National Scrapie Eradication Program

Fiscal Year 2017 Report

October 1, 2016 to September 30, 2017

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Veterinary Services

Surveillance, Response and Preparedness Services

Sheep and Goat Health Center

Prepared December 15, 2017

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

Introduction - New Reporting Format

The National Scrapie Eradication Program is transitioning to a new reporting software called Tableau. Tableau is an interactive data visualization tool that allows users to easily select and view data summaries. Since the July 2017 report, some of the graphs in the Monthly Scrapie Report have been from Tableau. Eventually, the public will be able to see and interact with scrapie program reporting data through a web browser linked to Tableau Server.

New to the monthly and annual reports are hex maps. Hex maps represent each state as a hexagon of equal size, with geographic affinity loosely maintained. These representations allocate equal area, and therefore equal weight, to each state. Filled colors still represent values, but with equal area allocated to each state, encourage focus on the data values rather than states with the most area. States and territories outside the contiguous US are easily represented, also with equal weight. Figure 1 is the standard map showing administrative districts within APHIS Veterinary Services; Figure 2 is a hex map, showing the 6 districts.

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 positive and exposed animals and testing exposed animals
- Cleanup of infected and source flocks through genetic susceptibility testing and indemnification of susceptible exposed animals
- Monitoring previously infected and exposed flocks
- The Scrapie Free Flock Certification Program (SFCP)

Program Summary

Performance Measures - At the end of FY 2017, the percent of cull black face sheep found positive at slaughter was 0 percent (Chart 1) and the percent of cull sheep found positive at slaughter and adjusted for face color* was 0 percent (Chart 2).

Positive Animals - **No sheep have tested positive for classical scrapie since April 2016**. Other than one goat in a herd quarantined since 2005 and depopulated in 2017, **no goats have tested positive for scrapie since February 2015**.

*White, black and mottled-faced color sheep are weighted based on population; white-faced sheep have the greatest weight. If a white-faced positive sheep is found, this statistic will markedly increase. See slide notes details.

Program Summary

Infected and Source Flocks **-** Infected and source flocks by year are shown in Chart 3. **No classical scrapie infected or source flocks were designated in all of FY 2017.** Two flocks, one in Colorado and one in Texas, have open statuses (Chart 4), but there are no exposed animals on the premises of these flocks. Cleaning and disinfection of these premises has to be completed before the infect or source status can be closed.

Scrapie in Goats - Only one positive goat (FY 2015) has been found through RSSS since the start of RSSS in 2003. Based on all goats sampled at slaughter, the prevalence of scrapie in U.S. cull goats is 0.002 percent with an upper 95 percent confidence limit of 0.004 percent. Since 2002, the total number of positive field cases in goats is 41. Figure 3 shows the number of positive cases by State and by fiscal year of last reported case.

Program Summary

Scrapie Flock Certification Program (SFCP) – As of September 30, 2017, there were 333 flocks participating in the Scrapie Flock Certification Program (SFCP). Statuses of these flocks were 67 export monitored, 46 export certified, and 220 select monitored flocks (Figure 4). SFCP open statuses by fiscal year from FY 1997 to FY 2017 are depicted in Chart 5.

* 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

Surveillance activities are State-based and are administered as districts by APHIS. For this reason, reporting of surveillance activities is also by District. Surveillance minimums are based on estimated sheep and goat populations in each State. The distribution of sheep and goat populations by District is depicted in Chart 6.

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 560,308 animals since April 1, 2003. There have been 482 NVSL confirmed positive animals (471 classical cases and 11 Nor98-like cases) since the beginning of RSSS. 39,804 RSSS samples were collected in FY 2017, 32,767 from sheep and 7,037 from goats. Collection sites by state are shown in Figure 5. None tested positive for classical scrapie; two were positive for Nor98-like scrapie. The number of sheep and goats collected in each District is shown in Chart 7. Figure 6 is a hex map, representing the number of animals collected in each State. Chart 8 compares RSSS sampling by month for the current year with the monthly average of the previous 4 years. The number of RSSS samples collected by face color and species from FY 2003 through FY 2017 is plotted in Chart 9.

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. 1,745 sheep and 733 goats were tested on-farm for FY 2017.

Surveillance Minimums

The annual target is to test at least 40,000 animals each year for scrapie. 42,282 animals were sampled for scrapie testing in FY 2017:

- 39,804 RSSS samples and 2,478 on-farm samples
- Of which 34,512 were sheep and 7,770 were goats.

The annual national surveillance goal of at least 40,000 animals tested was achieved in FY 2017 (Chart 10). Distribution of sampling by type (RSSS or on-farm) and by species is shown in Chart 11. Chart 12 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	Table 2	District 3	Table 4	District 5	Table 6
District 2	Table 3	District 4	Table 5	District 5	Table 7

The percent sampling minimum for sheep and goats achieved by each State in FY 2017 are depicted in Figure 7 and Figure 8.

Surveillance Preparedness and Response Services (SPRS) Districts

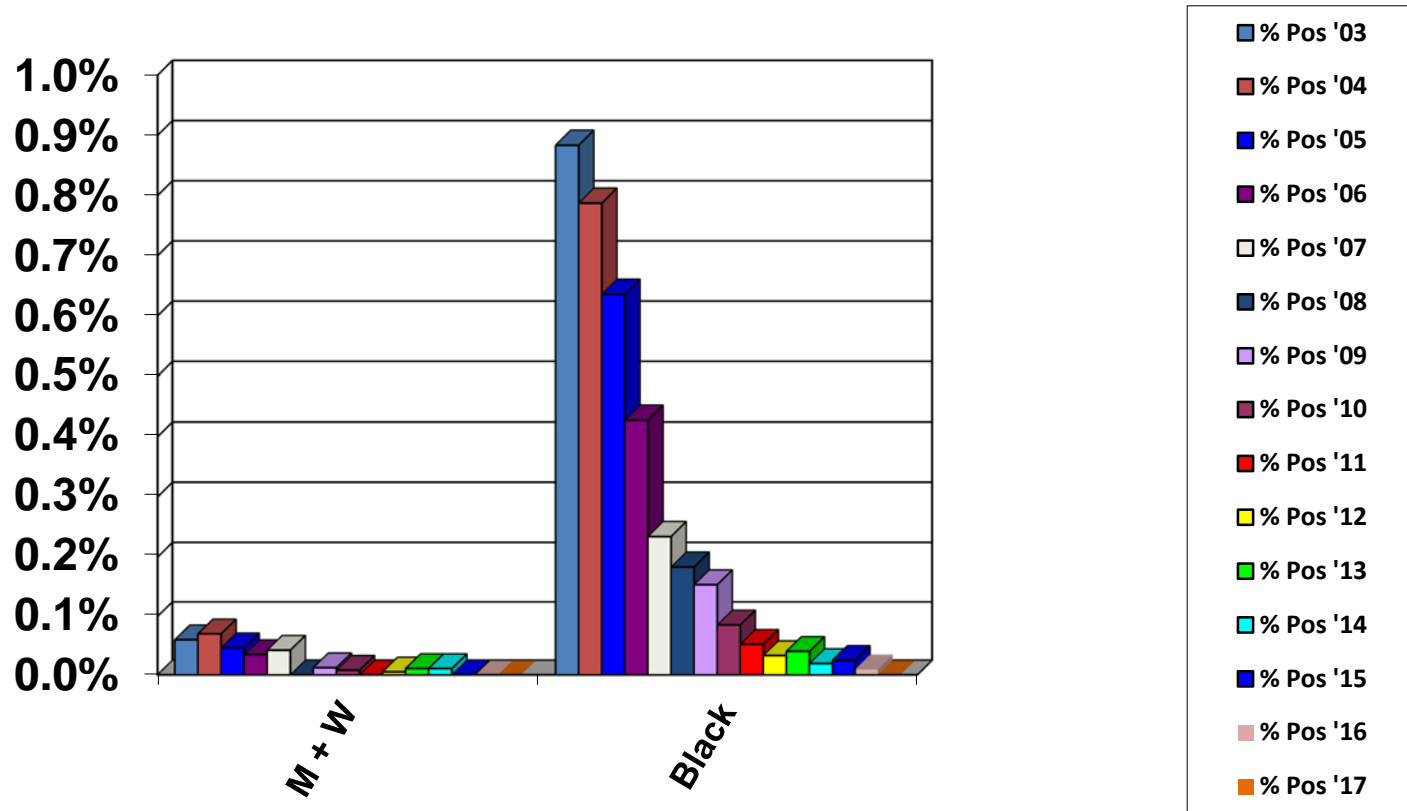|	
District One	(blue)
District Two	(green)
District Three	(magenta)
District Four	(orange)
District Five	(light green)
District Six	(yellow)
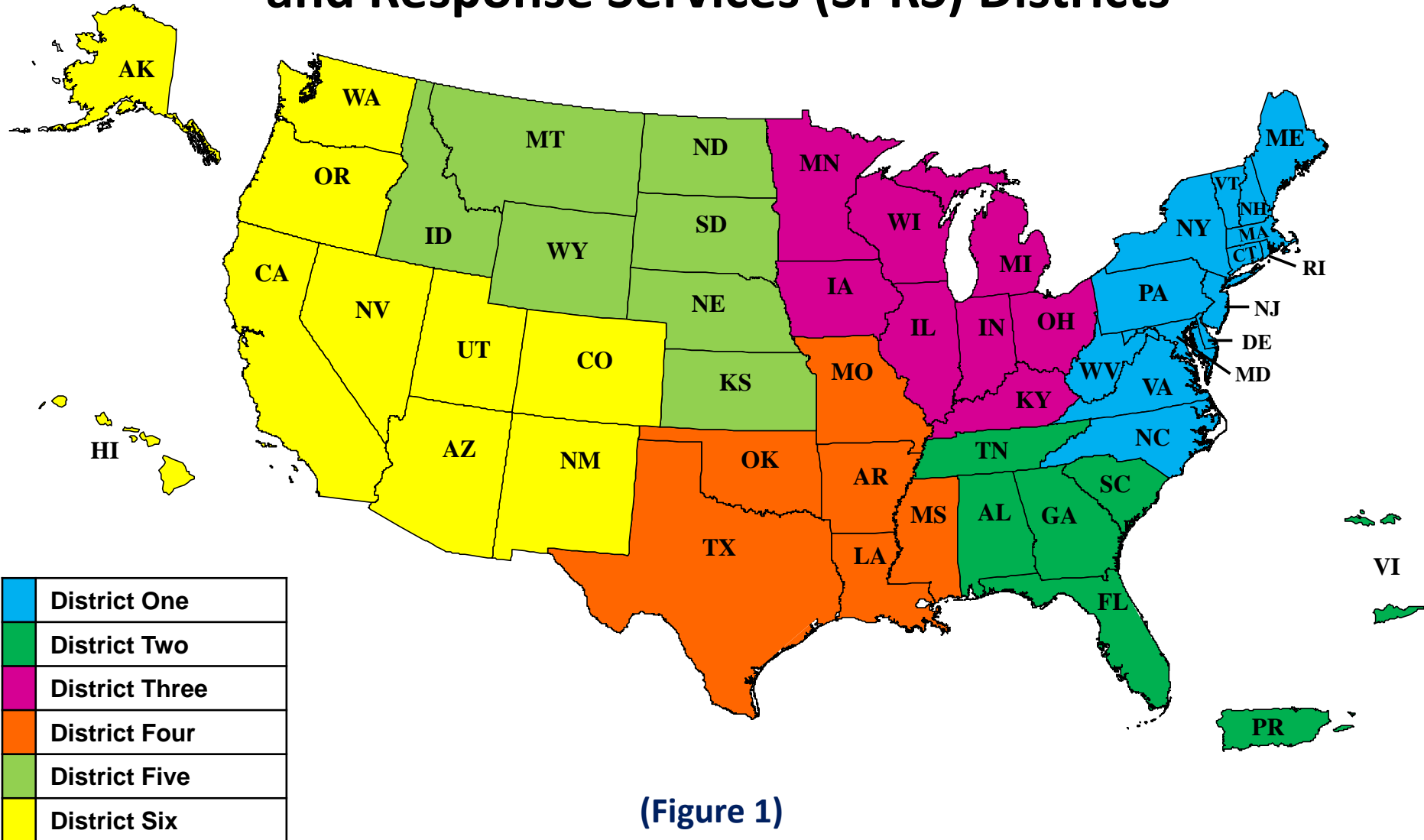
(Figure 1)

