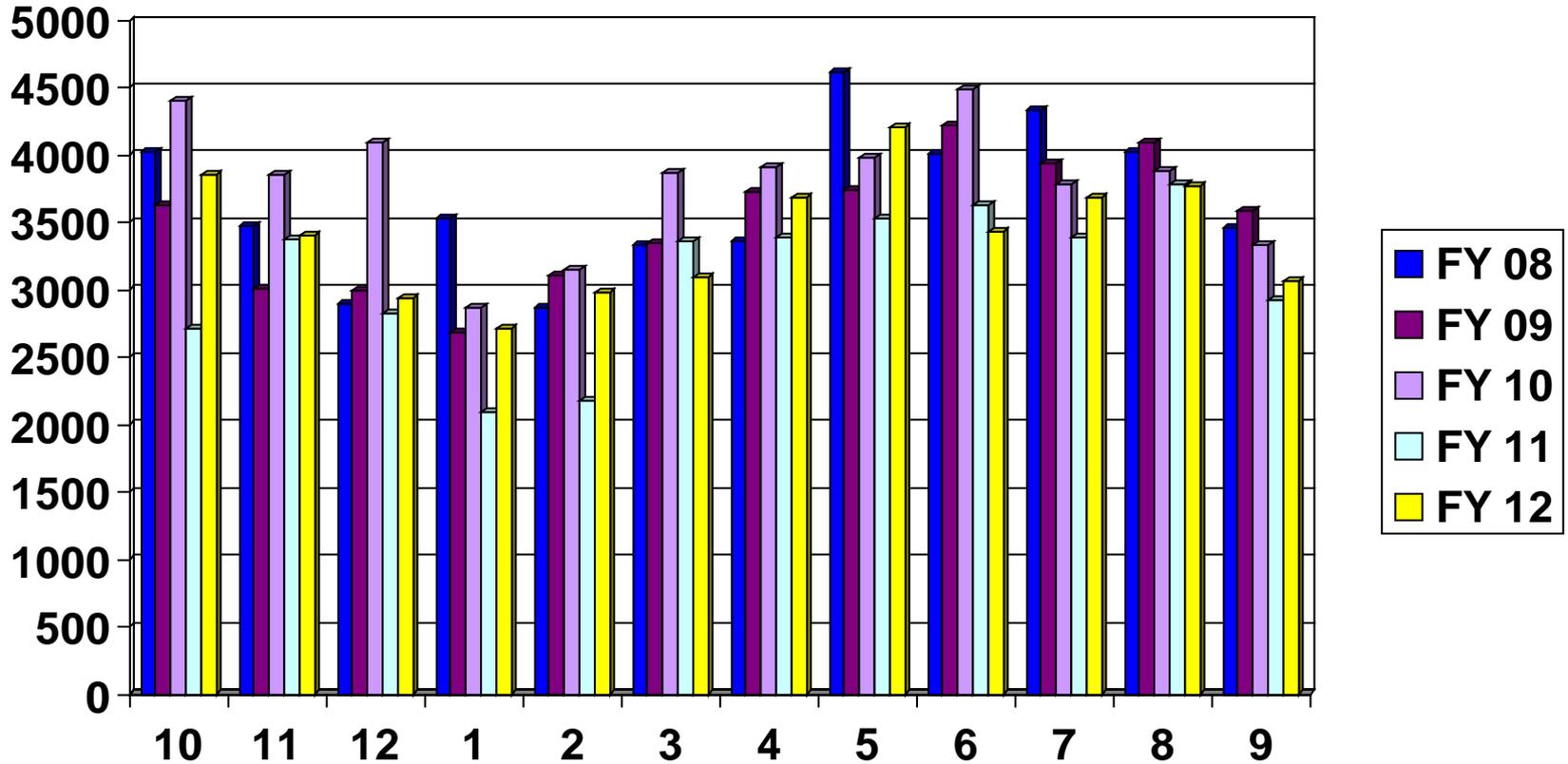
(Chart 3)

Slaughter Surveillance Samples Collected



by Month

Fiscal Years 2008 to 2012



Month

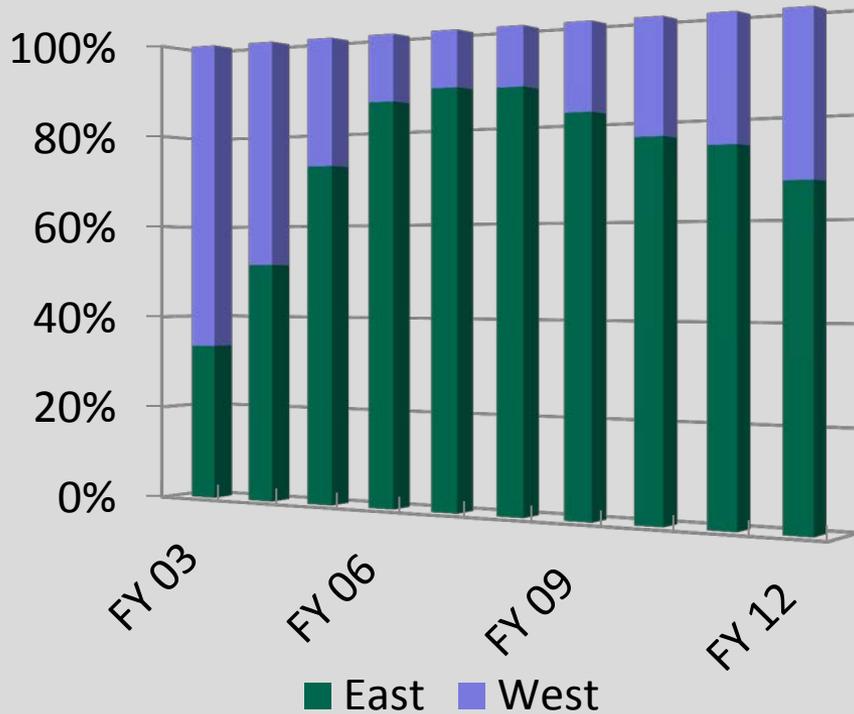
(Chart 4)



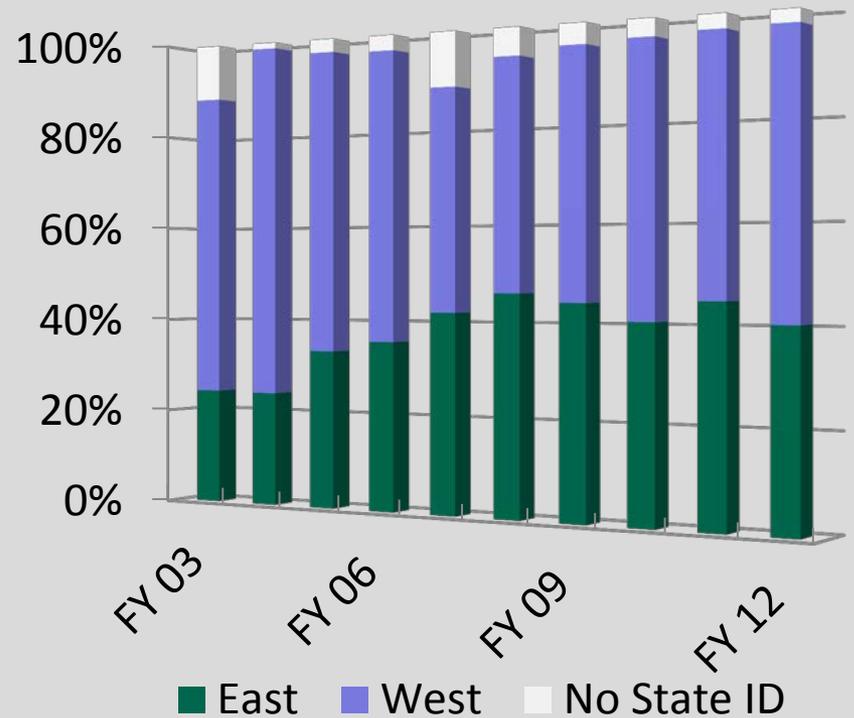
Percent RSSS Samples

FY 2003-2012

By Region of Sample Collection



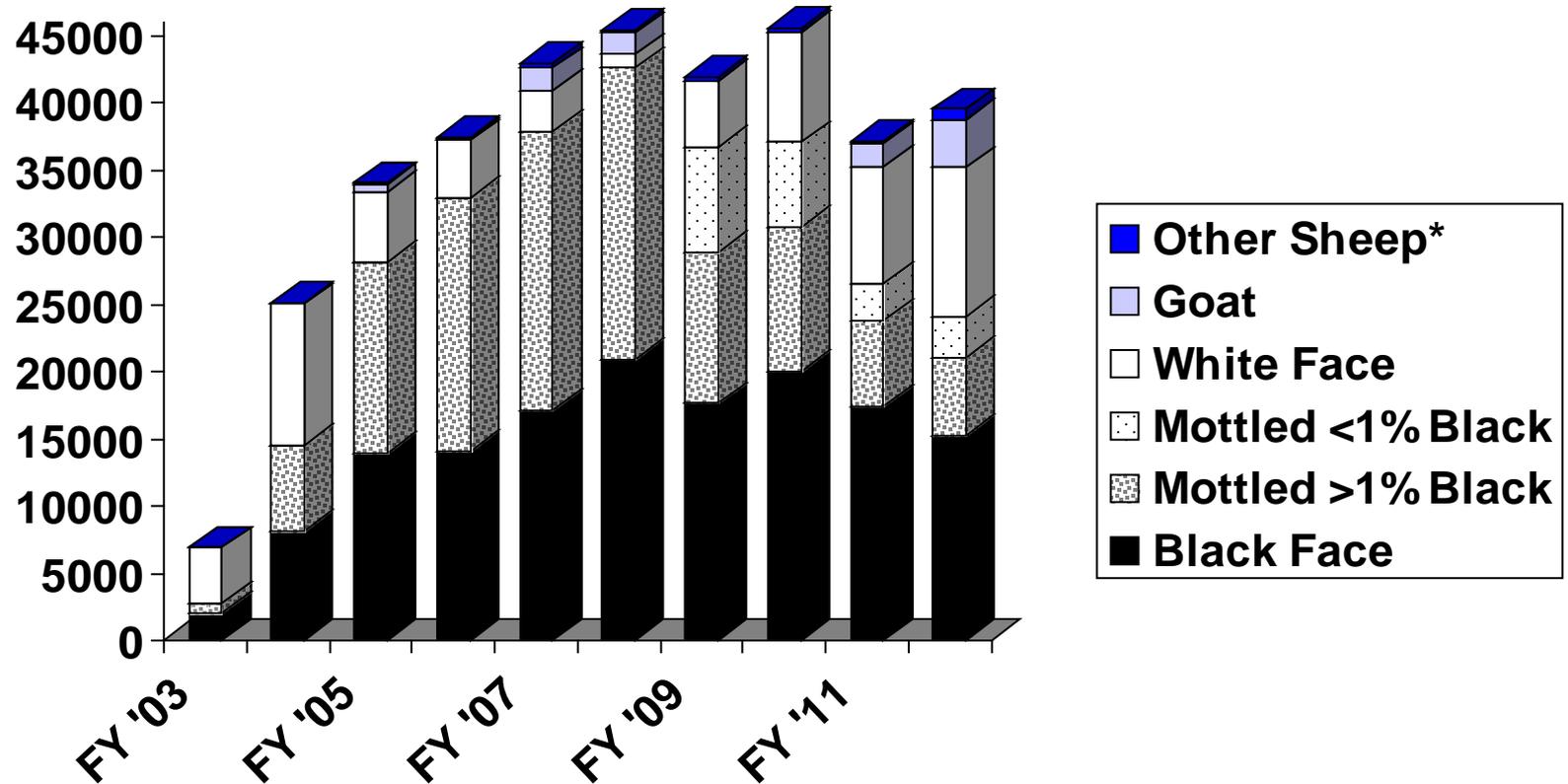
By Region of Eartag Origination



(Chart 5)

