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National Animal Health Monitoring System

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Goat and Kid Predator and Nonpredator Death Loss in the United States, 2015

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Cover photograph courtesy of Camilla Kristensen.

Items of Note

In 2015, about 500,000 adult and kid goats were lost to all causes (nonpredator and predator) in the United States, which represented 9.8 percent of U.S. adult goat inventory and 19.4 percent of kids born in 2015. About one-third of operations (34.2 percent) had any kid losses, and a slightly lower percentage (28.2 percent) had any adult goat losses. The total value of goat and kid losses was $69.6 million.

Texas had the largest inventory of goats on January 1, 2016: 30.5 percent of adult goats and 30.2 percent of the kid crop in the United States in 2015. Correspondingly, Texas had the highest percentage of losses: 36.3 percent of U.S. adult goat deaths and 37.8 percent of kid deaths.

Nonpredator causes accounted for about three-fourths of all adult goat and kid death losses in the United States in 2015. Undetermined causes (found dead or unknown) accounted for the highest number of nonpredator losses in both goats and kids. Of known losses due to nonpredator causes, internal parasites were the primary cause of loss, resulting in almost 87,000 goat and kid deaths in 2015. Weather-related causes and kidding problems were also important causes of loss.

For losses due to predators, coyotes and dogs accounted for the highest percentages of goat and kid death losses in 2015. Overall, coyotes and dogs accounted for almost 80,000 goat and kid deaths, or about 65 percent of all losses due to predators. There was also a smaller number of goats and kids (about 14,500) that were injured but not killed by predators.

Overall, 93.0 percent of operations used some kind of nonlethal method to control predators. The nonlethal methods used by the highest percentage of operations (aside from “other”) were fencing and guard dogs (44.5 and 33.0 percent of operations, respectively). Operations spent an average of $1,085 on nonlethal predator control methods and $444 on lethal methods. Only 1 of 40 operations (2.3 percent) sought help from State or Federal government trappers to control predators.

Overall, 7.7 percent of operations that had goats at any time during year quit raising goats during 2015. Retirement was the most common reason (aside from “other” reason) for quitting.

The numbers provided in this report are based on a sample of operations and are thus estimates of the true numbers. There is variability associated with each estimate, although the measures of variability (such as the standard error) are not always shown.

Acknowledgments

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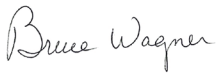
We'd like to thank the NASS enumerators who telephoned and visited goat operations and collected the data. Their hard work and dedication were invaluable. A thank you also goes to the personnel at the USDA–APHIS–Veterinary Services' Center for Epidemiology and Animal Health for their efforts in generating and distributing this report.

We especially thank the goat producers whose voluntary efforts made the goat and kid death loss study possible.



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Feedback
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Table of Contents

Introduction 1

Terms Used in This Report 2

Section I: Population Estimates—Inventory 5

A. U.S. Demographics 5

1. Inventory by class 5
2. Operations 6
3. Kid crop 7

B. State Demographics 8

1. Goat and kid inventories 8

Section II: Population Estimates—Death Losses 10

A. Predator and Nonpredator Goat and Kid Death Losses 10

1. Overall death losses in 2015 10
2. Overall death losses by State 13
3. Nonpredator goat and kid death losses 32
4. Predator goat and kid death losses 39
5. Number of goats and kids injured but not killed by predators 49
6. Nonlethal methods used to prevent wildlife-caused losses on goat operations 53
7. Operations not raising goats in the future 65

Section III: Methodology 67

1. Survey procedures 67
2. Estimation procedures 67
3. Revision policy 67

Introduction

Each January, USDA's National Agricultural Statistics Service (NASS) collects data on goat inventory, kid crop, and total goat and kid death losses. State-level inventory and total U.S. kid crop estimates (number of head) are published each January via the NASS "Sheep and Goats" report. Total goat and kid death losses for 2009 were published via the NASS "Sheep and Goats Death Loss" report in May 2010.

For the NASS January 2016 goat survey, USDA's Animal and Plant Health Inspection Service's National Animal Health Monitoring System provided funding and expertise for a detailed, retrospective breakdown of goat and kid death losses by producer-attributed cause during the previous year. This report presents State-level and other summary results from the NASS survey and represents the first time that goat losses have been broken out by specific predator and nonpredator causes.