Surveillance Preparedness and Response Services (SPRS) Districts
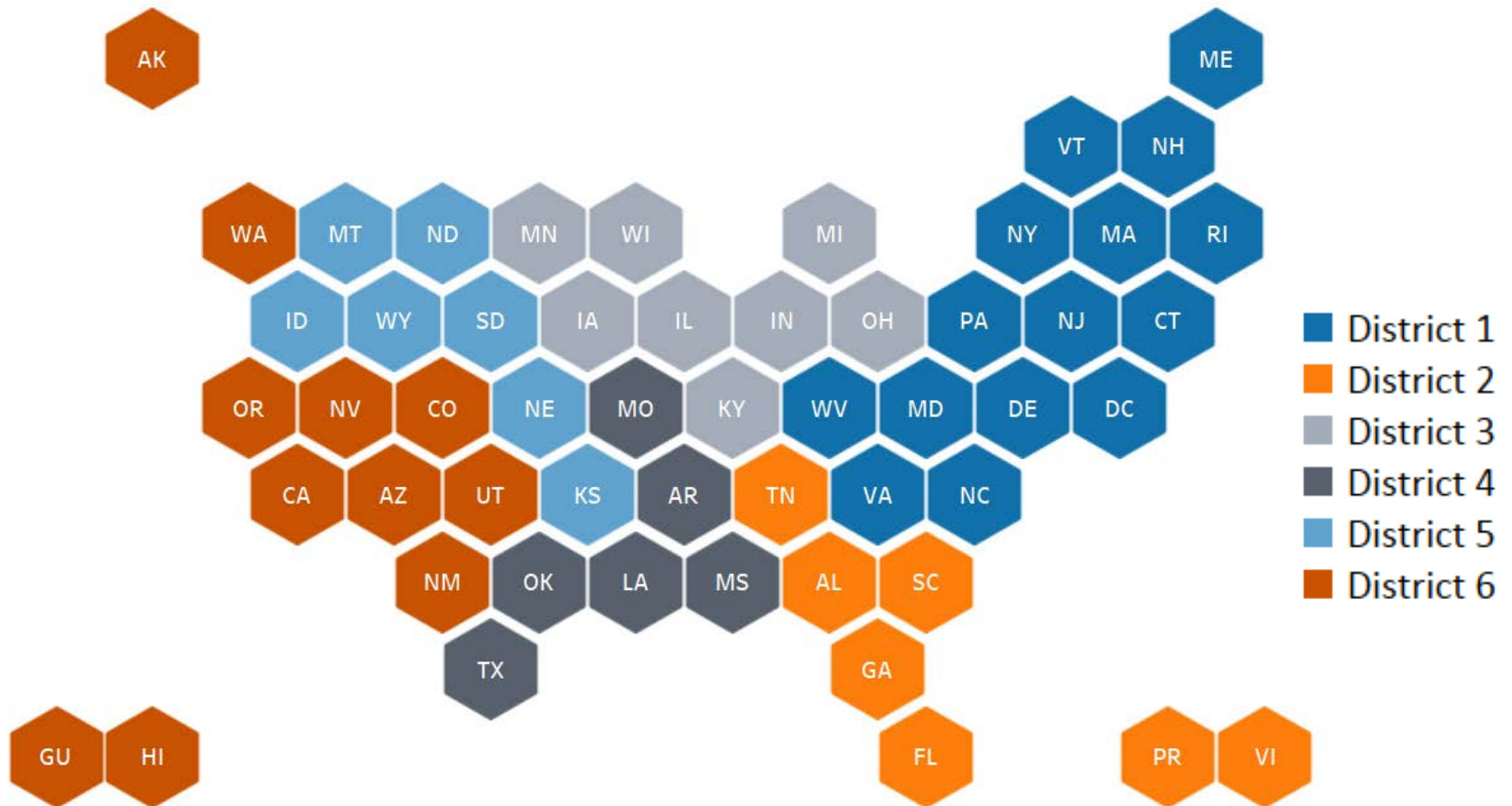
(Figure 2)

# Percent of RSSS Sheep Samples that Tested Positive for Classical Scrapie - By Face Color - *Fiscal Year (2003 – 2017)*

(Chart 1)

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

Fiscal Years 2003 to 2017
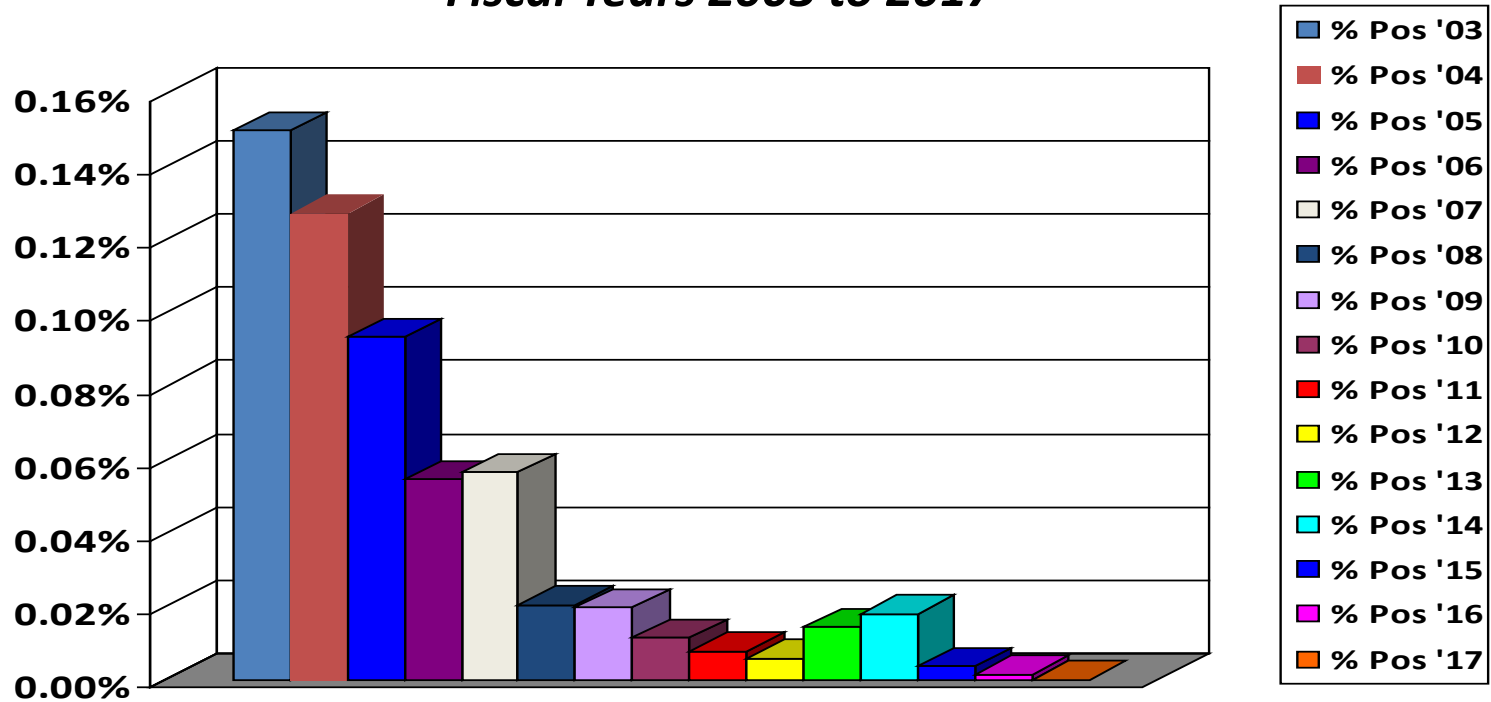
(Chart 2)

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 Statuses by Year - *Fiscal Years 1997 to 2017*
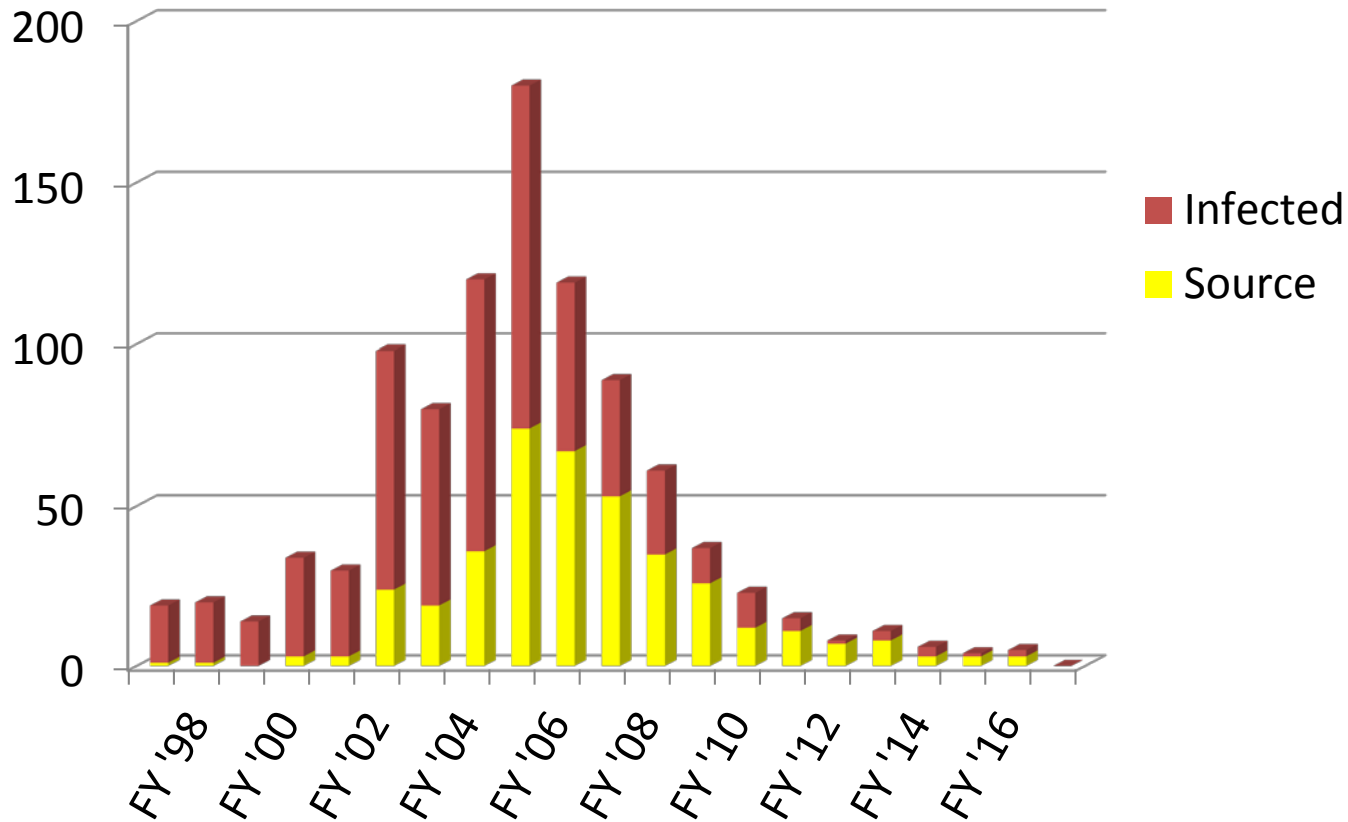
(Chart 3)