Surveillance Samples Collected at Slaughter

FY 2003-2012



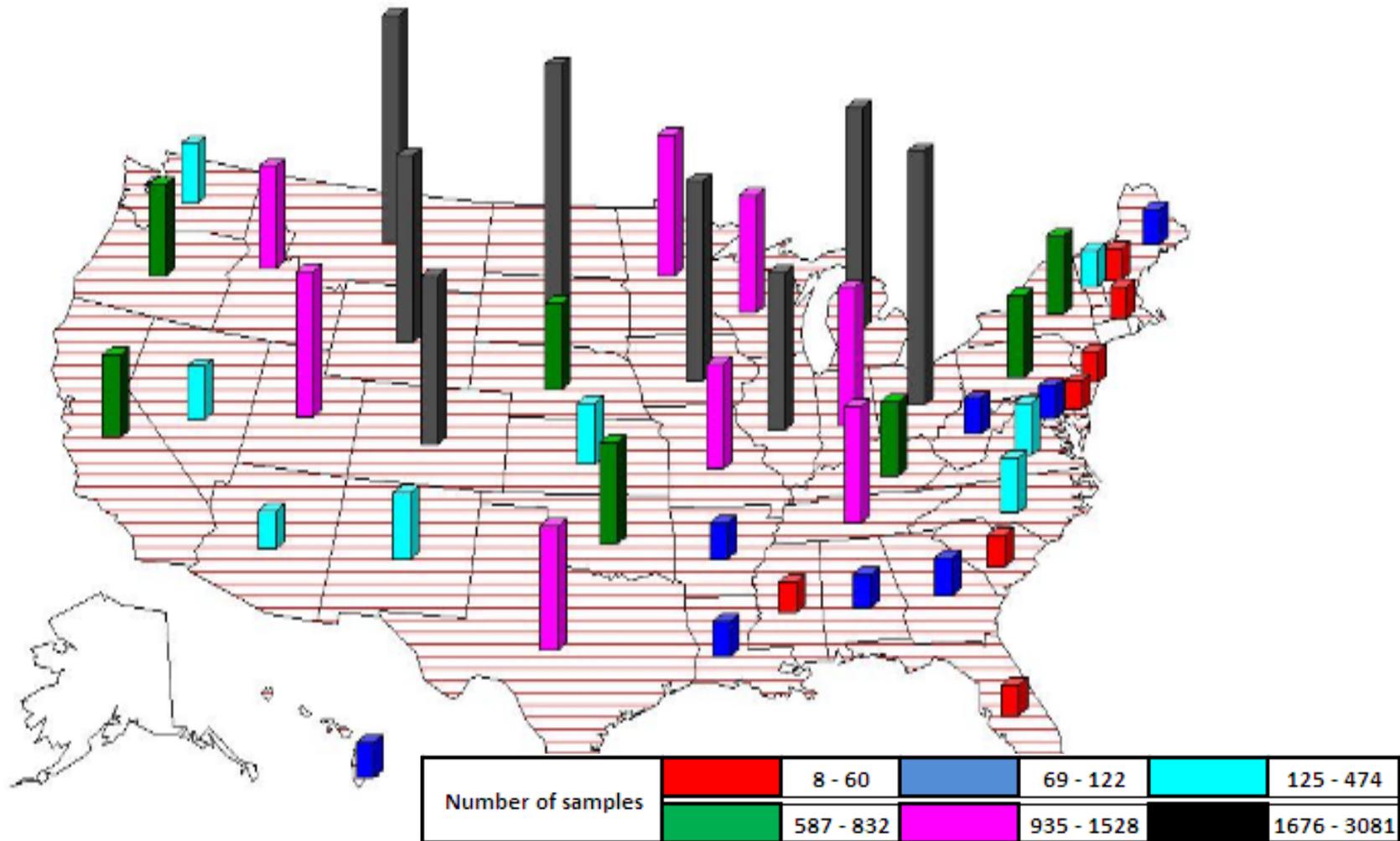
(Chart 6)

* Other Sheep: Hair sheep, and those with gray, red, brown, or unknown face color.

Regulatory Scrapie Slaughter Surveillance



Number of Samples Collected, FY 2012
BY STATE OF TAG ORIGINATION

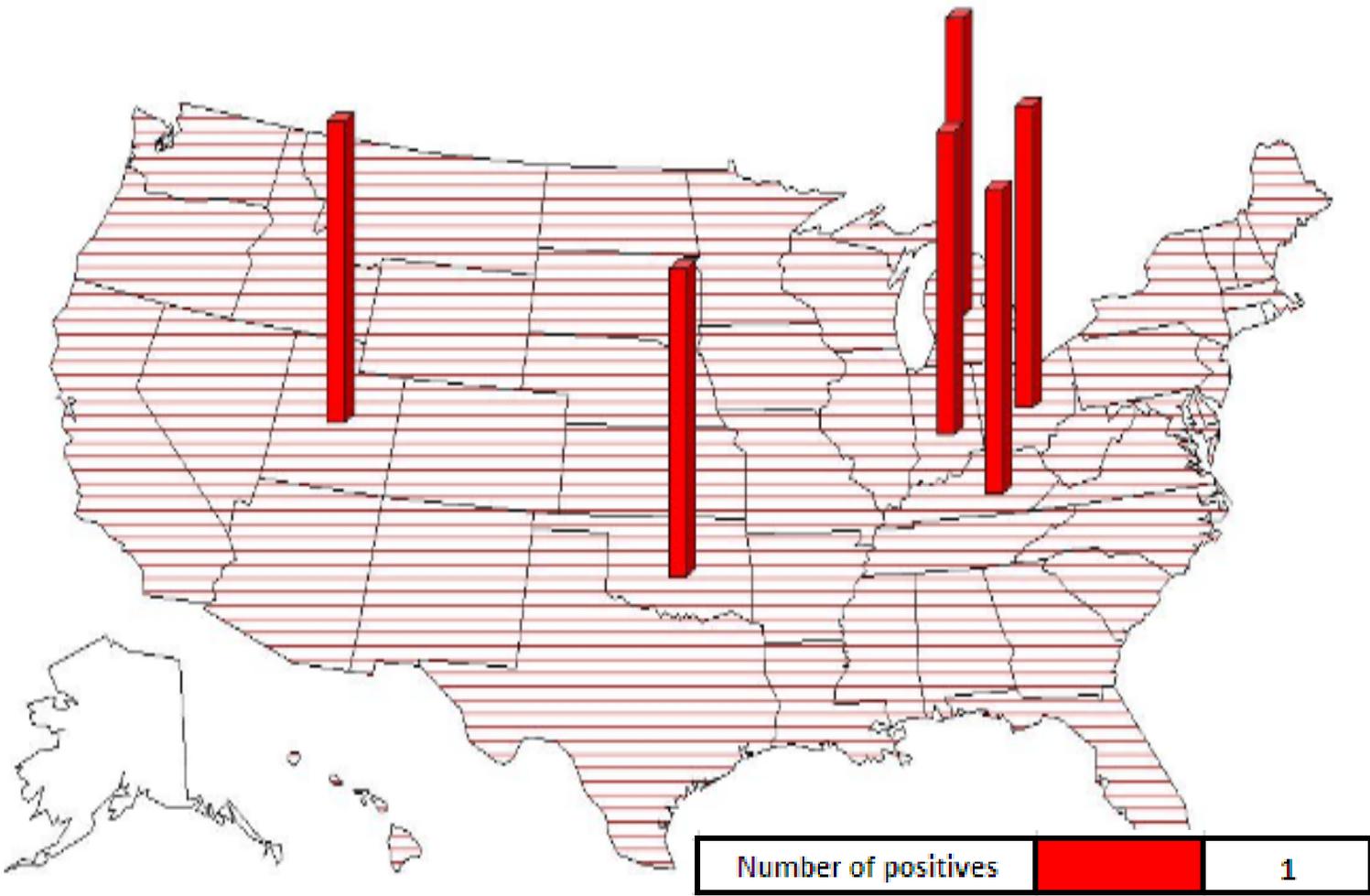


(Figure 4)

Regulatory Scrapie Slaughter Surveillance

Number of Positive Samples, FY 2012

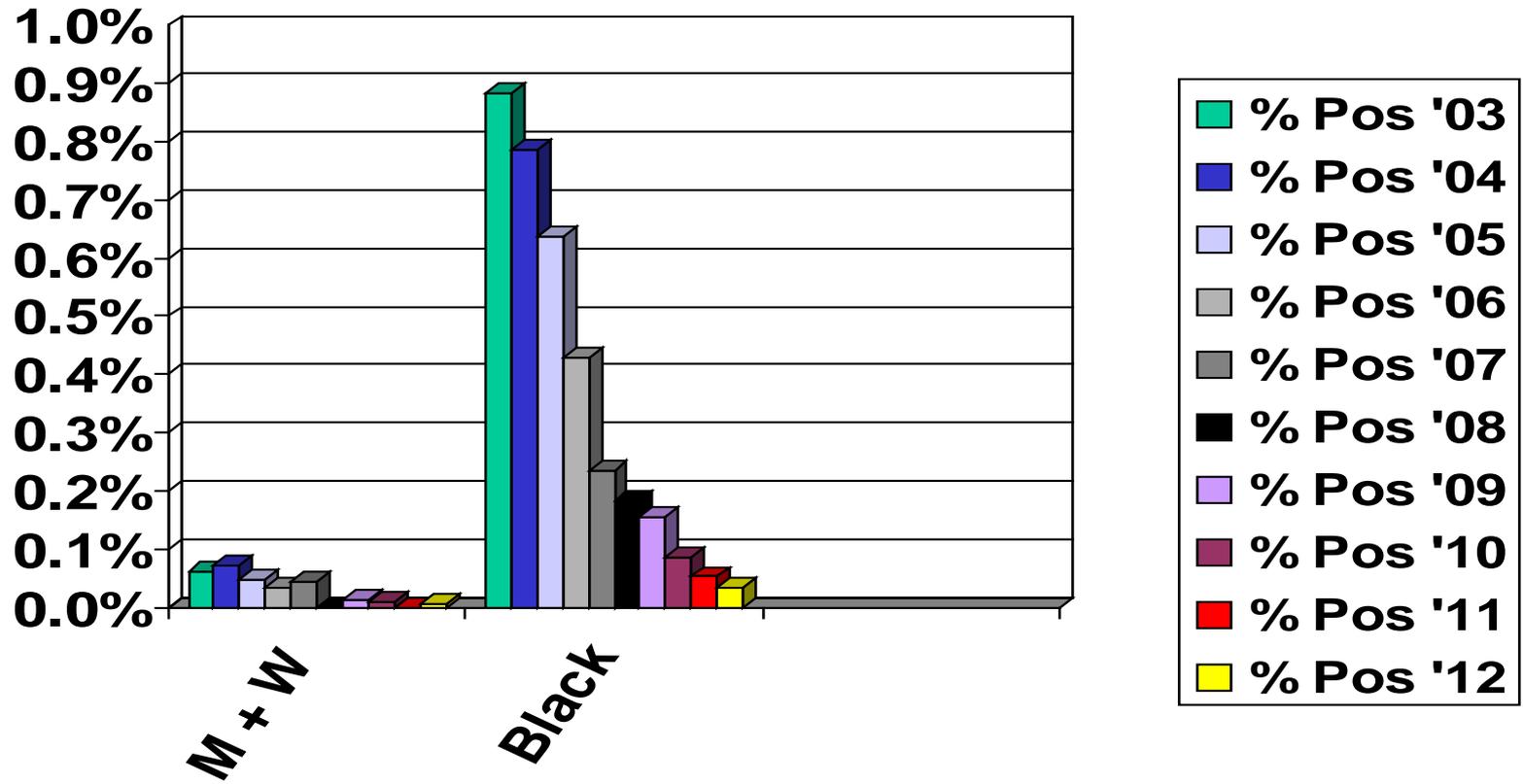
BY STATE OF TAG ORIGINATION



(Figure 5)