Terms Used in This Report

Acidosis: A condition caused by excessive amounts of acid produced in the rumen, often due to ration change or grain overload.

Adult goat inventory: Breeding bucks and does 1 year and older and market goats 1 year and older.

Bloat: A condition in which ruminants cannot release the gas developed in the rumen as a result of fermentation.

Fright tactics: Devices and strategies to frighten predators, including lights, bells, radios, vehicles, propane exploders, electronic guards, and others. Unless these devices are rotated or otherwise periodically changed, predators can become acclimated to them.

Herding: Using herders for goats in large pastures or on free range to help discourage predation.

Kid crop: Kids born.

Kid: Animal less than 1 year old.

Goat/market goat: Animals 1 year and older for use as feeders or for slaughter.

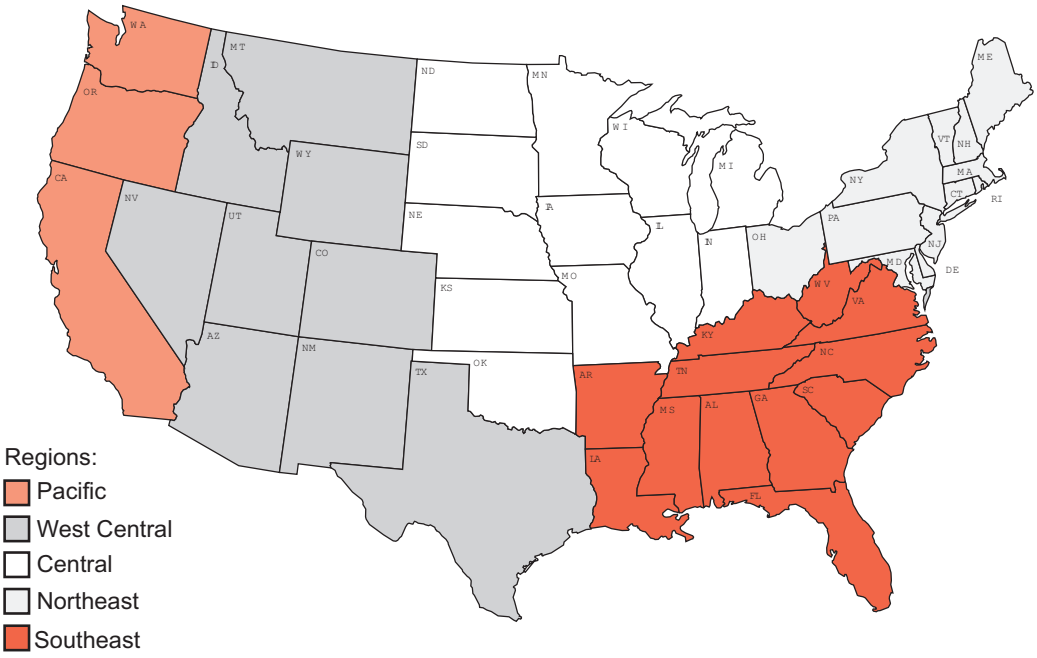
Metabolic problems: These can be caused by increased demand for a special nutrient. Examples include milk fever (hypocalcemia) and grass tetany (hypomagnesemia).

Night penning: Confining or concentrating flocks during the night when they are most vulnerable to predation.

Regions/States:

Pacific: California, Oregon, Washington
West Central: Arizona, Colorado, Idaho, Montana, New Mexico, Nevada, Texas, Utah, Wyoming
Central: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota, Wisconsin
Northeast: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont
Southeast: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia

States participating in the Goat and Kid Predator and Nonpredator Death Loss, 2015 study, by region



Standard error: Standard error of the estimates. If rounded to zero, the standard error was reported as (0.0). If there were no reports of the event, no standard error was reported (—)

Value: NASS collected data on the average per-head value of goats on January 1, 2016, by type of goat (Angora, milk, meat, and other). However, since data on death losses were not collected by goat type, operations were categorized by type of goat (Angora, milk, meat, and other) based on their inventory of these goat types. All deaths for a particular operation were then assigned to a single goat type based on operation type. Most operations had only one type of goat. The value of deaths for an operation was calculated as the number of deaths multiplied by the average value per head.