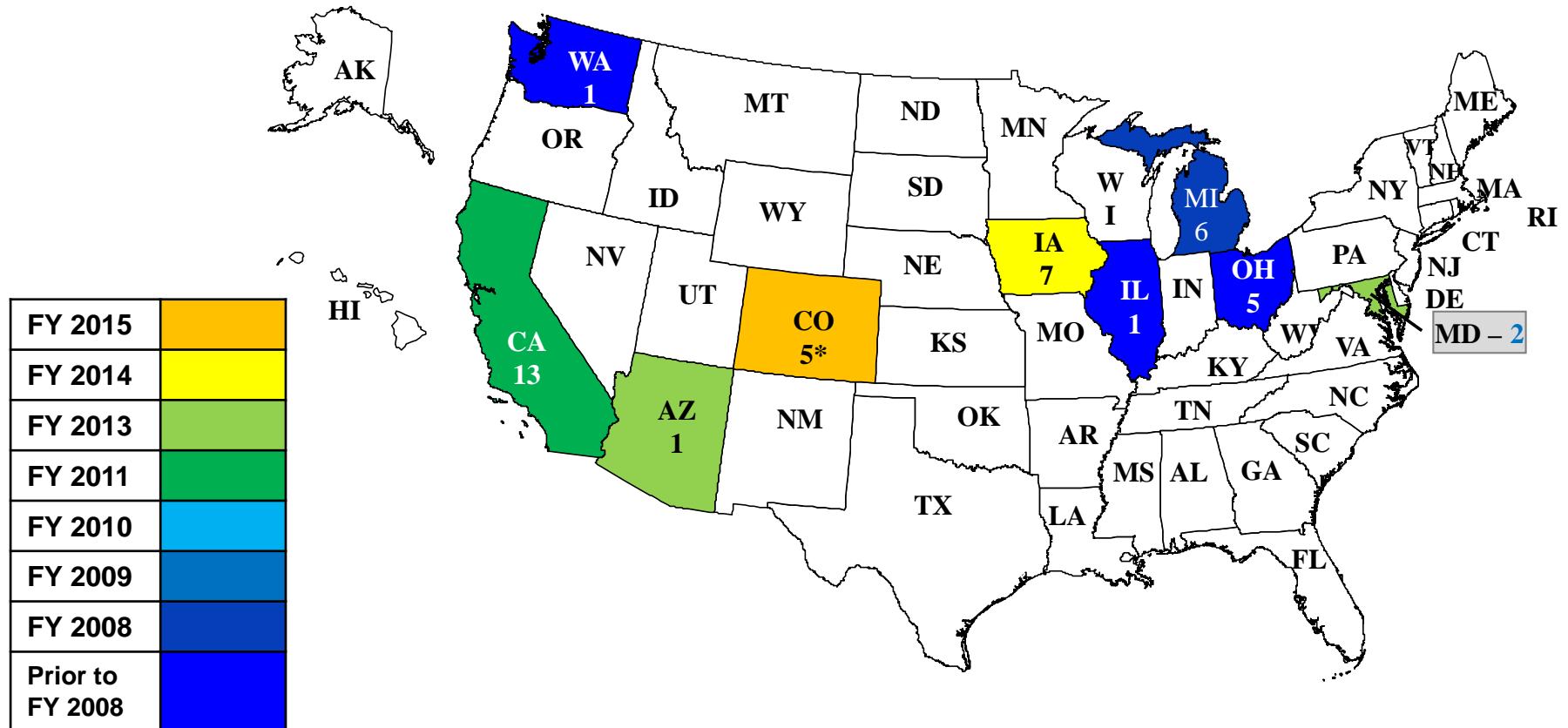**There were no new infected or source flocks in FY 2017.**

Infected and Source Flocks
Open & Closed Statuses by State - *FY 1997 - 2017*

Legend:
- ■ Flock plan completed and released
- ■ Flock plan not completed

X-axis: Number of Flocks
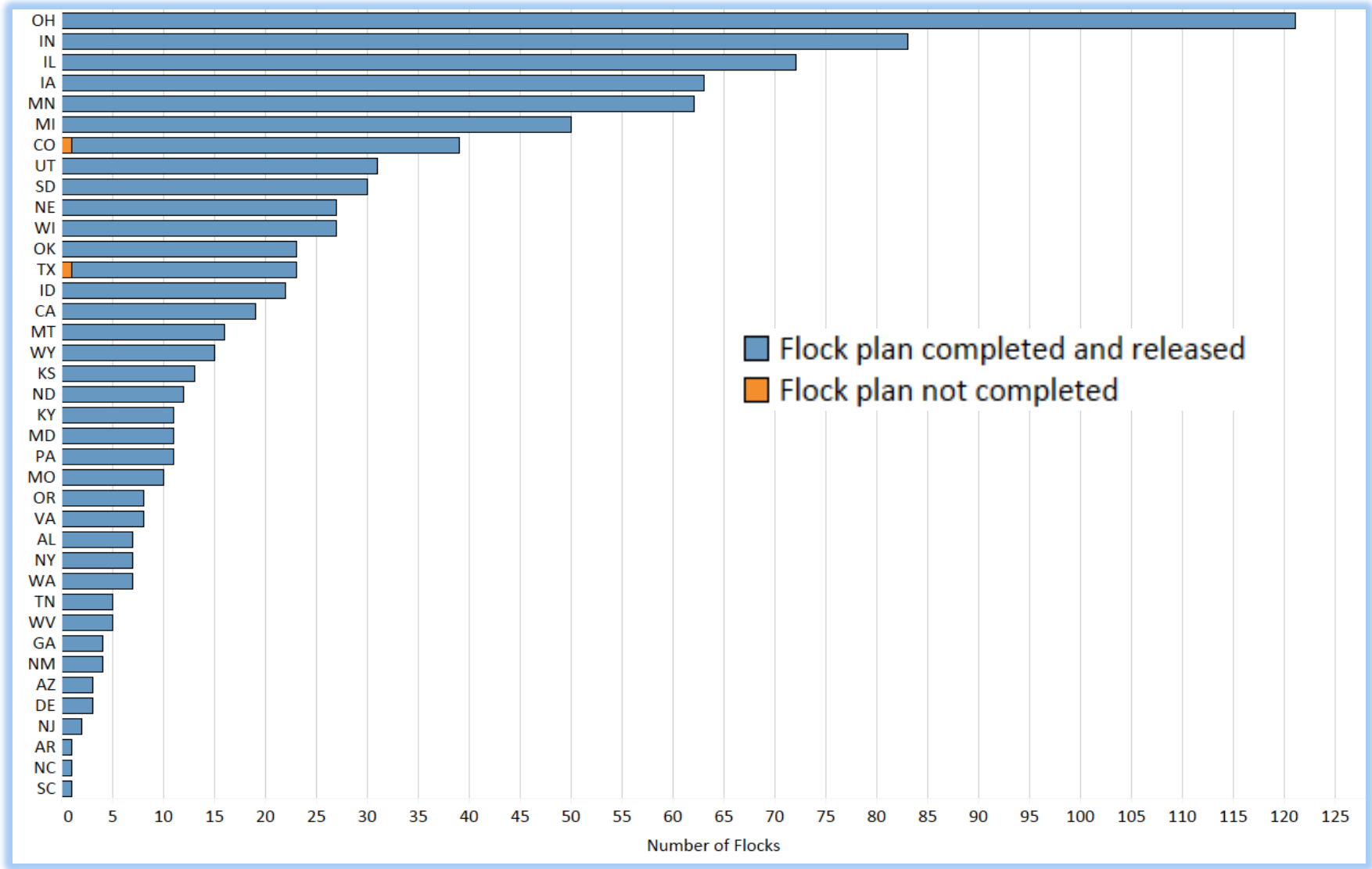
(Chart 4)

Scrapie Cases in Goats FY 2002 – FY 2017

(Figure 3)

* Only RSSS positive goat, identified in November 2014. 41 total cases. The goat from the long term quarantined herd in CO that tested positive in July 2017 is not included. Color code indicates fiscal year of last case by State.

Scrapie Flock Certification Program: Participating Flocks
## *As of September 30, 2017*

AK 1
WA 9
OR 7
ID 7
MT 2
ND 0
MN 9
WI 14
MI 6
VT 15
ME 15
NH-8
MA-8
RI-0
CT-10
NY 4
NJ-8
DE-1
MD-1
SD 5
IA 4
NV
UT 1
WY 4
NE 6
IL 6
IN 18
OH 3
PA 41
WV 1
VA 3
HI 6
CA 6
CO 1
KS 4
MO 1
KY-6
AZ 1
NM 2
OK 4
AR 2
TN-10
NC-9
SC 14
MS 6
AL 7
GA 15
NC-9
TX 0
LA 5
FL 8
PR 9
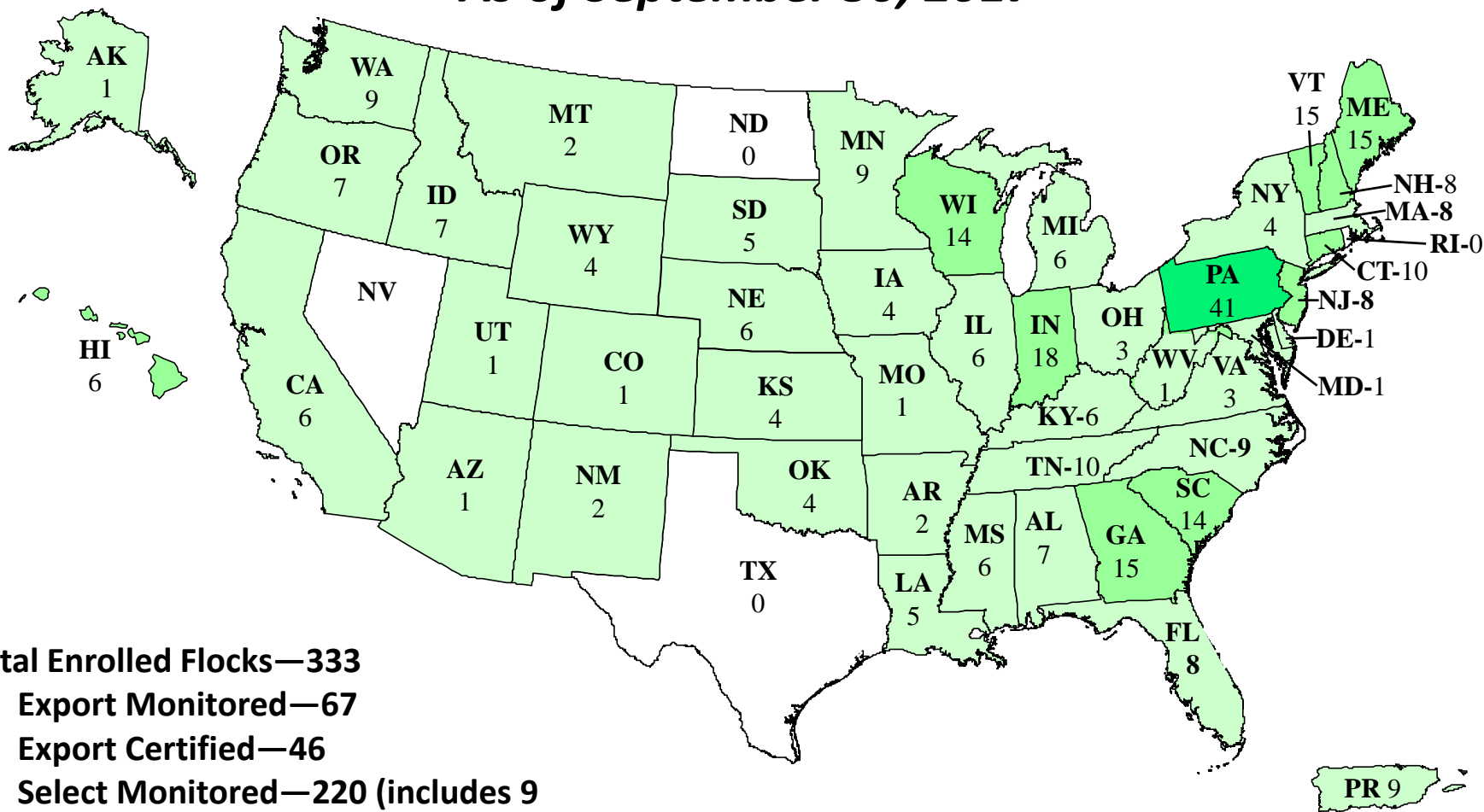
Total Enrolled Flocks—333
- **Export Monitored—67**
- **Export Certified—46**
- **Select Monitored—220 (includes 9 in Puerto Rico)**

(Figure 4)