Percent of RSSS Samples that Tested Positive for Classical Scrapie by Face Color during each Fiscal Year (2003 – 2012)

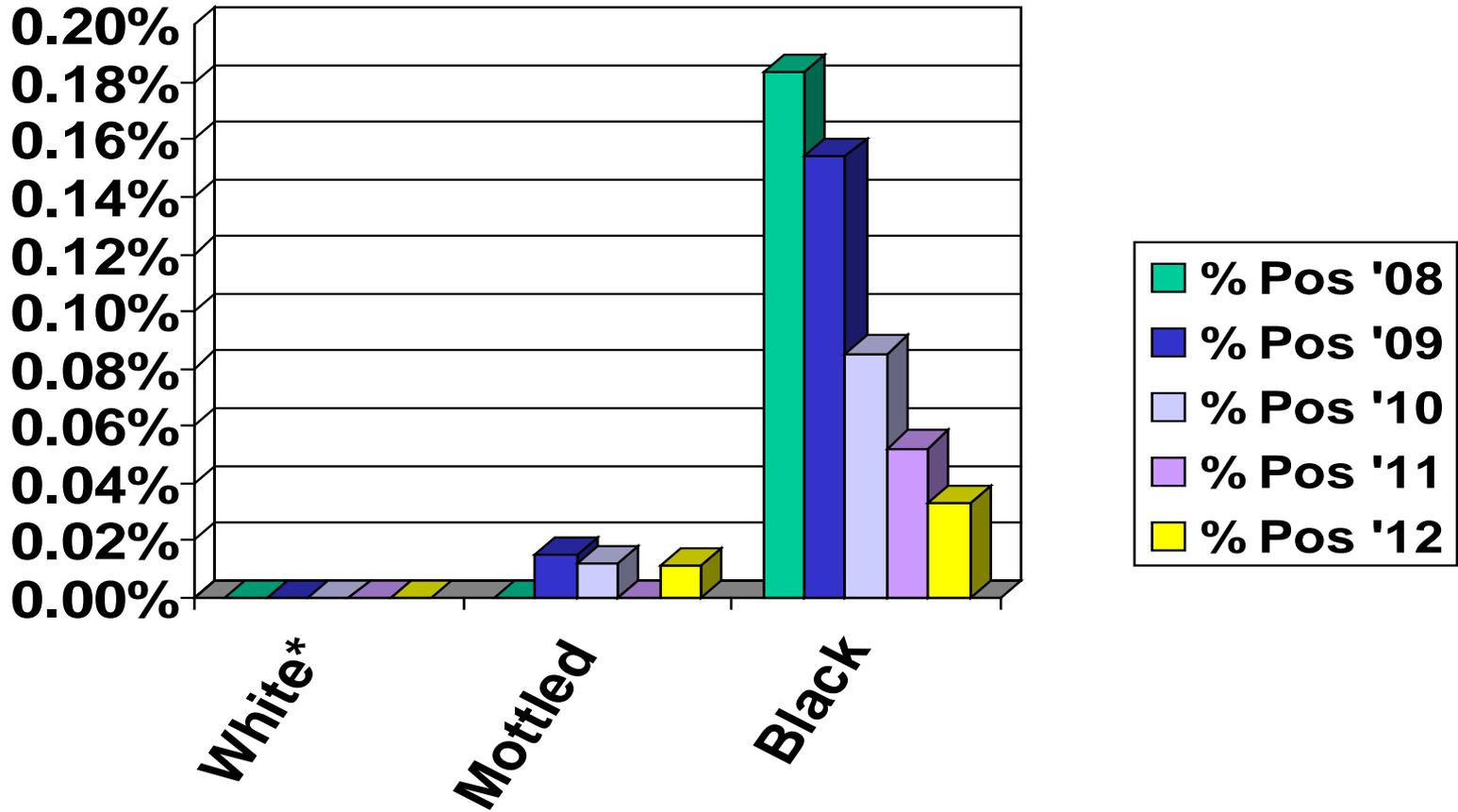


(Chart 7)

Adjusted to exclude multiple positive animals from same flock. Mottled and white-faced combined. Does not include Nor98-like scrapie cases found through RSSS (2 in FY 2007, 1 in FY 2008, 4 in FY 2010 and 1 in FY 2011).



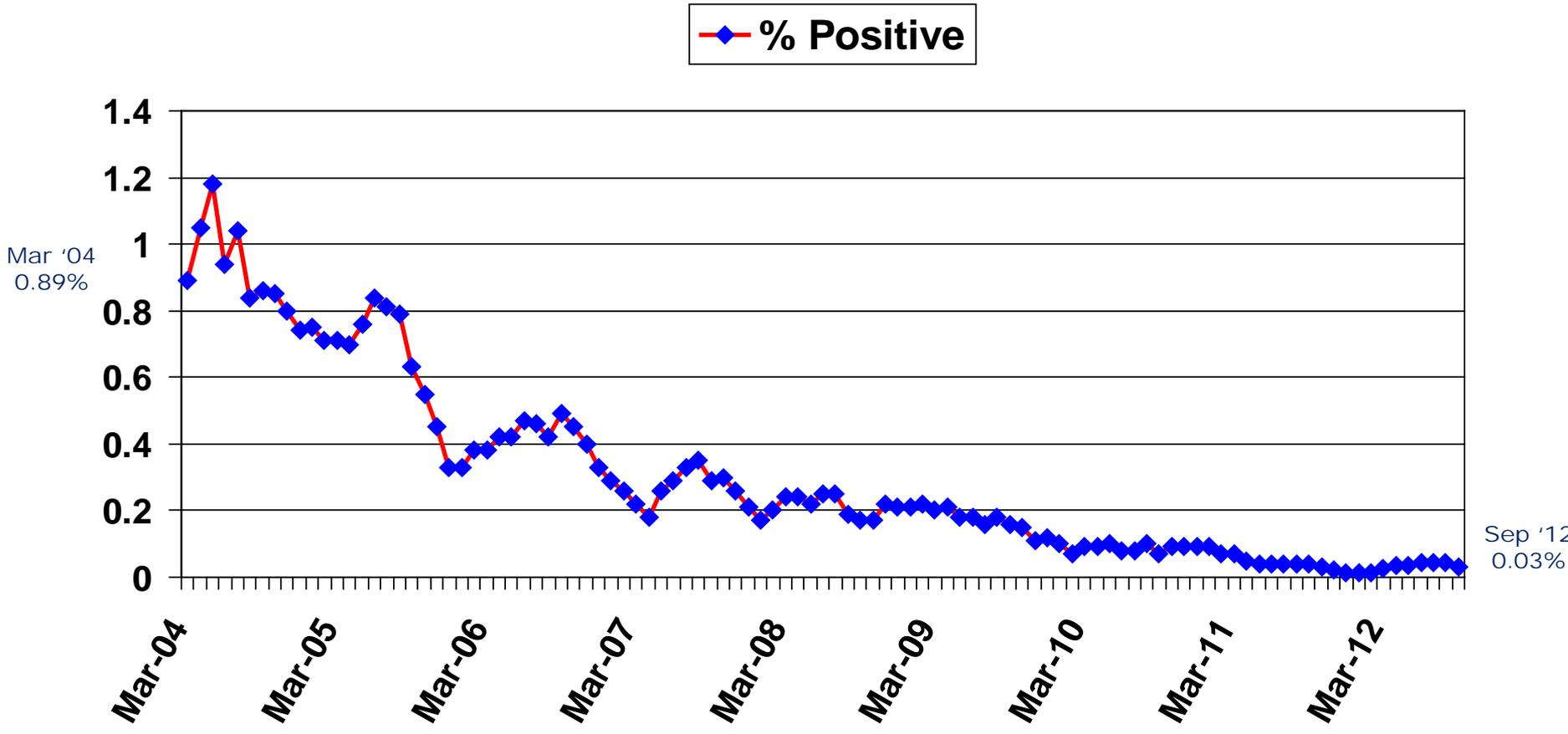
Percent of RSSS Samples that Tested Positive for Classical Scrapie by Face Color during each Fiscal Year (2008 – 2012)



(Chart 8)

*White includes sheep with < 1% black on the face.

Retrospective 6 Month Rolling Average of Percent Classical Scrapie Positive Black-Faced Cull Sheep Sampled at Slaughter *



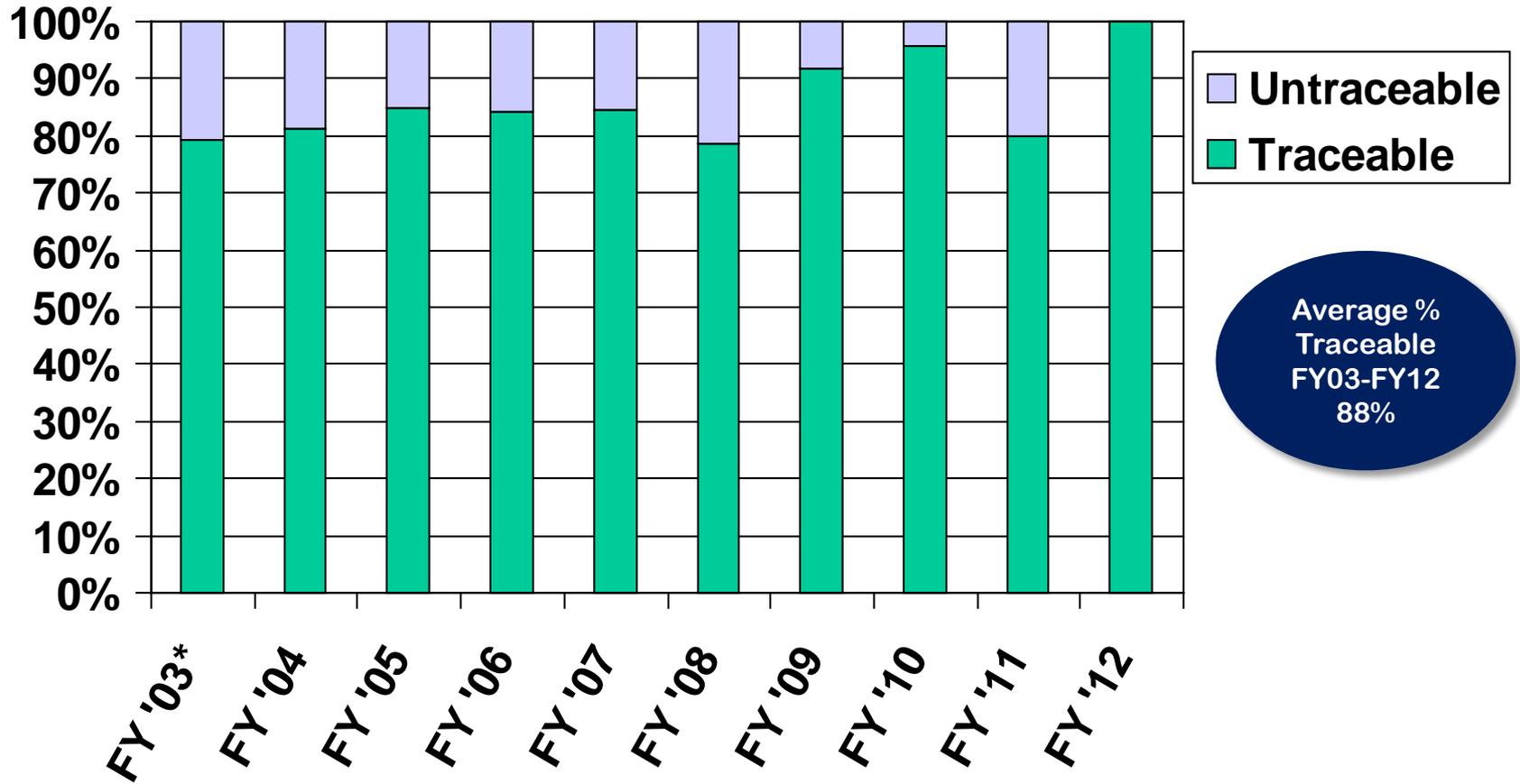
(Chart 9)

* Through September 30, 2012. Includes only sheep with test results reported. Includes multiple positives from same flock.