SFCP Participating Flocks Based on Status Date
FY 2007 to FY 2017
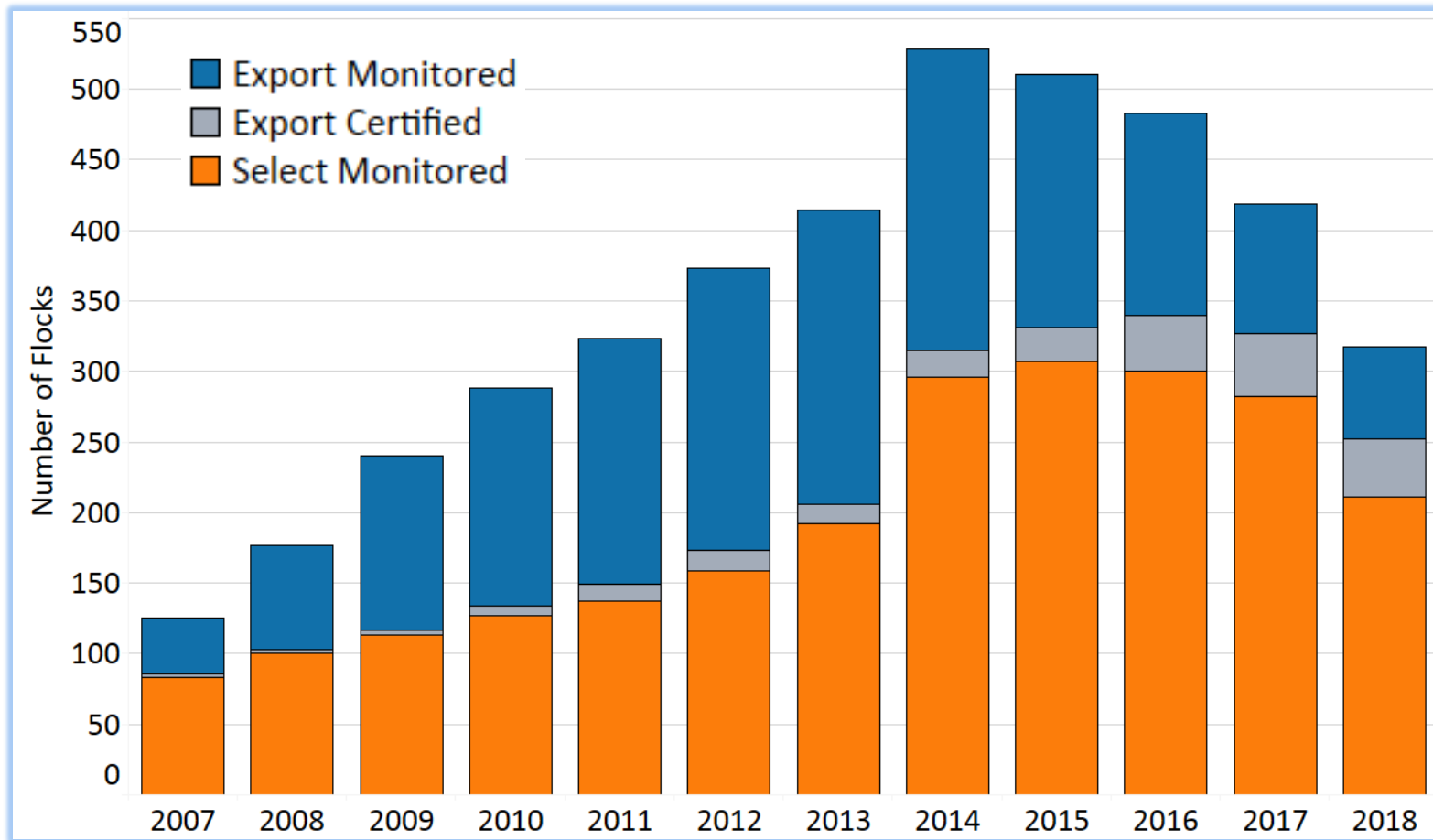
(Chart 5)

Includes enrolled flocks in Puerto Rico. Chart is based on current or last status date; many participating flocks were grandfathered into Export program in 2013 with earlier status date.

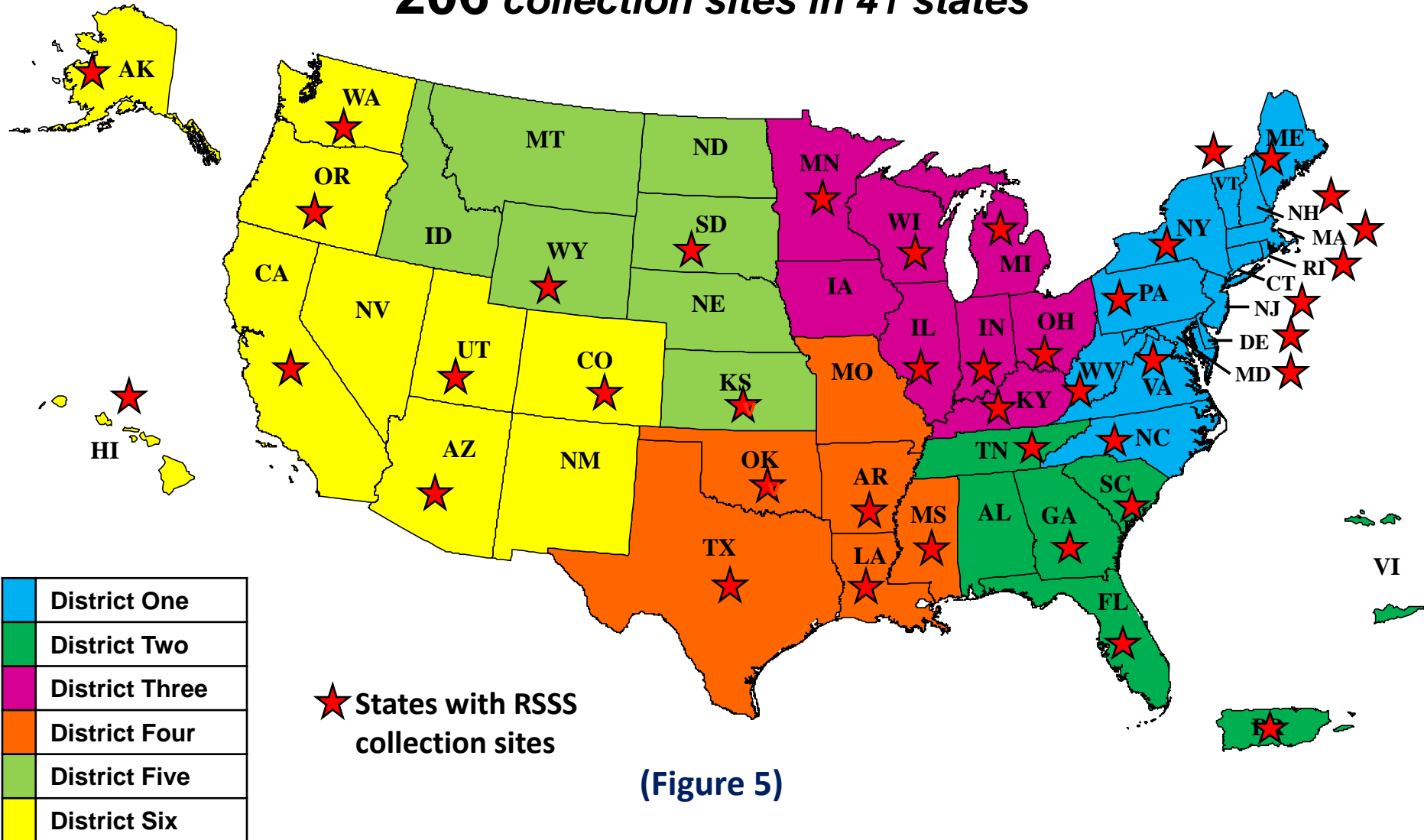# Total Sheep and Goat Populations by VS District*
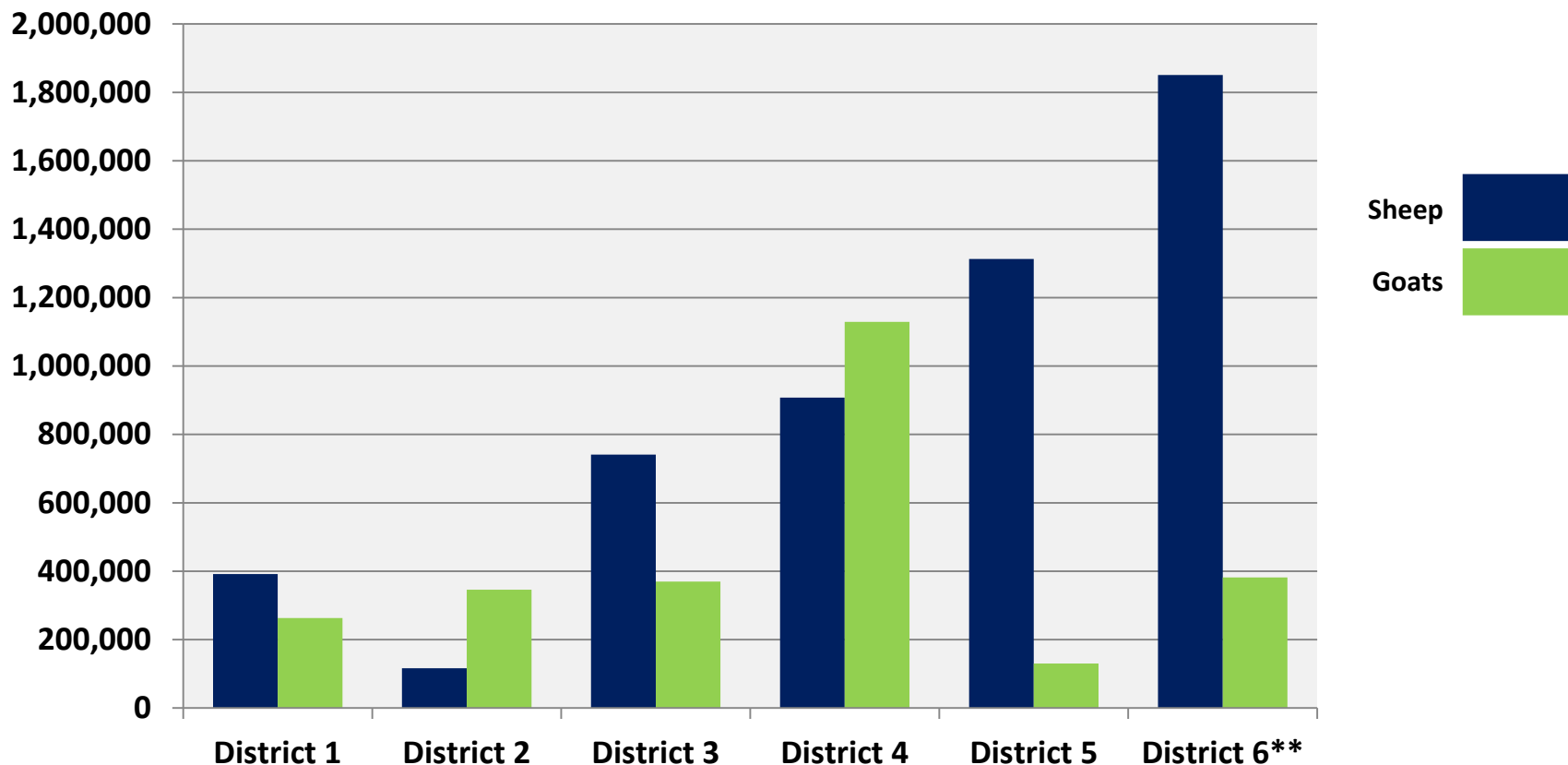
(Chart 6)

* Source: NASS Sheep and Goat, January 29, 2016.
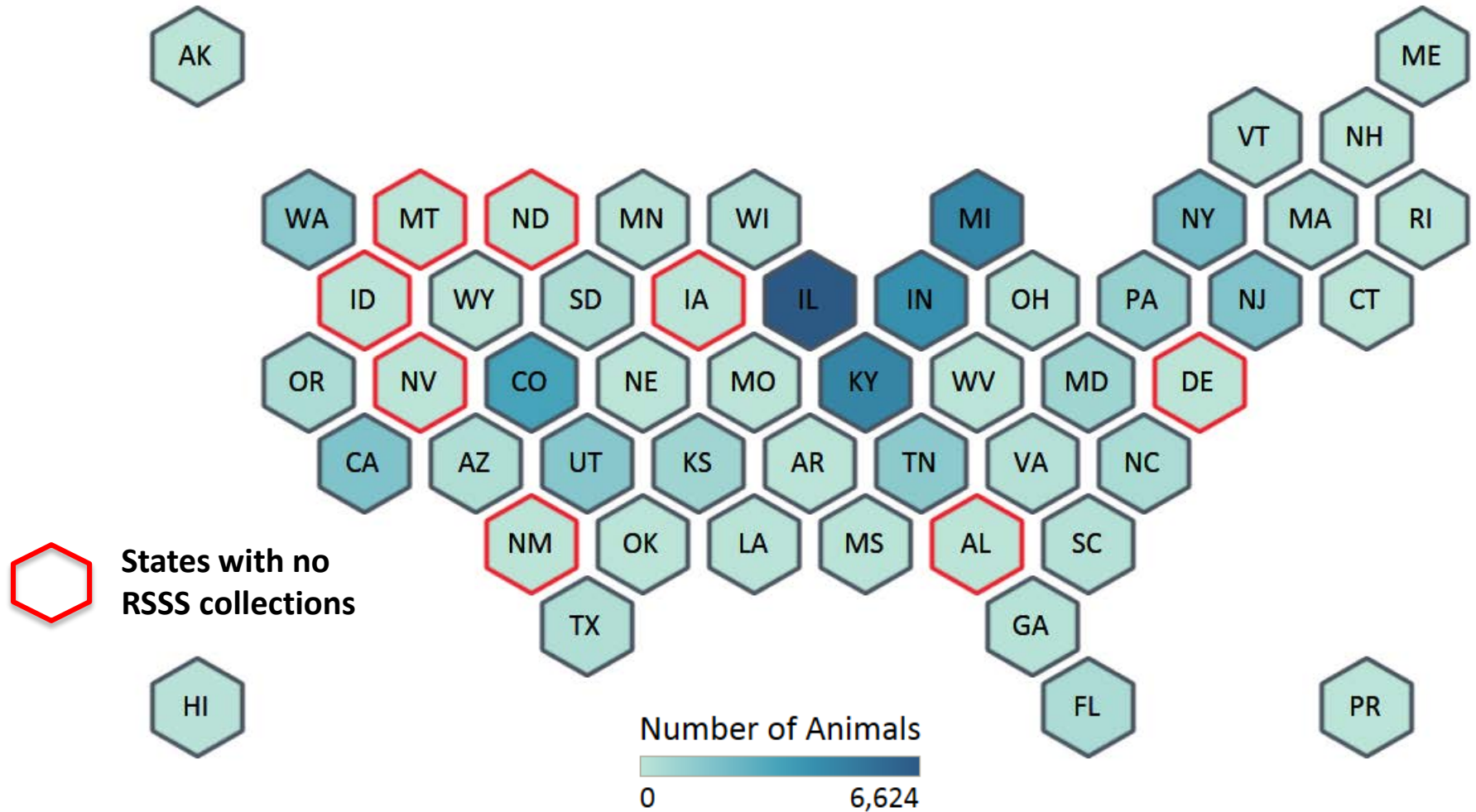** Includes sheep and goats residing in the Navajo Nation.

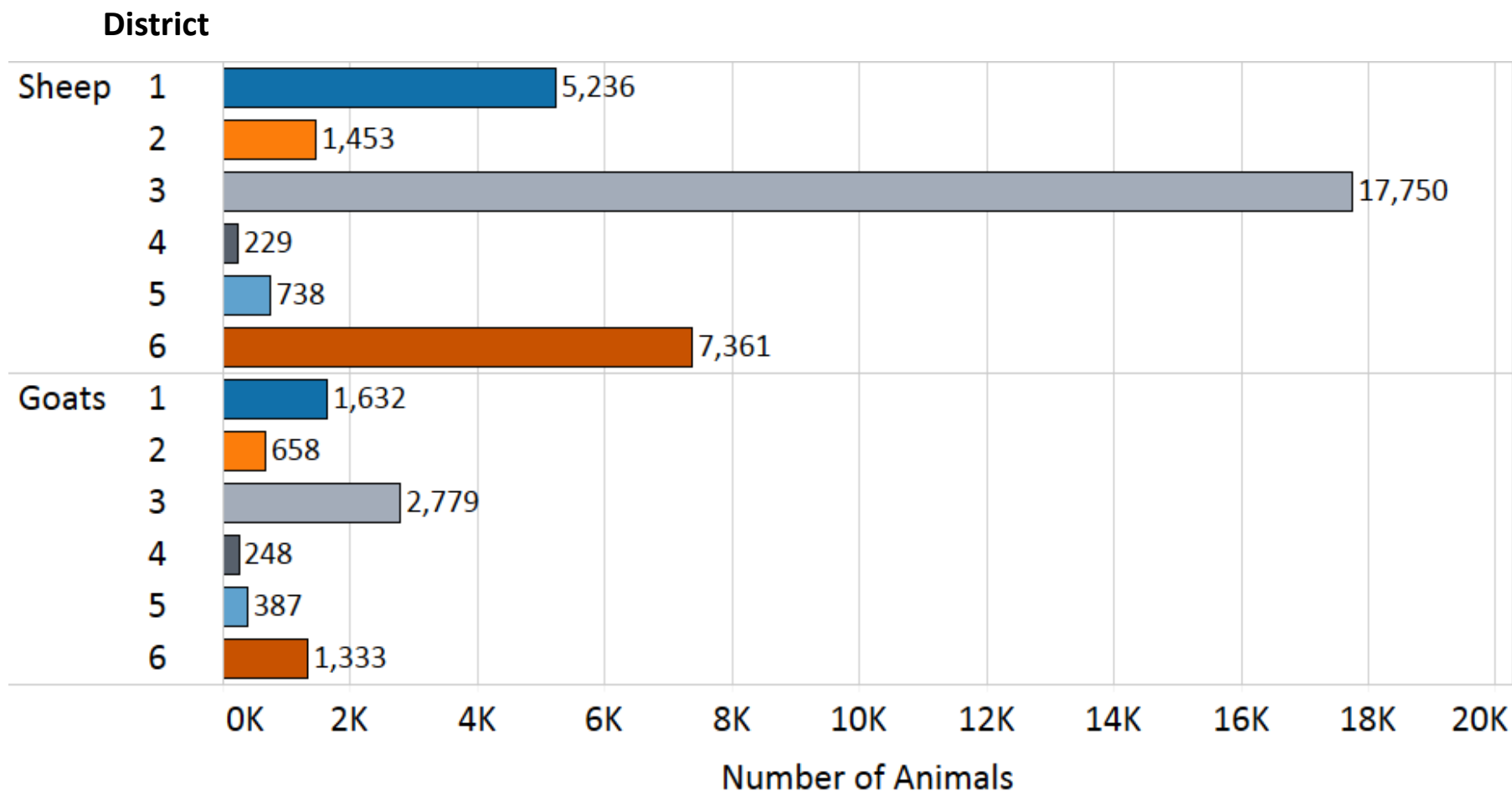# RSSS Sample Collections FY 2017
206 *collection sites in 41 states*

(Figure 5)

Legend:
- District One
- District Two
- District Three
- District Four
- District Five
- District Six
- ★ States with RSSS collection sites

Total RSSS Samples Collected by State – *FY 2017*

States with no RSSS collections

Number of Animals

0   6,624

(Figure 6)

Total RSSS Samples Collected by District – *FY 2017*

District

		Number of Animals
Sheep	1	5,236
	2	1,453
	3	17,750
	4	229
	5	738
	6	7,361
Goats	1	1,632
	2	658
	3	2,779
	4	248
	5	387
	6	1,333

(Chart 7)

Comparison by Month of RSSS Samples Collected in FY 2017 to Average of 2013 - 2016
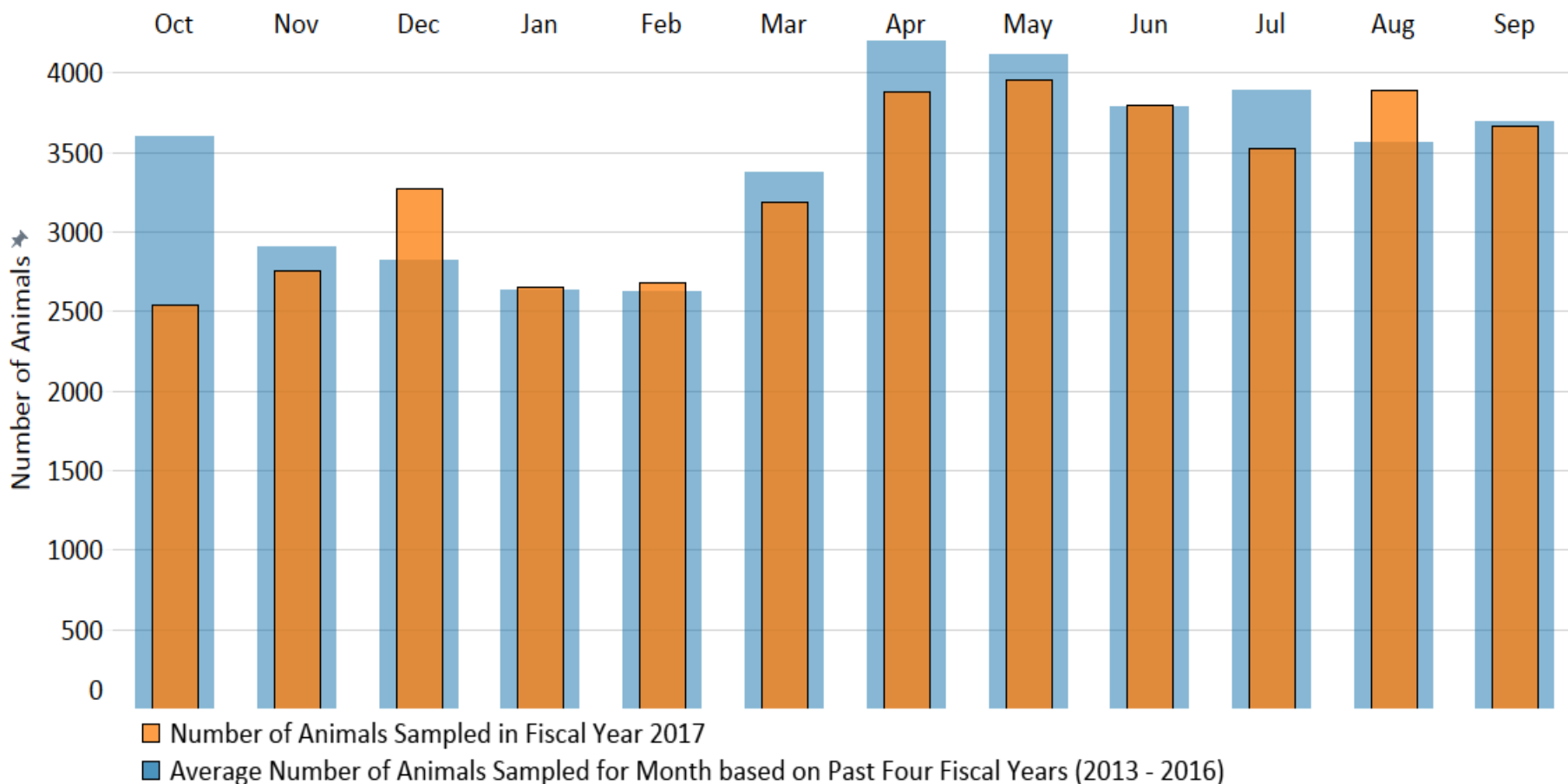
(Chart 8)