Investigations of RSSS Positive Animals

FY 2003 – FY 2012

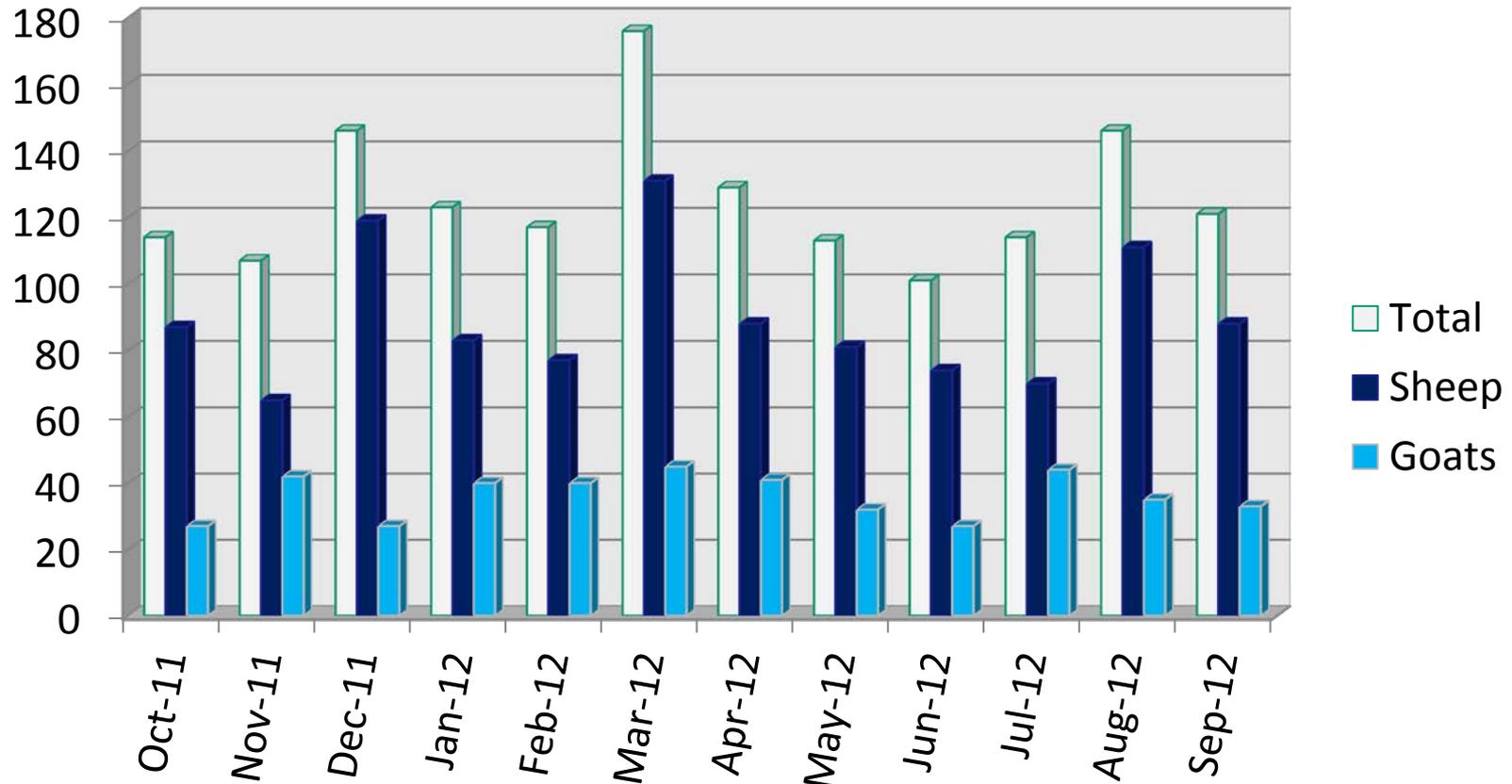


(Chart 10)

* April – September, 2003



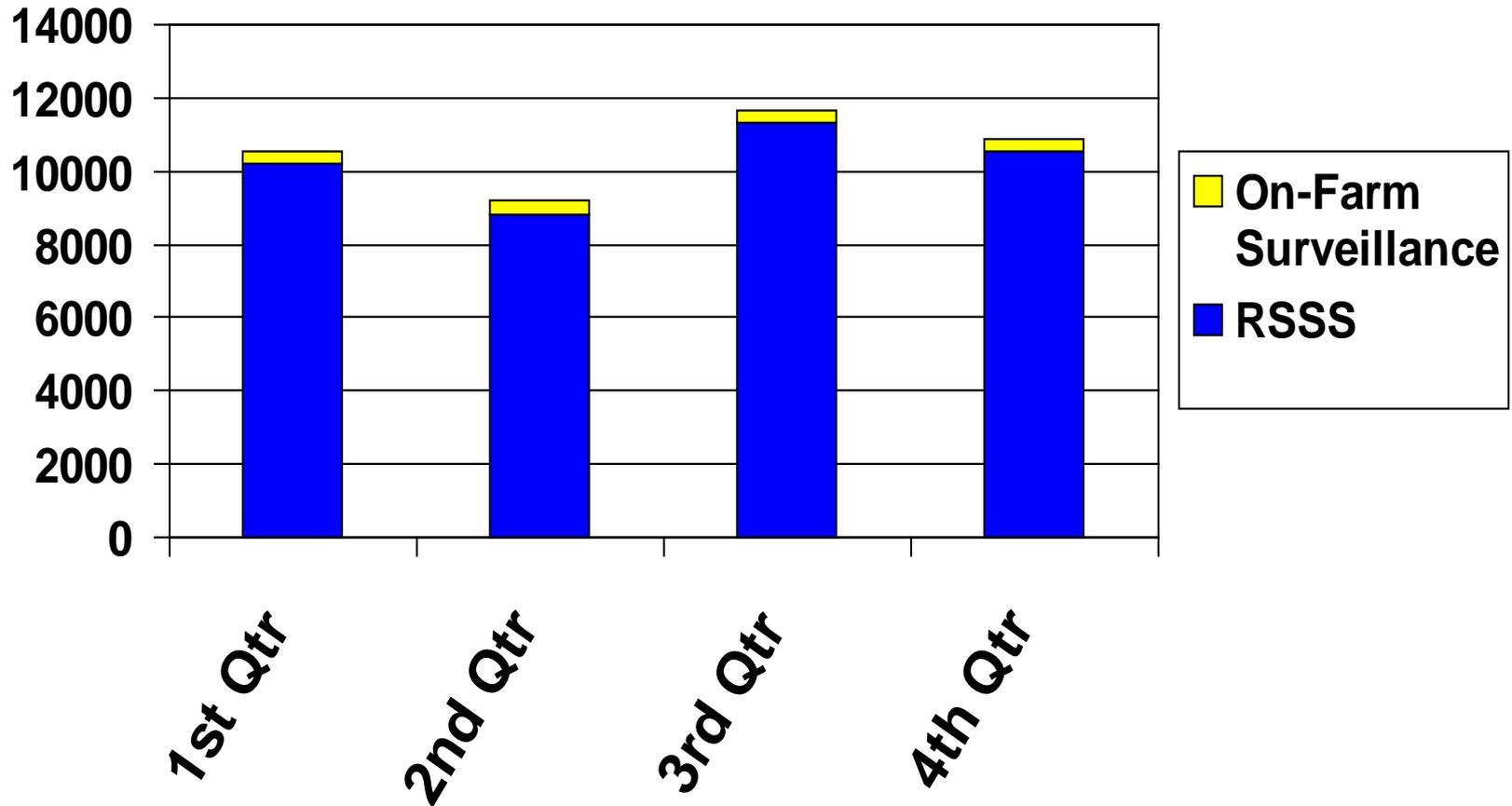
On-Farm Surveillance Testing by Month and Species—FY 2012



(Chart 11)



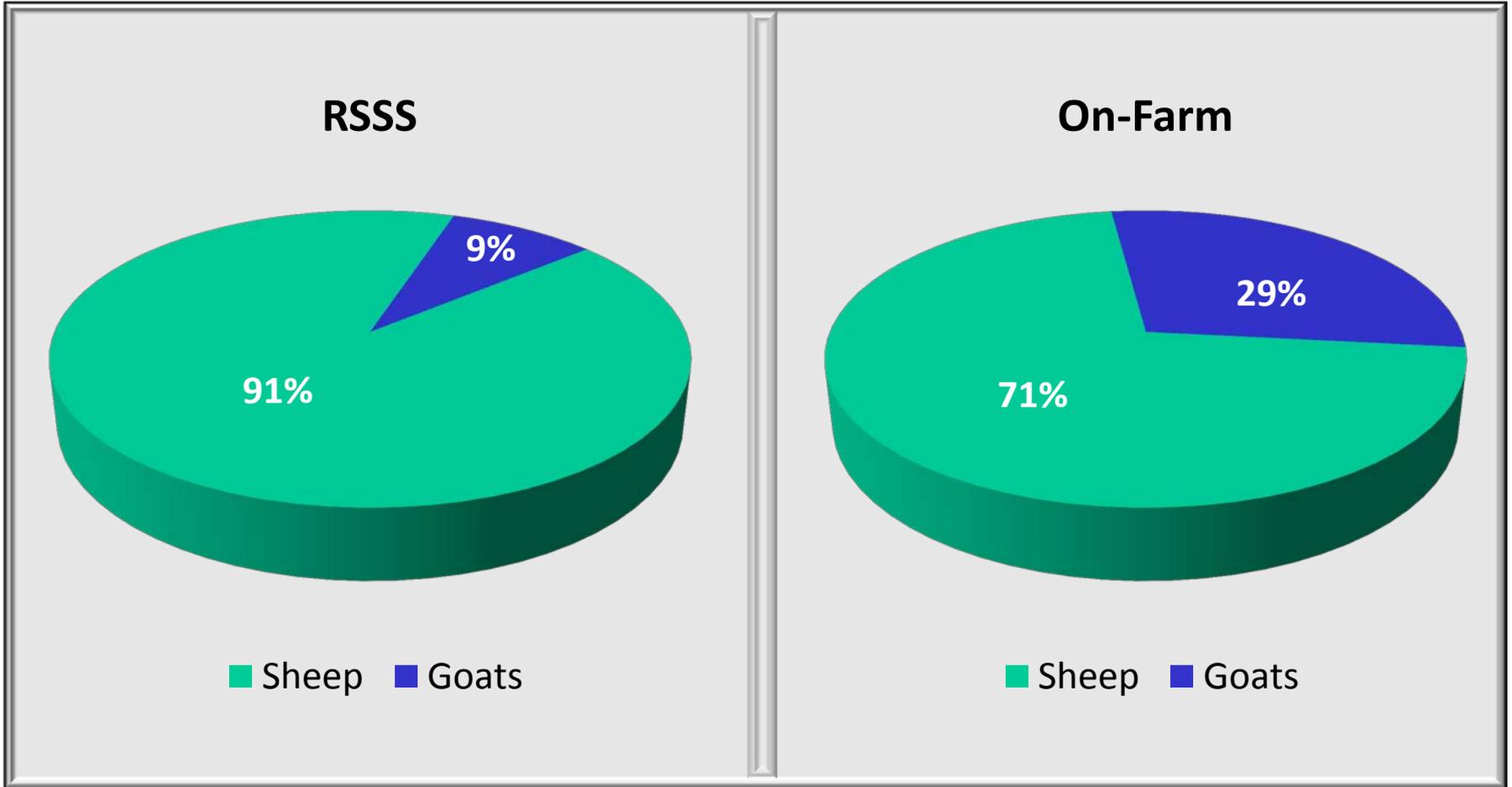
Number of Animals Sampled for Scrapie Testing by Quarter—FY 2012