Surveillance Samples Collected at Slaughter
FY 2003 – 2017

Legend:
- Goat
- Other Sheep
- White Face
- Mottled <1% Black
- Mottled >1% Black
- Black Face
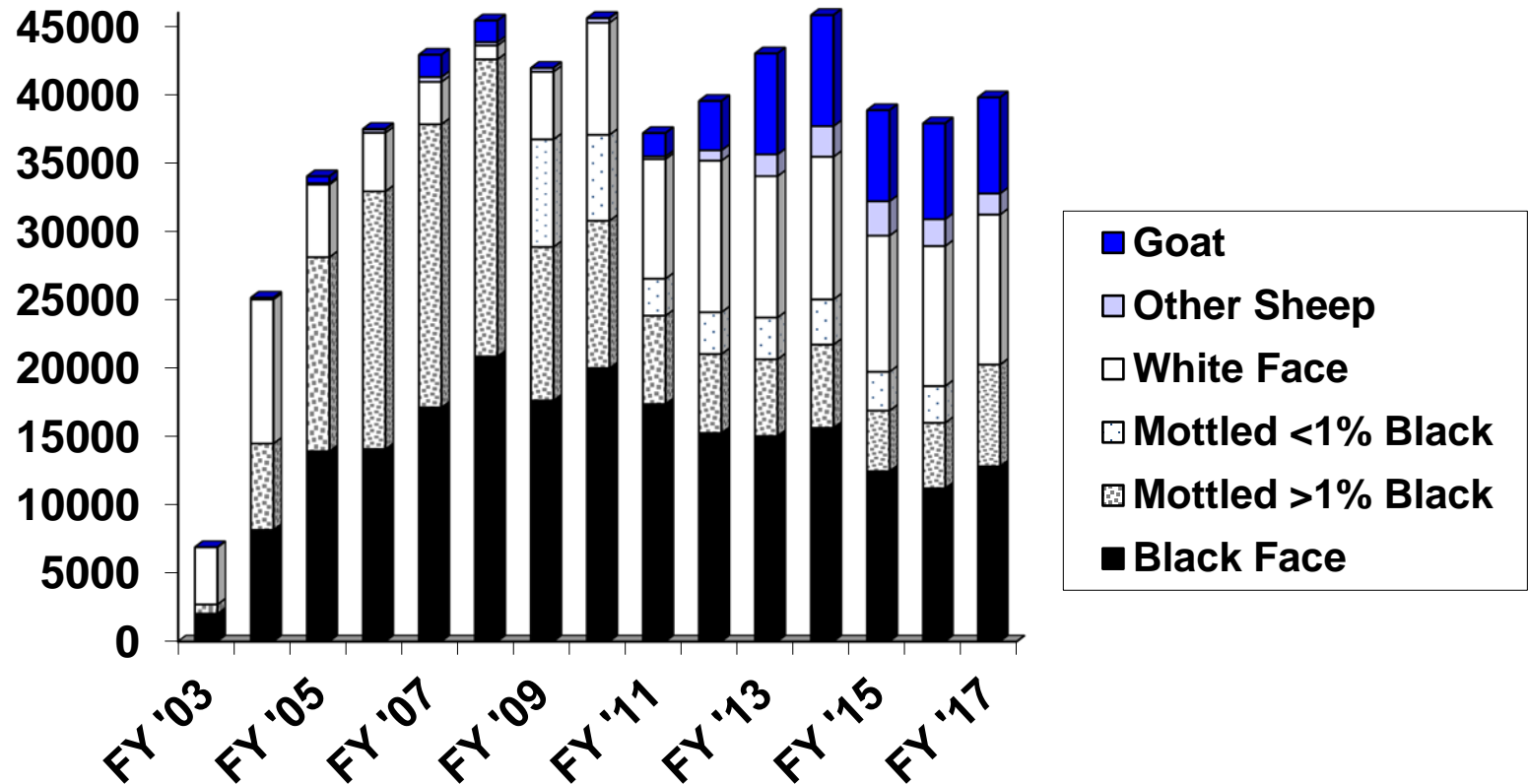
(Chart 9)

Other sheep includes hair sheep (74%) and sheep with gray, red, or unknown face color. Chart includes animals collected for RSSS & CSPS. Percent black of mottled-faced sheep available FY 2009 – 2016.
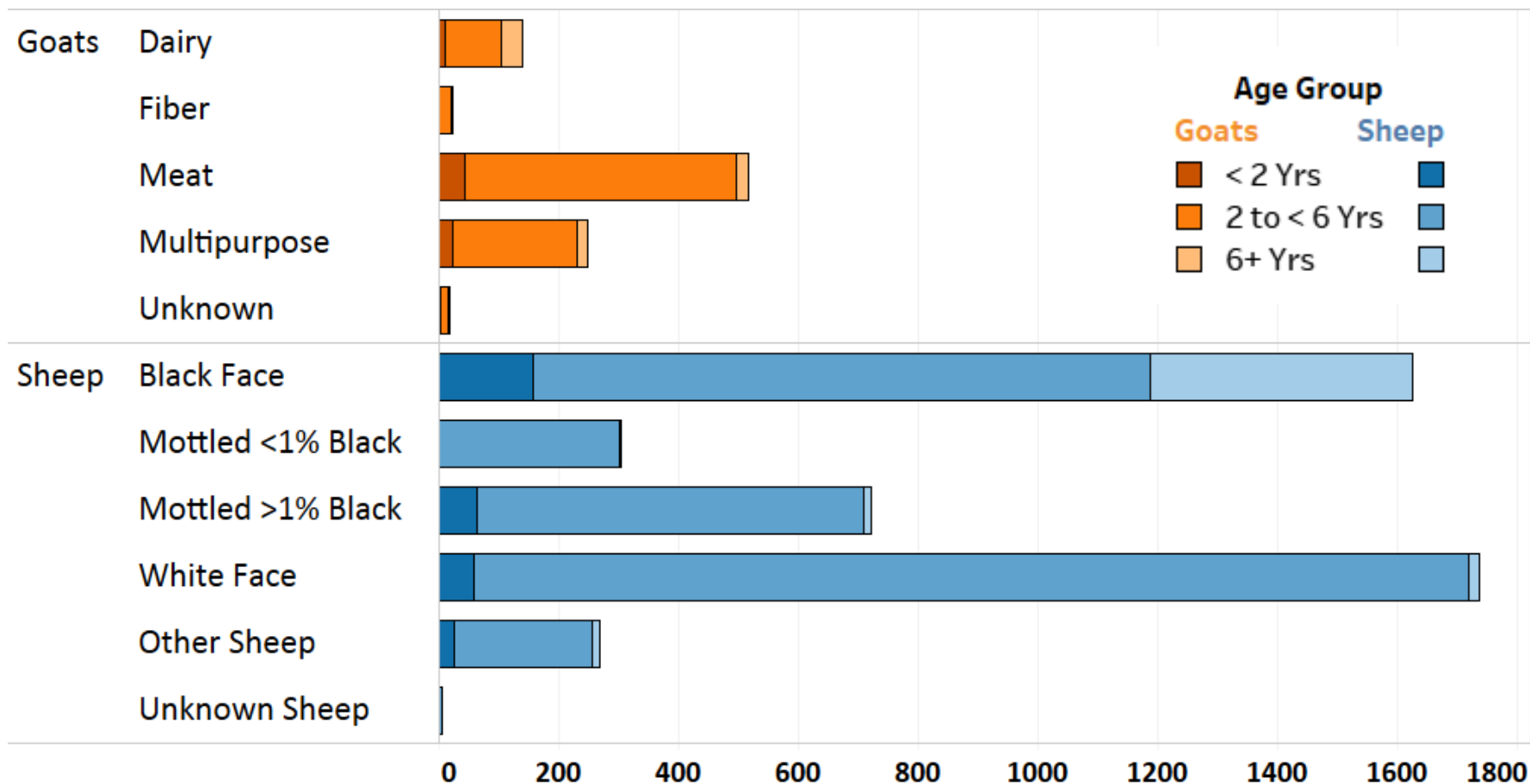
Cumulative Number of Animals Sampled by Month
FY 2017
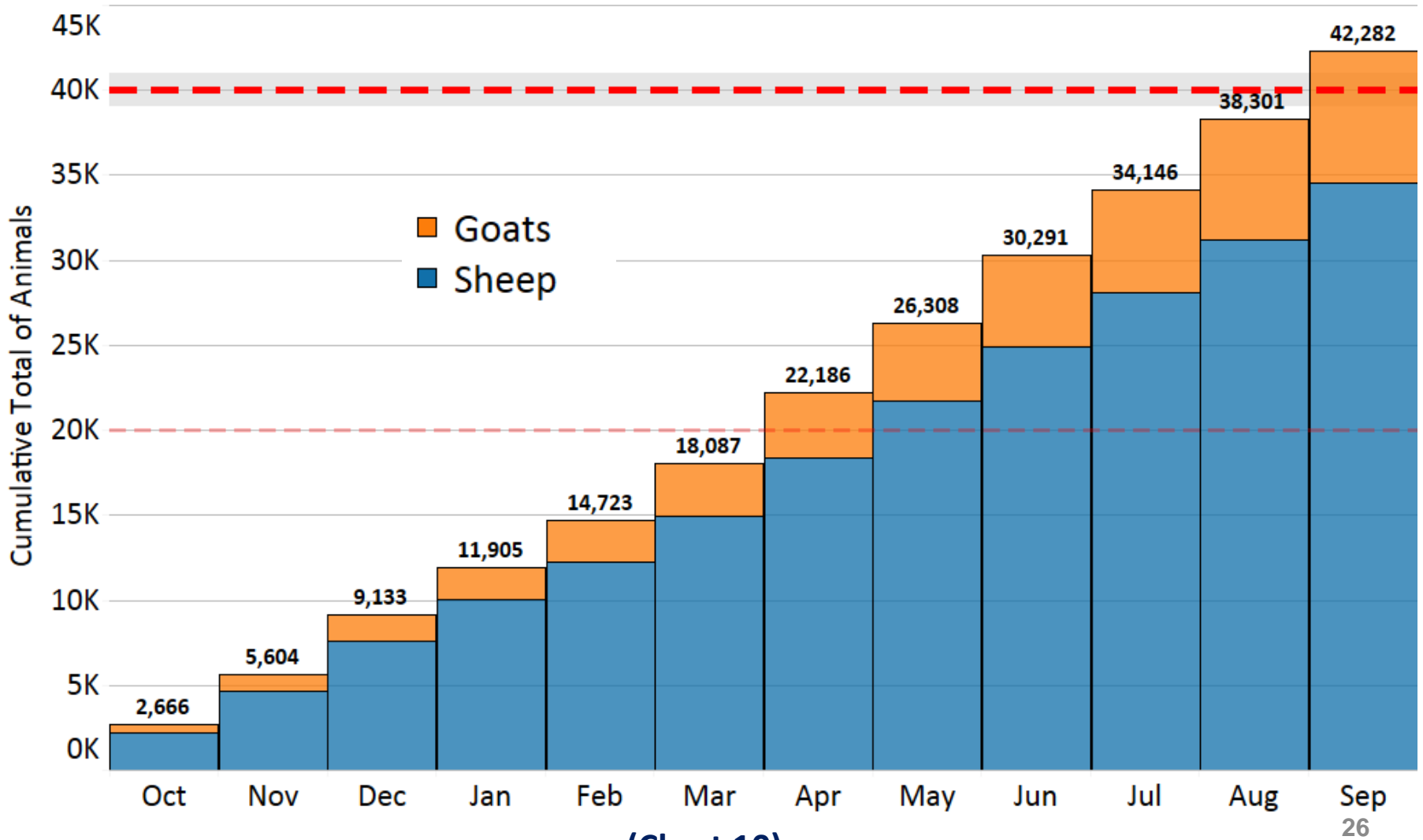
(Chart 10)