(Chart 12)



RSSS and On-Farm Surveillance Testing by Species—FY 2012



(Chart 13)



Classical Scrapie

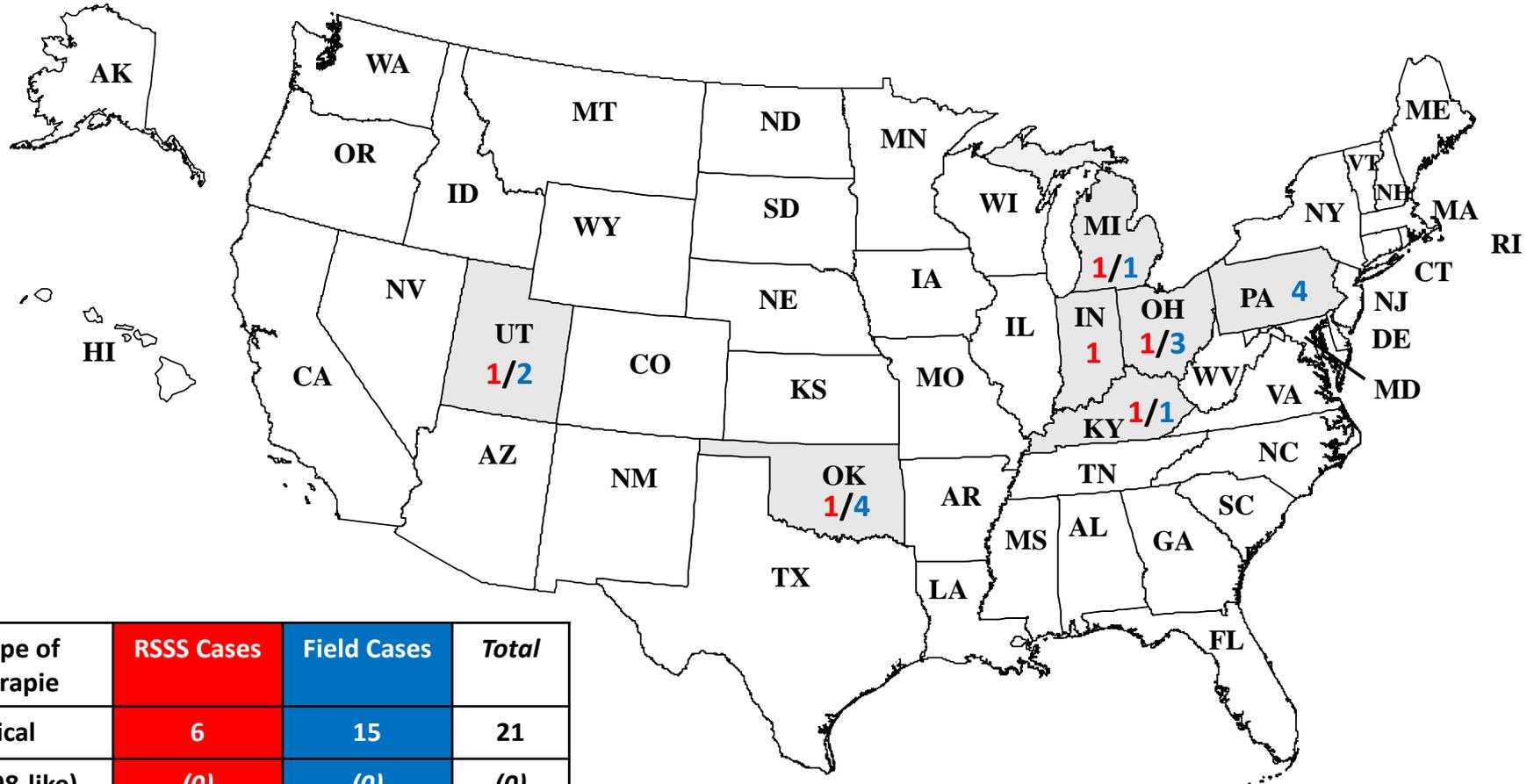
Confirmed Cases in FY 2012

STATE	SHEEP		GOATS	
	<i>RSSS</i>	<i>On-Farm</i>	<i>RSSS</i>	<i>On-Farm</i>
KY	1	1	0	0
MI	1	1	0	0
IN	1	0	0	0
OH	1	3	0	0
OK	1	4	0	0
PA	0	4	0	0
UT	1	2	0	0
TOTAL ALL STATES	6	15	0	0

No Nor98-like cases reported in FY 2012.

(Table 1)

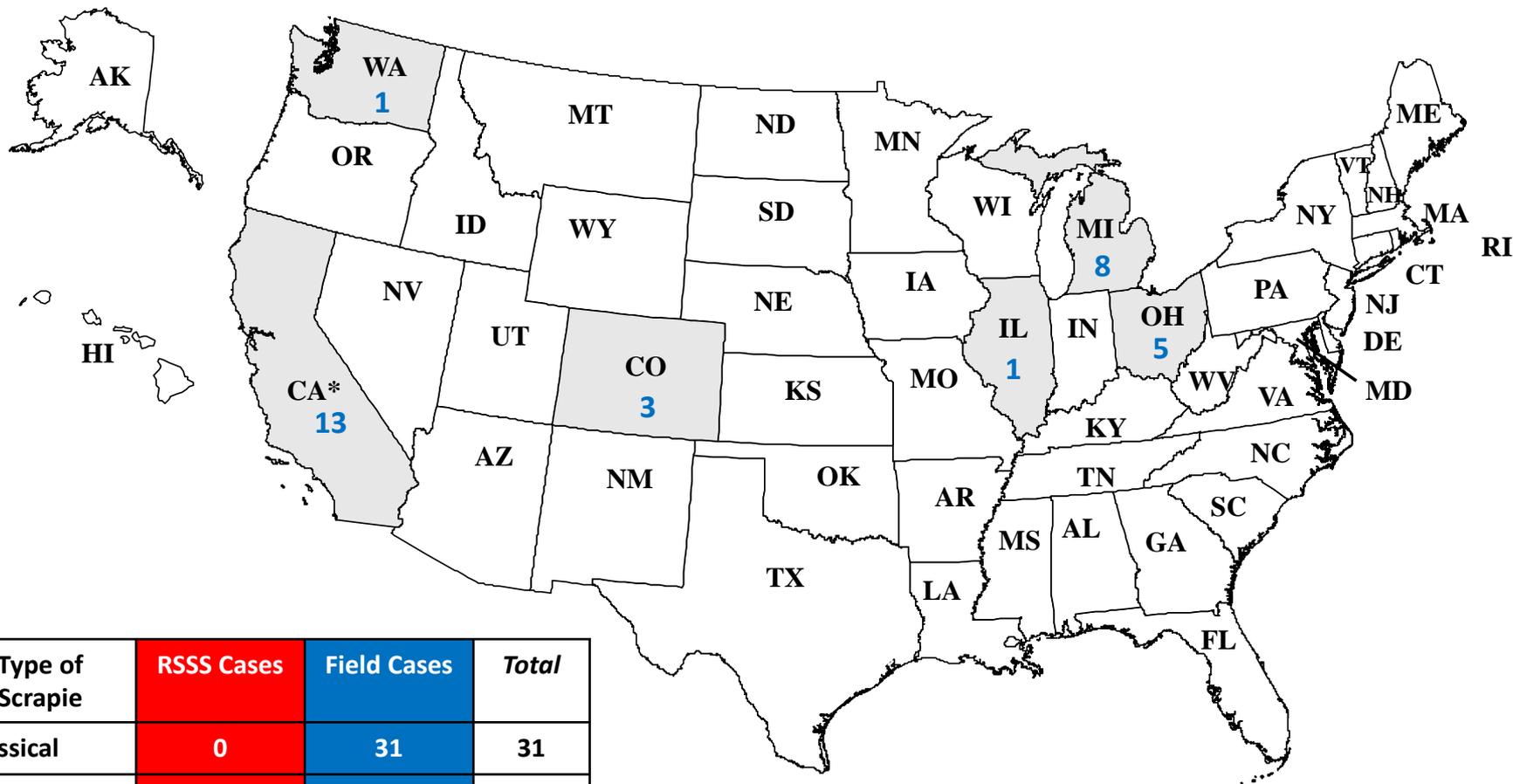
Scrapie Confirmed Cases* in FY 2012



(Figure 6)

*Reported by State of ID tag. Collected in FY 2012 and confirmed by EOY reporting date.
 Note: Field cases include animals removed from infected/source flocks, so state totals often include several animals from the same flock.