RSSS and On-Farm Surveillance Sampling by Species - *FY 2017*

RSSS

On Farm

Goats
Sheep

RSSS: 15%, 85%, **39,804 Total**

On Farm: 41%, 59%, **2,478 Total**
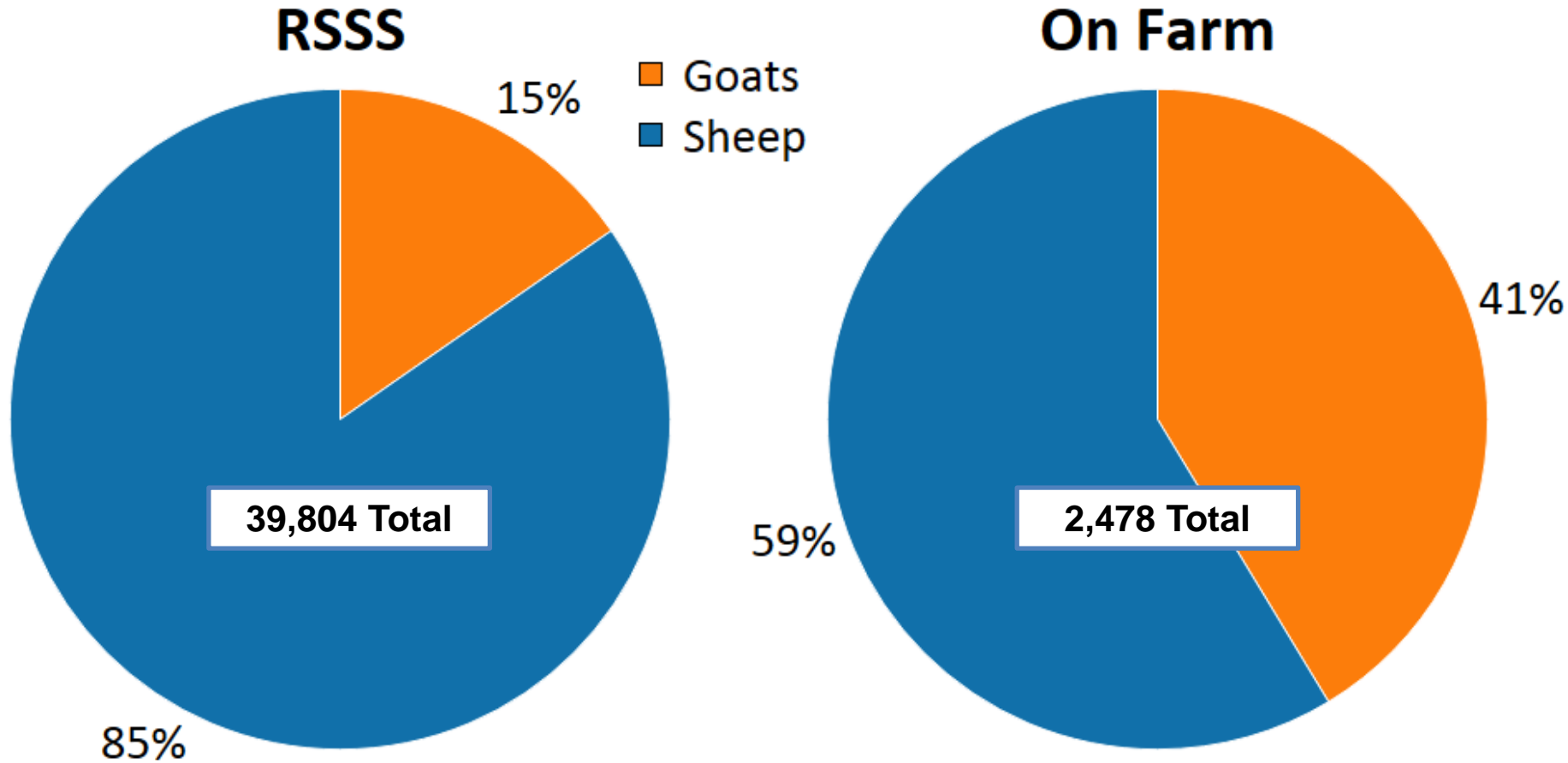
(Chart 11)

RSSS and On-Farm Surveillance Testing
by Species - *FY 2017*

(Chart 12)

# RSSS and On-Farm Surveillance Testing
by Species - *FY 2017*

Species	Type	Age Group			Grand Total
		< 2 Yrs	2 to < 6 Yrs	6+ Yrs	
Goats	Dairy	61	1,713	134	1,908
	Fiber	2	72	3	77
	Meat	175	3,043	165	3,383
	Multipurpose	309	1,752	78	2,139
	Unknown	7	254	2	263
	Total	554	6,834	382	7,770
Sheep	Black Face	834	9,323	3,375	13,532
	Mottled <1% Black	12	2,974	10	2,996
	Mottled >1% Black	224	4,040	84	4,348
	White Face	420	10,821	126	11,367
	Other Sheep	177	1,847	130	2,154
	Unknown Sheep	55	58	2	115
	Total	1,722	29,063	3,727	34,512
Grand Total		2,276	35,897	4,109	42,282

(Table 1)

**Darker shading represents greater number of animals tested that met targeting criteria.**

FY 2017 Sheep and Goat State Sampling Minimums and State Collections - *District 1*
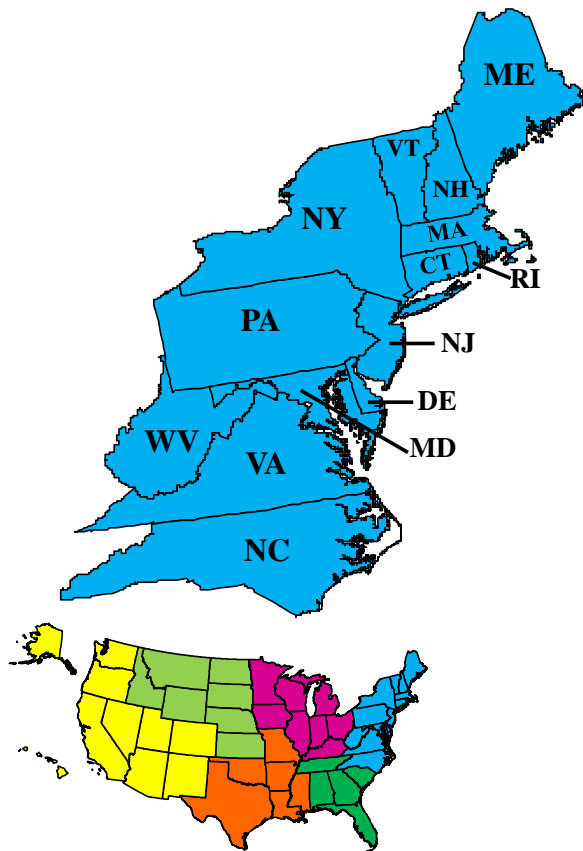
State	Sheep		Goats	
	Total Sampled FY 2018	Sampling Minimum FY 2018	Total Sampled FY 2018	Sampling Minimum FY 2018
Connecticut	37	25	20	5
Delaware	7	7	10	2
Maine	108	54	28	6
Maryland	149	118	67	63
Massachusetts	285	52	32	9
New Hampshire	126	37	2	5
New Jersey	181	82	15	9
New York	547	500	217	36
North Carolina	265	200	152	64
Pennsylvania	505	584	386	62
Rhode Island	12	9	12	1
Vermont	184	74	48	10
Virginia	575	500	73	63
West Virginia	619	240	95	27

(Table 2)

FY 2017 Sheep and Goat State Sampling Minimums and State Collections - *District 2*
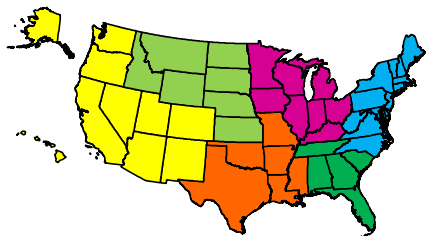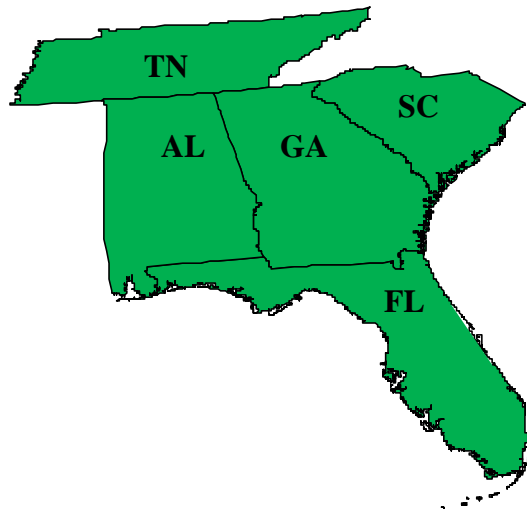
State	Sheep		Goats	
	Total Sampled FY 2018	Sampling Minimum FY 2018	Total Sampled FY 2018	Sampling Minimum FY 2018
Alabama	75	128	74	61
Florida	62	79	79	65
Georgia	130	113	128	89
South Carolina	74	67	76	44
Tennessee	987	300	150	145

(Table 3)

FY 2017 Sheep and Goat State Sampling Minimums and State Collections - *District 3*
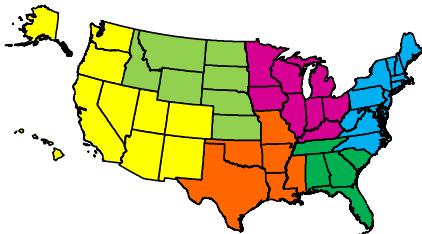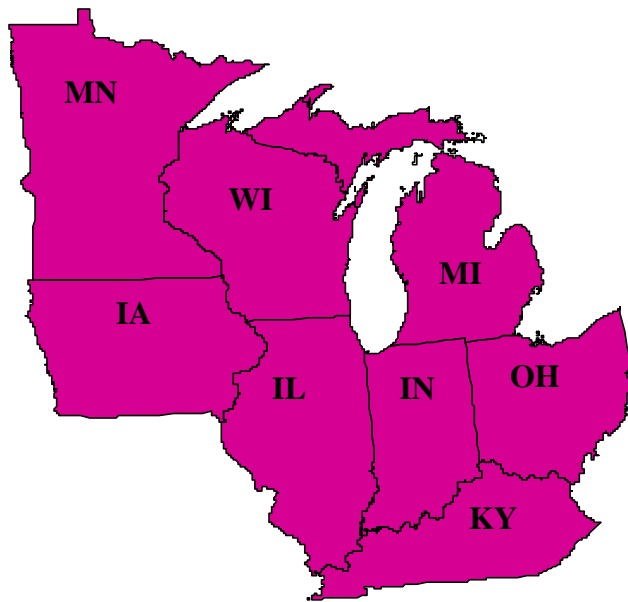
State	Sheep		Goats	
	Total Sampled FY 2018	Sampling Minimum FY 2018	Total Sampled FY 2018	Sampling Minimum FY 2018
Illinois	928	390	374	30
Indiana	1,459	330	439	52
Iowa	1,938	590	141	366
Kentucky	697	330	393	75
Michigan	1,514	420	215	170
Minnesota	1,793	586	95	42
Ohio	1,489	587	176	331
Wisconsin	2,031	490	381	74

(Table 4)

FY 2017 Sheep and Goat State Sampling Minimums and State Collections - *District 4*
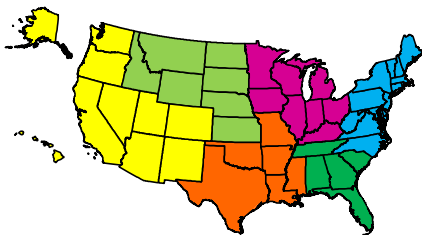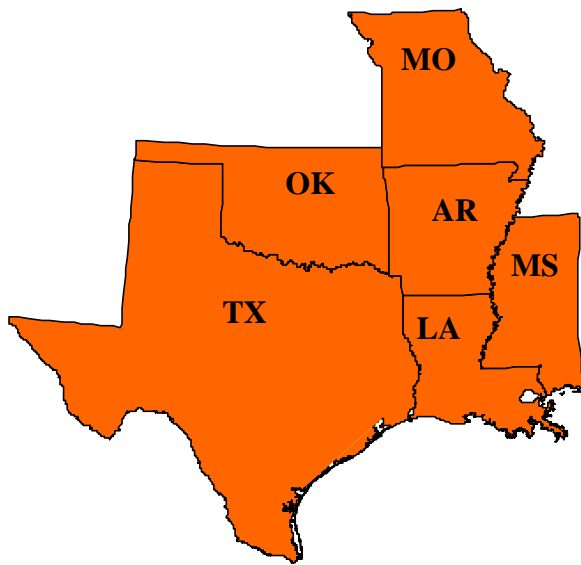
State	Sheep		Goats	
	Total Sampled FY 2018	Sampling Minimum FY 2018	Total Sampled FY 2018	Sampling Minimum FY 2018
Arkansas	35	110	107	48
Louisiana	53	48	15	24
Mississippi	82	75	51	26
Missouri	598	584	612	96
Oklahoma	366	290	255	114
Texas	990	597	463	597

(Table 5)