Scrapie Cases in Goats FY 2002 – FY 2012



Type of Scrapie	RSSS Cases	Field Cases	Total
Classical	0	31	31
(Nor98-like)	(0)	(0)	(0)
Total	0	31	31

(Figure 7)

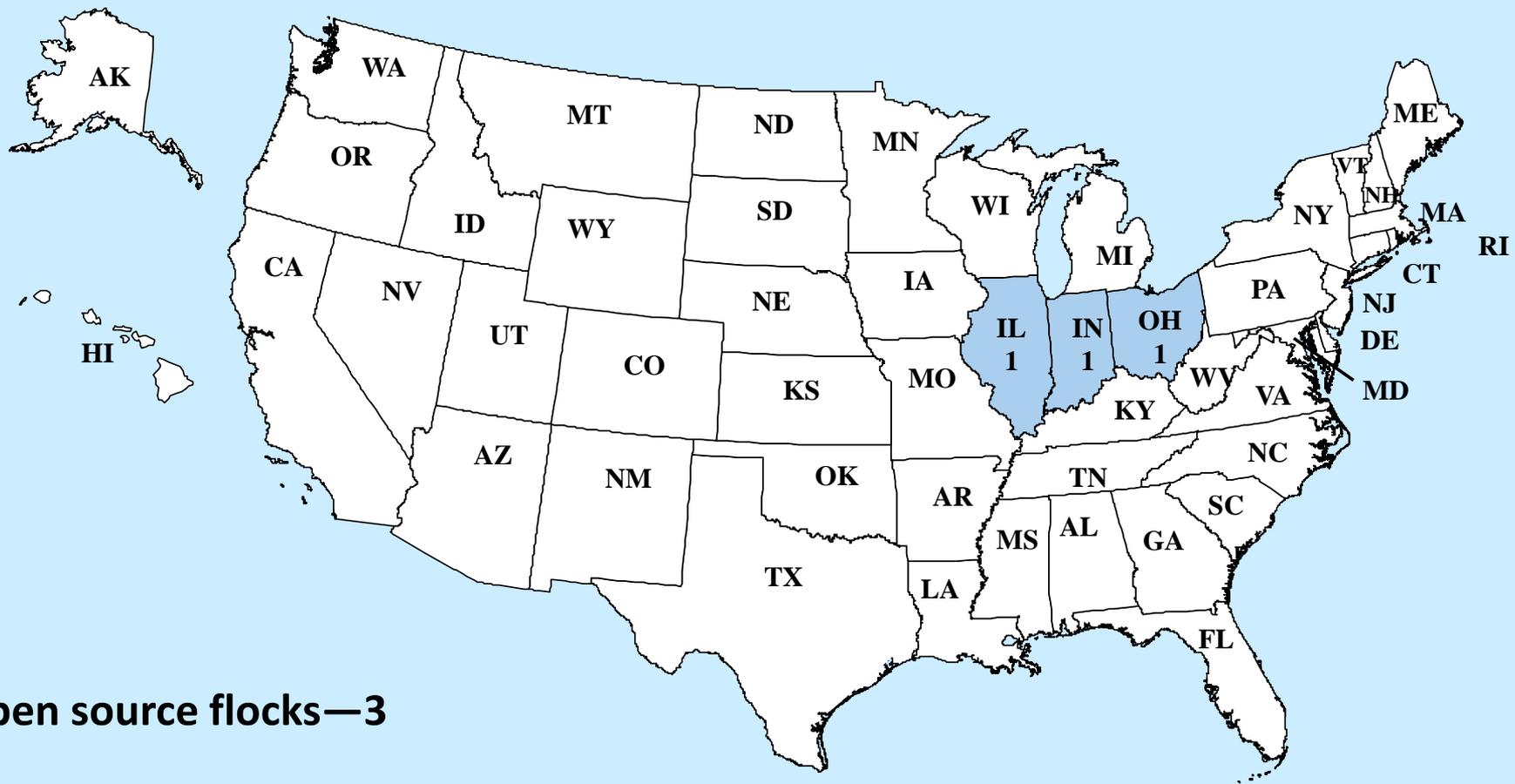
* Last herd with infected goats designated in February 2011.

Scrapie Infected and Source Flocks FY 2012 Overview

Infected/Source flocks with an open status at the start of FY 2012	3
New Infected/Source flocks in FY 2012	8
Infected/Source flocks released in FY 2012	8
Infected/Source flocks currently with an open status at the end of FY 2012	3

(Table 2)

Scrapie Infected and Source Flocks: Open Statuses as of October 1, 2011

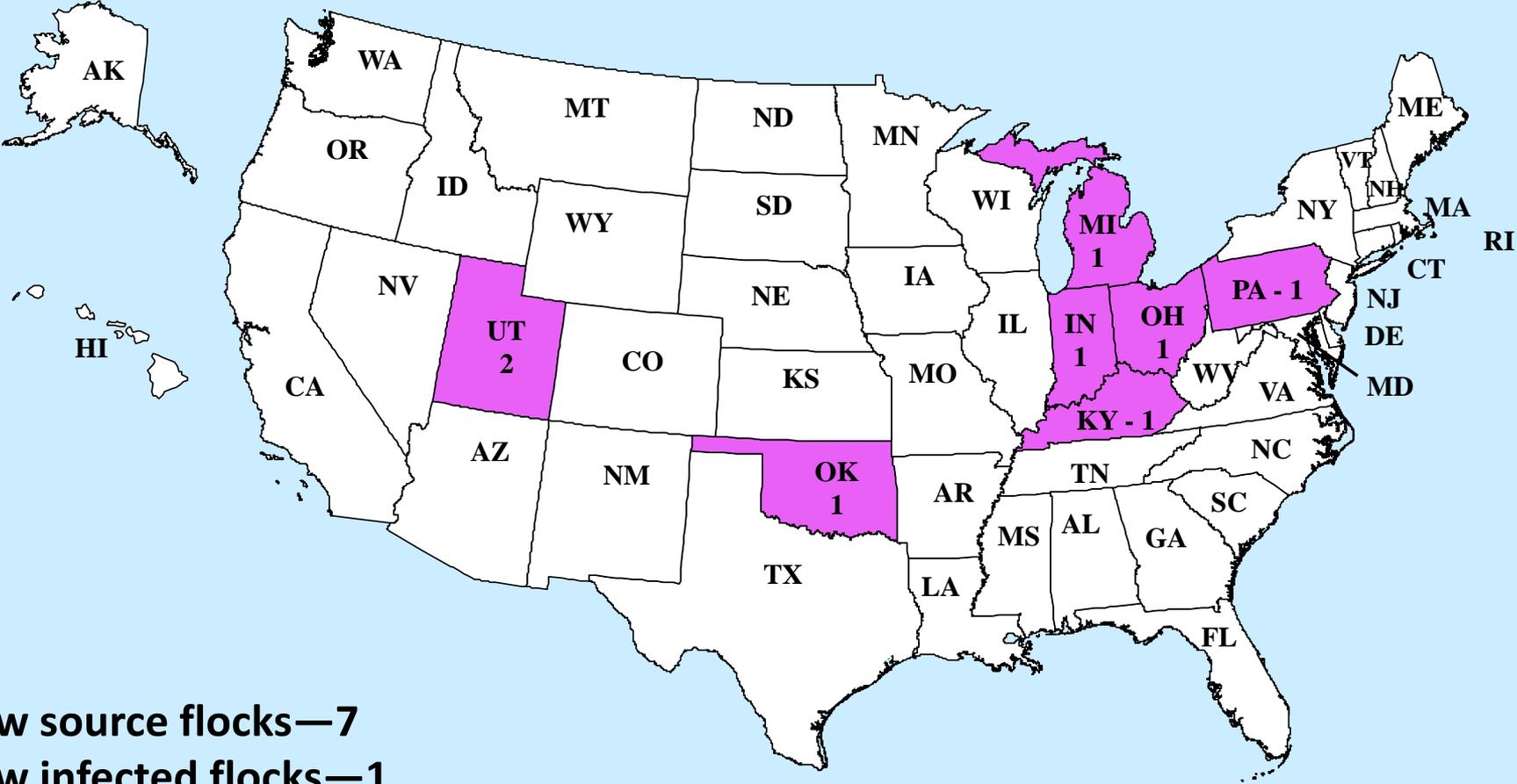


Open source flocks—3

(Figure 8)

New Scrapie Infected and Source Flocks

FY 2012



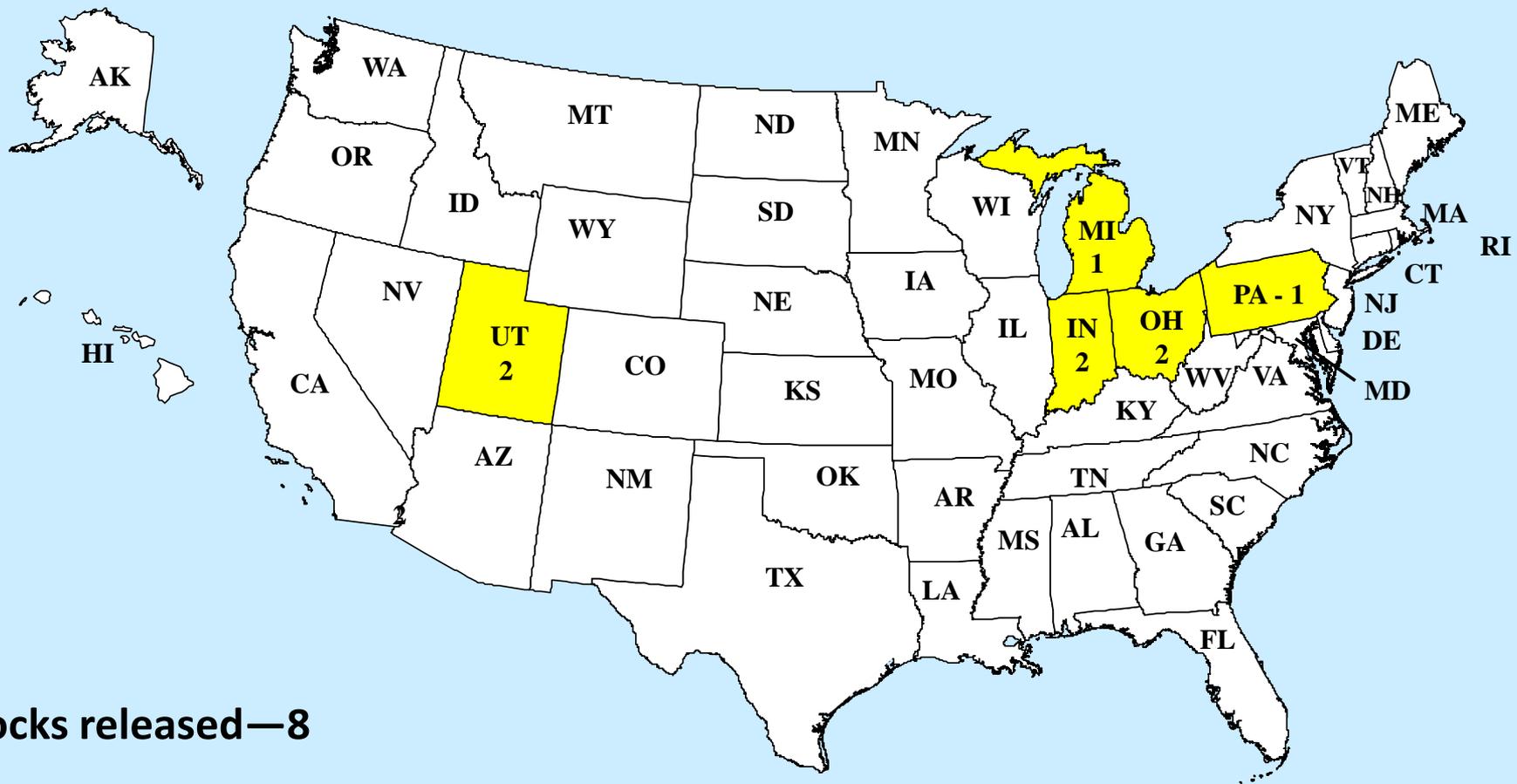
New source flocks—7
New infected flocks—1

(Figure 9)

Released Scrapie Infected and Source Flocks



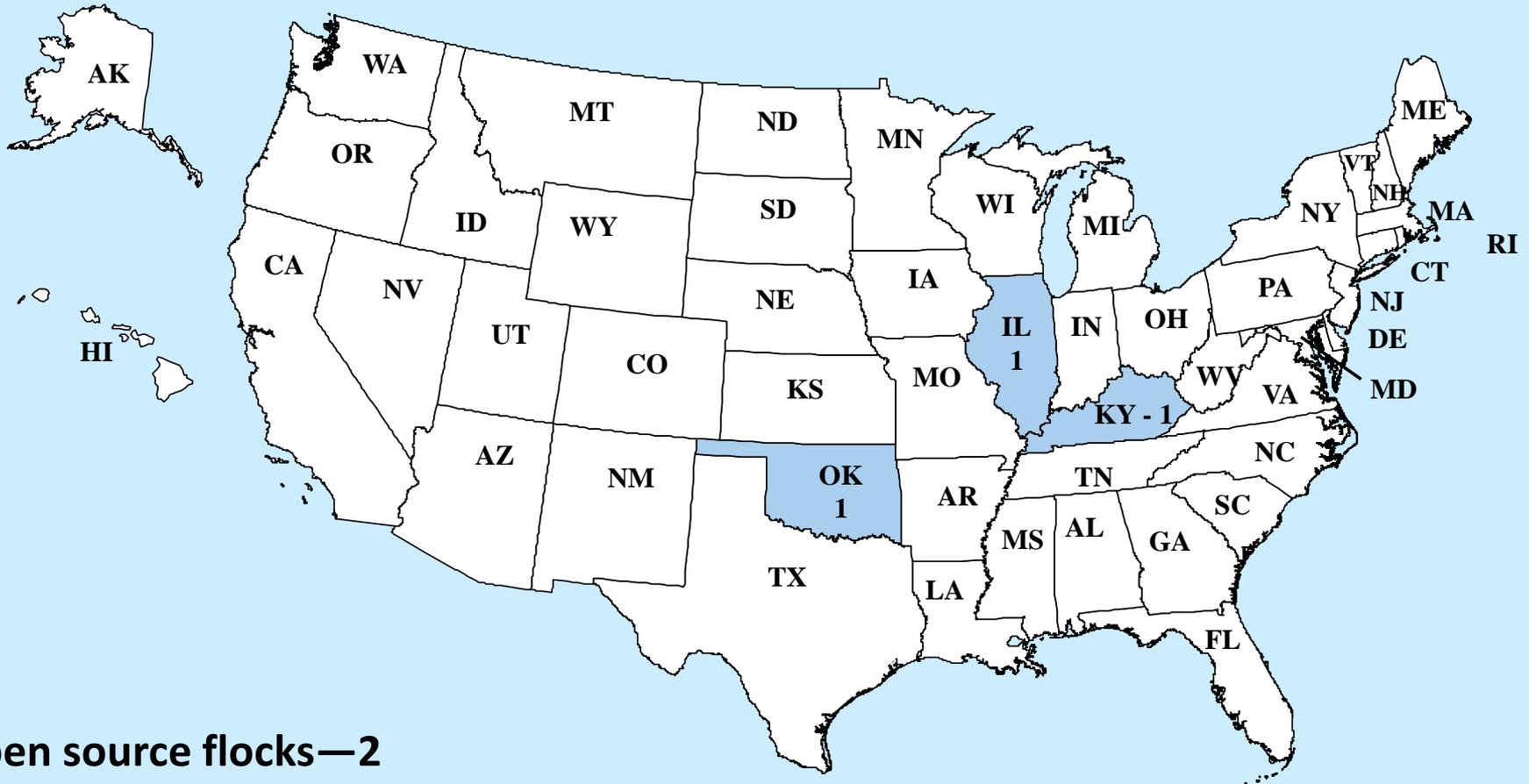
FY 2012



Flocks released—8

(Figure 10)

Scrapie Infected and Source Flocks: Open Statuses as of September 30, 2012

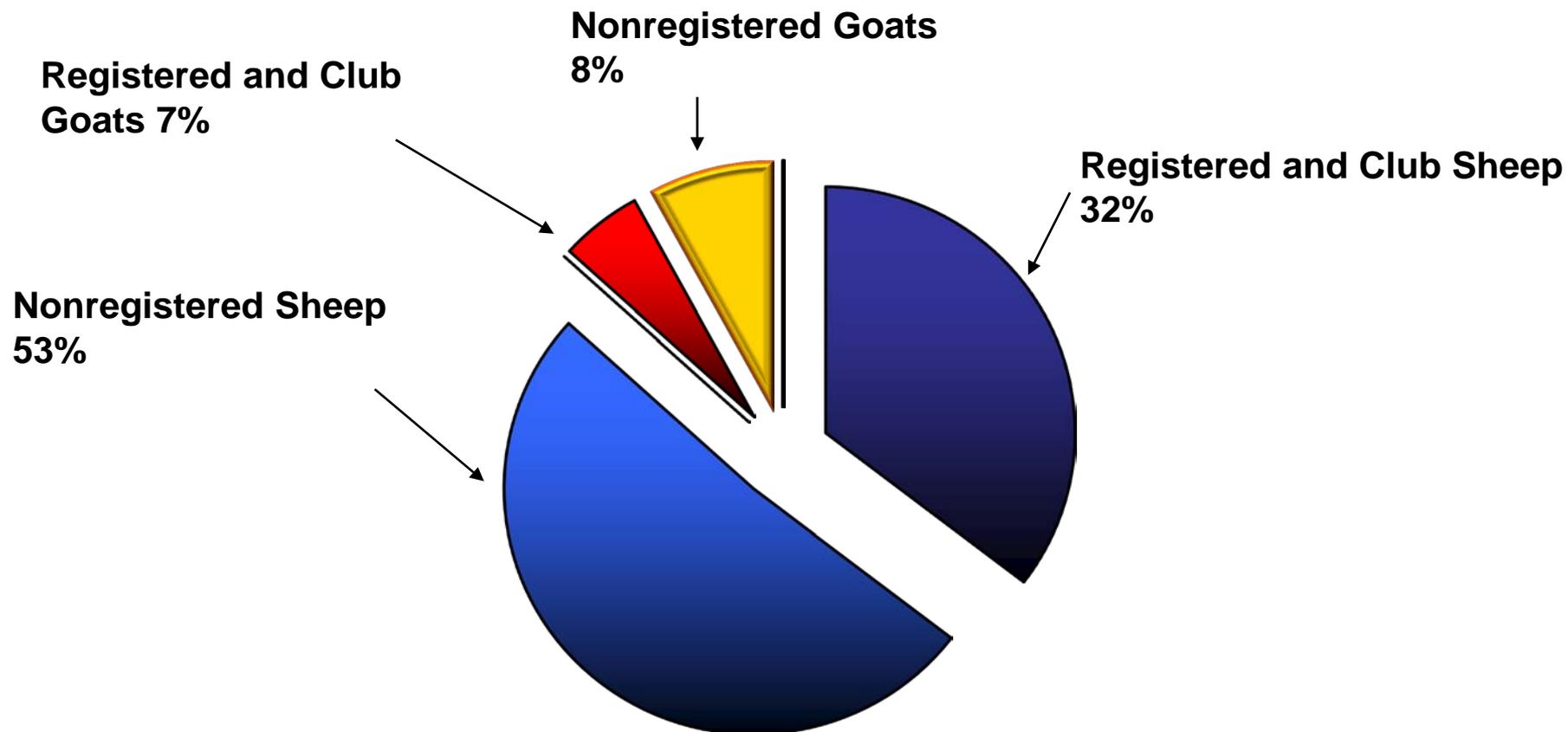


Open source flocks—2

(Figure 11)



Indemnity Claims FY 2012



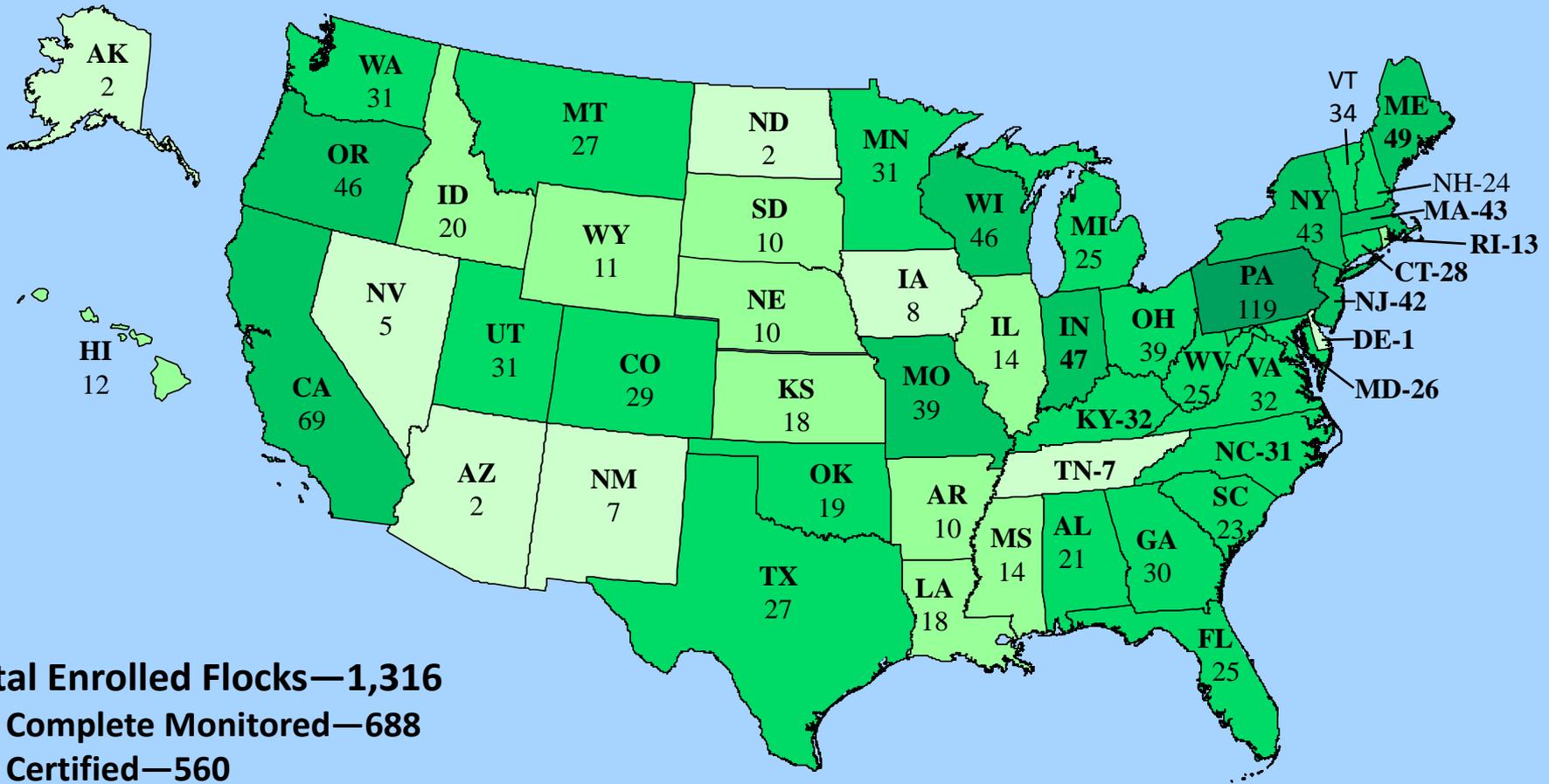
Total number of animals indemnified: 215 (ER-78, WR-137).

Total amount spent: indemnification and disposal \$66,933. (ER-\$20,984.; WR-\$45,949.) .

The average cost: \$311. per animal.