FY 2017 Sheep and Goat State Sampling Minimums and State Collections - *District 5*
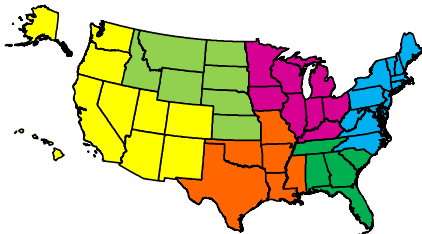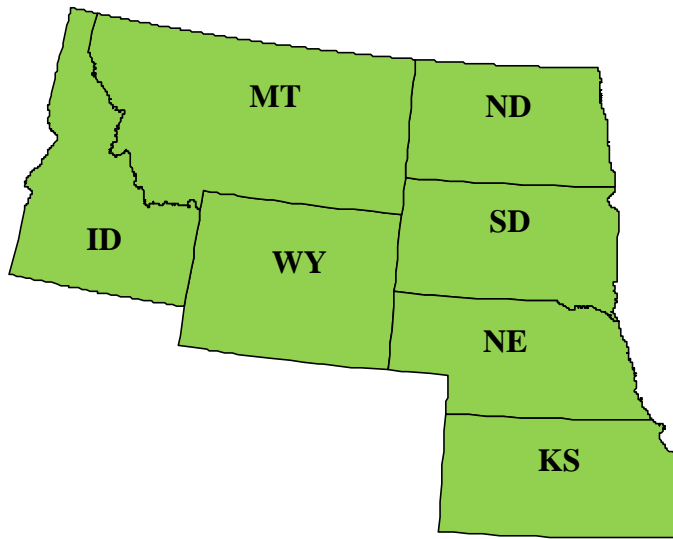
State	Sheep		Goats	
	Total Sampled FY 2018	Sampling Minimum FY 2018	Total Sampled FY 2018	Sampling Minimum FY 2018
Idaho	831	593	140	21
Kansas	381	330	342	55
Montana	1,896	593	36	12
Nebraska	655	550	89	30
North Dakota	788	440	25	5
South Dakota	3,385	593	46	19
Wyoming	1,730	595	58	11

(Table 6)

FY 2017 Sheep and Goat State Sampling Minimums and State Collections - *District 6*
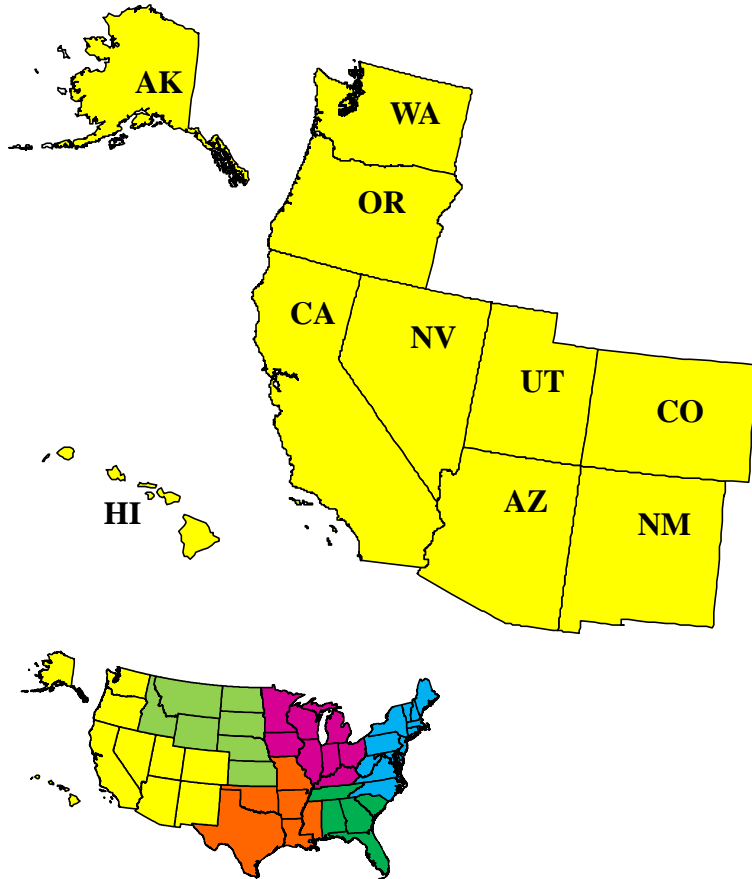
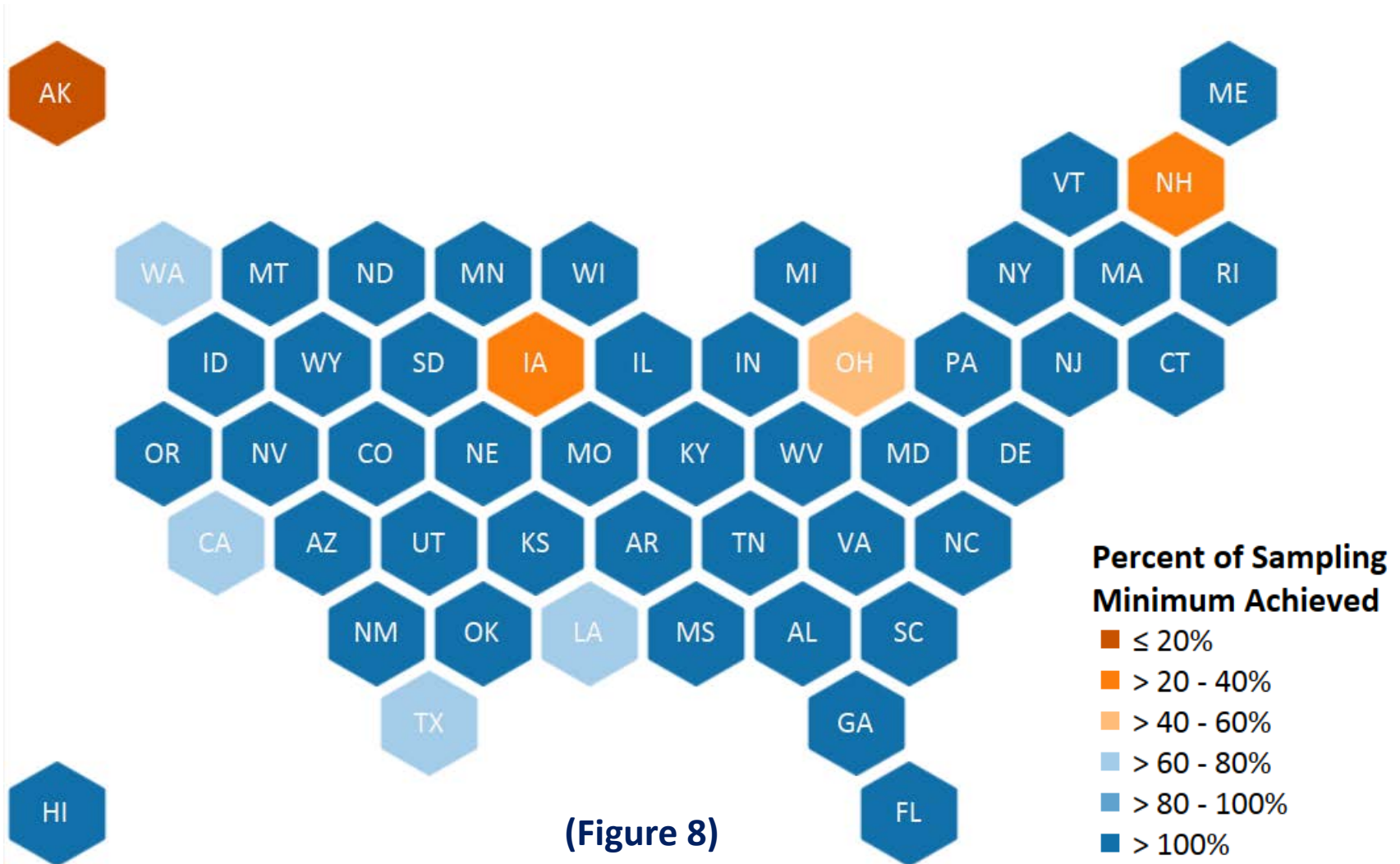| State	Sheep		Goats	
	Total Sampled FY 2018	Sampling Minimum FY 2018	Total Sampled FY 2018	Sampling Minimum FY 2018
Alaska	9	5	0	1
Arizona	155	188	169	108
California	820	596	397	588
Colorado	1,652	594	272	215
Hawaii	102	96	22	15
Nevada	135	400	41	22
New Mexico	453	232	59	16
Oregon	909	591	233	47
Utah	666	594	33	15
Washington	504	310	143	189

(Table 7)

Percent of Sampling Minimum Achieved in FY 2017—RSSS and On-farm Surveillance—Sheep
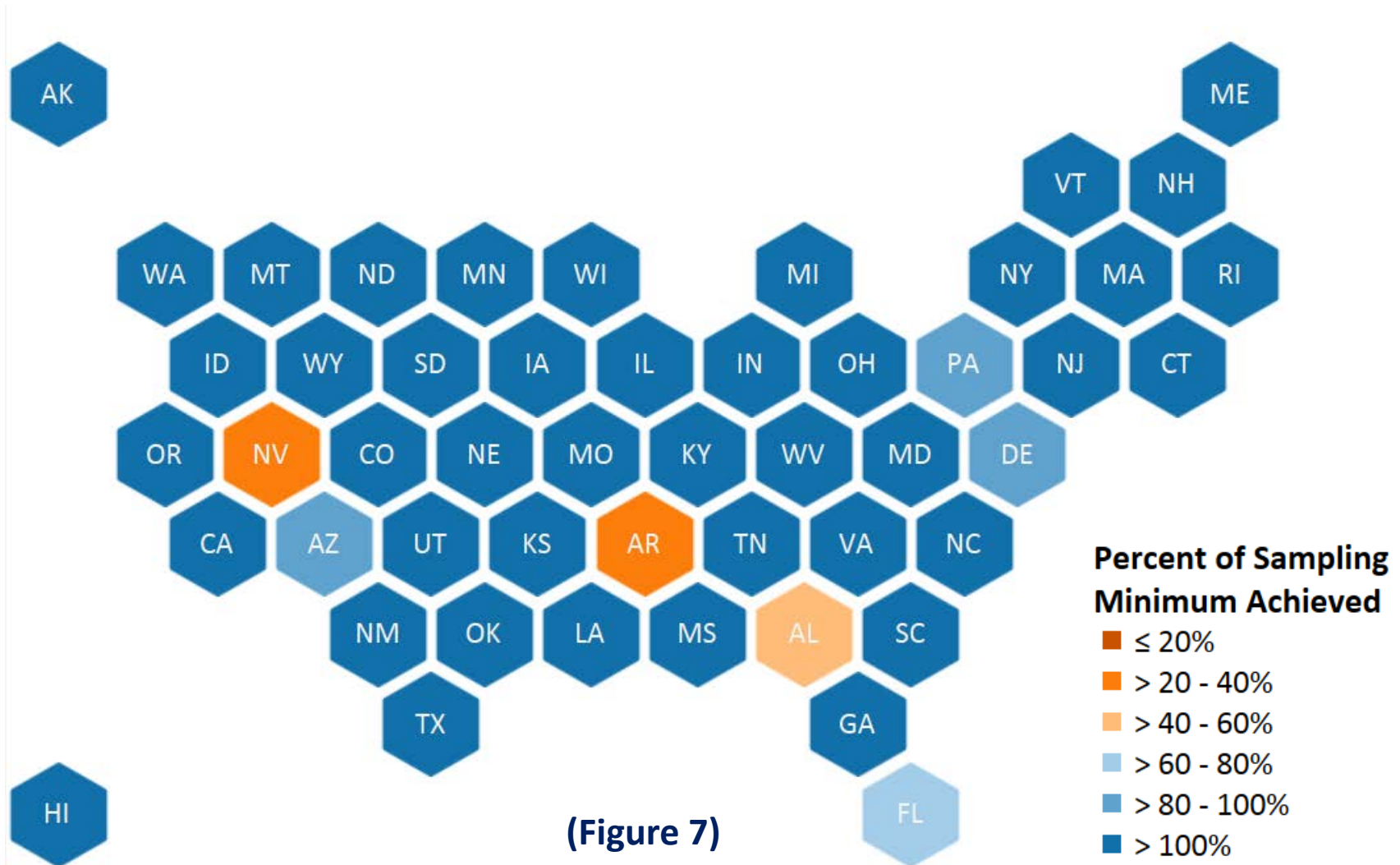
(Figure 7)

Percent of Sampling Minimum Achieved
in FY 2017—RSSS and On-farm Surveillance—Goats

(Figure 8)