(Chart 14)

Scrapie Flock Certification Program: Participating Flocks—EOY 2012



Total Enrolled Flocks—1,316

- Complete Monitored—688
- Certified—560
- Export Monitored—51
- Export Certified—10
- Selective Monitored—7

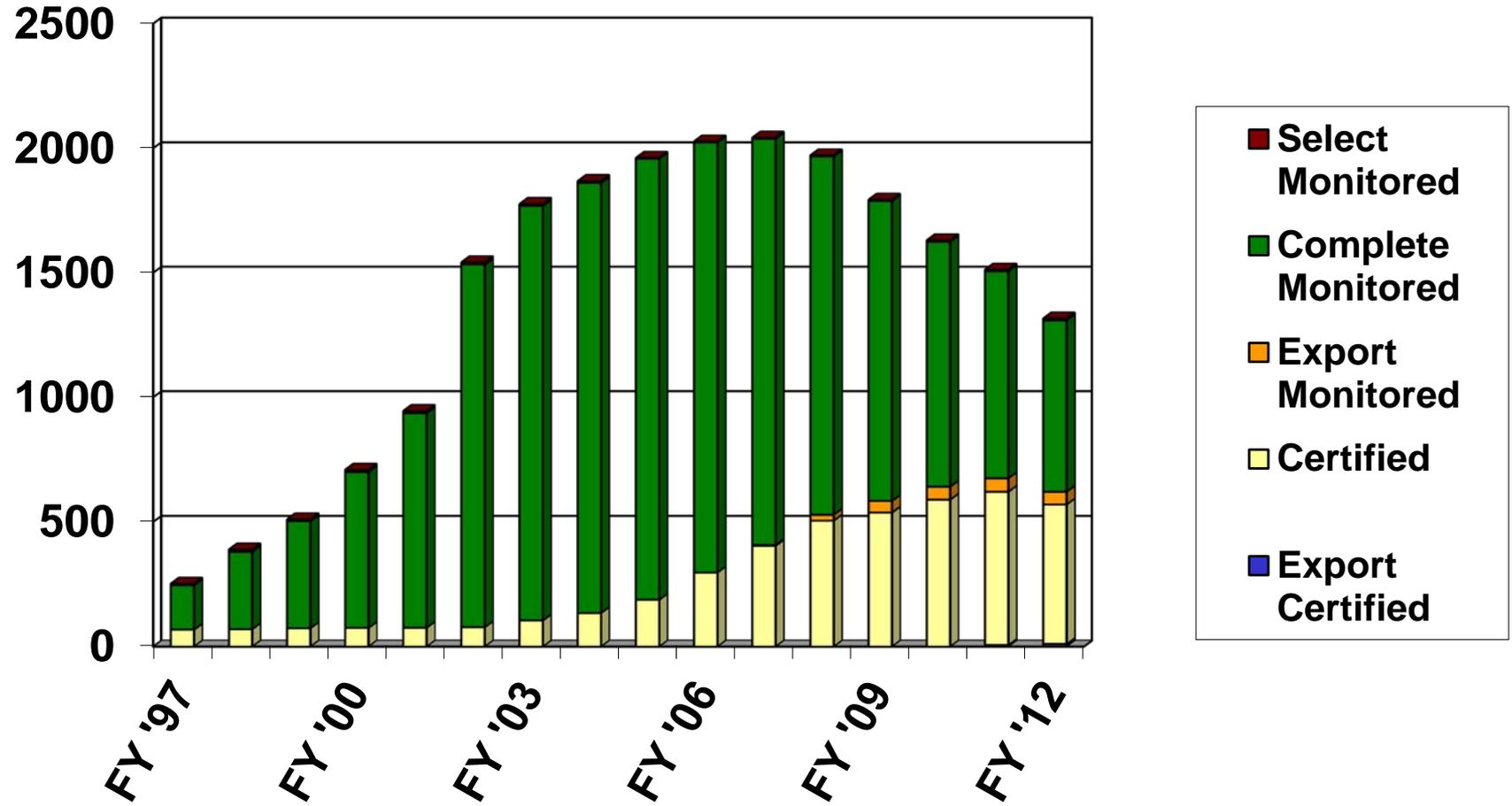
(Figure 12)



SFCP Open Statuses

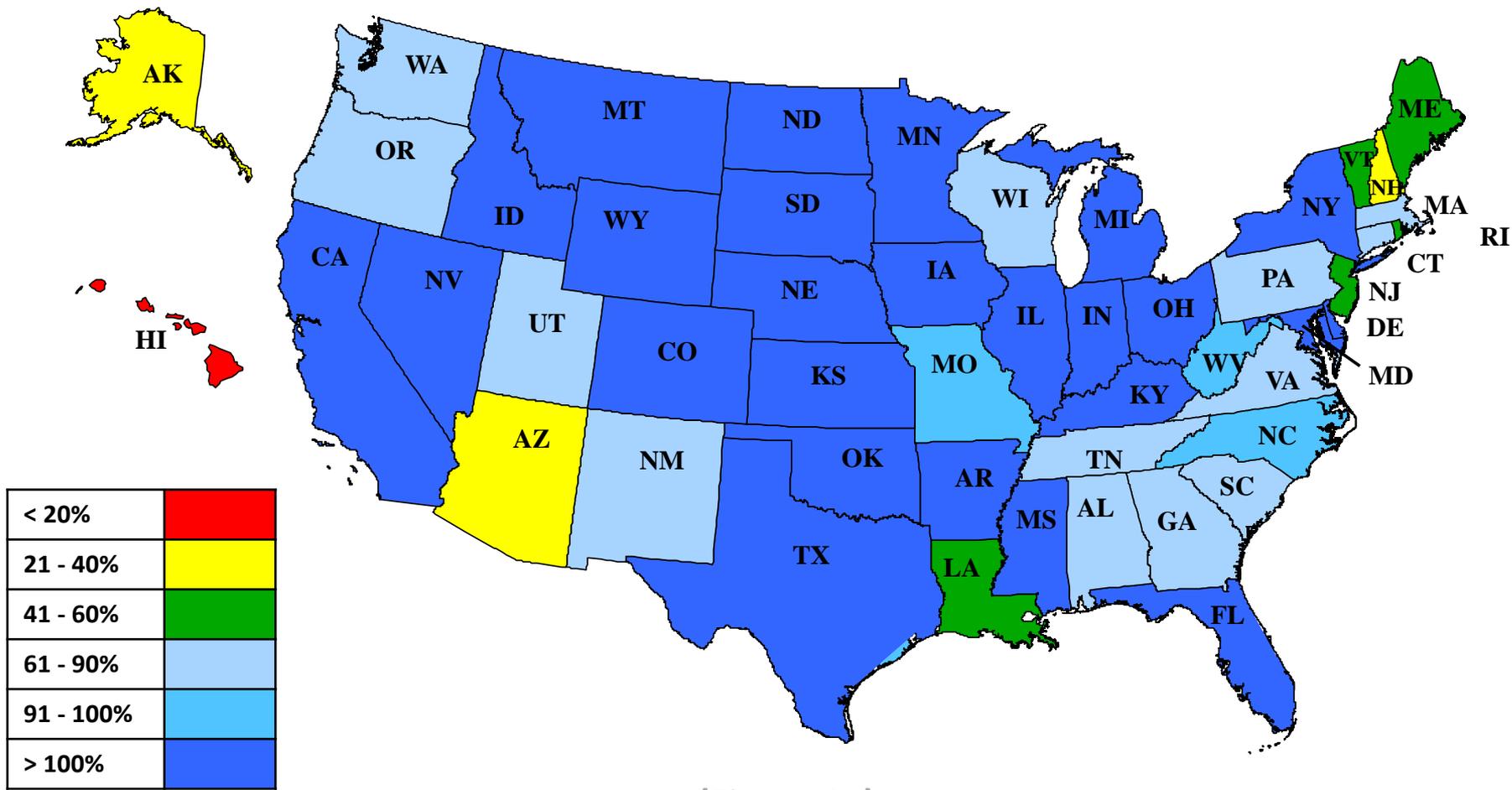
by Fiscal Year

*FY 1997 to FY 2012**



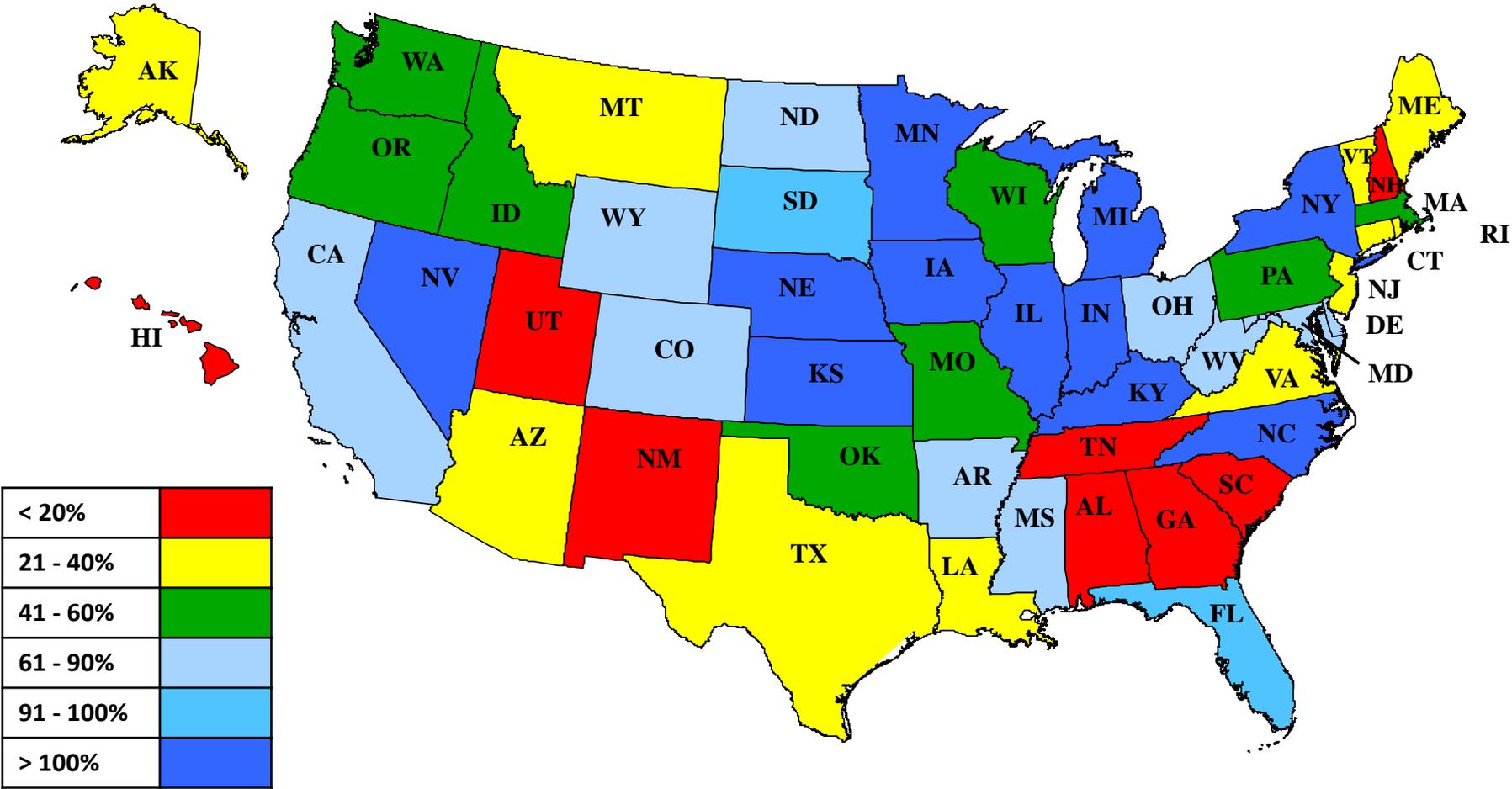
(Chart 15)

Percent of Sheep Flocks Reported by NASS (2007 Census Report) Assigned Flock Identification Numbers in SNGD as of September 30, 2012



(Figure 13)

Percent of Goat Herds Reported by NASS (2007 Census Report) Assigned Flock Identification Numbers in SNGD as of September 30, 2012



(Figure 14)