Section I: Population Estimates—Inventory

Note: Where appropriate, column or row totals are shown as 100.0 to aid in interpretation; however, estimates may not sum to 100.0 due to rounding.

A. U.S. Demographics

1. Inventory by class

The total number of goats and kids in the United States decreased by 30,000 animals from 2015 to 2016 in 2016 compared with 2015. Much of the difference was due to a decrease in the number of breeding does 1 year old and older.

A.1.a. Number of goats and kids, by class and by year:

	January 1 Number (head)	
	Year	
Class	**2015**	**2016**
Breeding does 1 year and older	1,634,500	1,607,500
Breeding bucks 1 year and older	164,000	163,000
Replacement kids less than 1 year old	389,500	390,500
Market goats and kids	462,000	459,000
Total adult and kid goats	2,650,000	2,620,000

Source: NASS “Sheep and Goats” report, January 2016. NASS published slightly revised inventory estimates in January 2017, shortly before the publication of the this report. Estimates in the this report were not revised.

Of the 2.6 million goats and kids in the national goat herd, almost 2.1 million (80 percent) were comprised of “meat and other” goat types. On average, about 0.8 kids were born for every Angora breeding doe and 1.1 kids born for every milk goat breeding doe.

A.1.b. Number of goats and kids, by goat class and by goat type, 2016:

	January 1 Number (head)		
	Goat Type		
Class	**Angora**	**Milk**	**Meat and other**
Breeding does 1 year and older	103,500	241,000	1,263,000
Breeding bucks 1 year and older	7,000	24,000	132,000
Replacement kids less than 1 year old	19,500	71,000	300,000
Market goats and kids	20,000	39,000	400,000
Total goats and kids	150,000	375,000	2,095,000
Kid crop (2015)	79,000	278,000	1,320,000

Source: NASS “Sheep and Goats” report, January 2016. NASS published slightly revised inventory estimates in January 2017, shortly before the publication of the this report. Estimates in the this report were not revised.

2. Operations

The majority of operations with goats and/or kids on January 1, 2016, raised “meat and other” goat types.

A.2.a. Number of operations with goats and/or kids on January 1, 2016, by goat type:

Goat type	**Number of operations**
Angora	7,419
Milk	33,448
Meat and other	118,635
Total	148,332

Source: Estimated by NAHMS.

Over 60 percent of operations on January 1, 2016, had 1 to 9 goats and kids.

A.2.b. Percentage of operations and percentage of goat and/or kids, by size of operation, January 1, 2016:

Size of operation	Percent operations	Percent goats and/or kids
1 to 9	61.8	14.1
10 to 19	19.4	15.6
20 to 99	16.7	35.9
100 or more	2.2	34.4
Total	100.0	100.0

Source: Estimated by NAHMS.

3. Kid crop

From 2014 to 2015, the U.S. kid crop decreased by 37,000 animals. Most of this decline can be attributed to the corresponding decrease in the number of breeding does (table A.1.a).

A.3. Kid crop and kid crop per 100 does on hand, by year:

	Number Kids	
	Year	
	2014	2015
Kid crop (head)	1,714,000	1,677,000
Kid crop per 100 does on hand (January 1 of the following year)	104.9	104.3

Source: NASS “Sheep and Goats” report, January 2016. NASS published slightly revised inventory estimates in January 2017, shortly before the publication of the this report. Estimates in this report were not revised.

B. State Demographics

1. Goat and kid inventories—January 1, 2016

Texas had the largest inventory of goats and kids on January 1, 2016, with 28.2 percent of goats and 30.2 percent of the kid crop in the United States in 2015. Tennessee and California ranked second and third in number of goats and kids on hand.

B.1. Number of adult goats and kid crop, by State:

State	Adult goats[1]	Kid crop (2015)[2]
AL	32,600	21,100
AZ	77,500	51,300
AR	26,900	24,500
CA	80,500	57,000
CO	23,700	30,000
FL	35,000	31,500
GA	32,100	25,600
ID	14,300	20,000
IL	47,600	29,100
IN	26,700	27,200
IA	43,600	45,300
KS	19,300	28,500
KY	29,100	36,600
LA	12,700	8,200
MI	15,500	17,100
MN	27,500	32,000
MS	16,700	12,600
MO	54,100	43,700

continued→

B.1. Number of adult goats and kid crop, by State (cont'd):

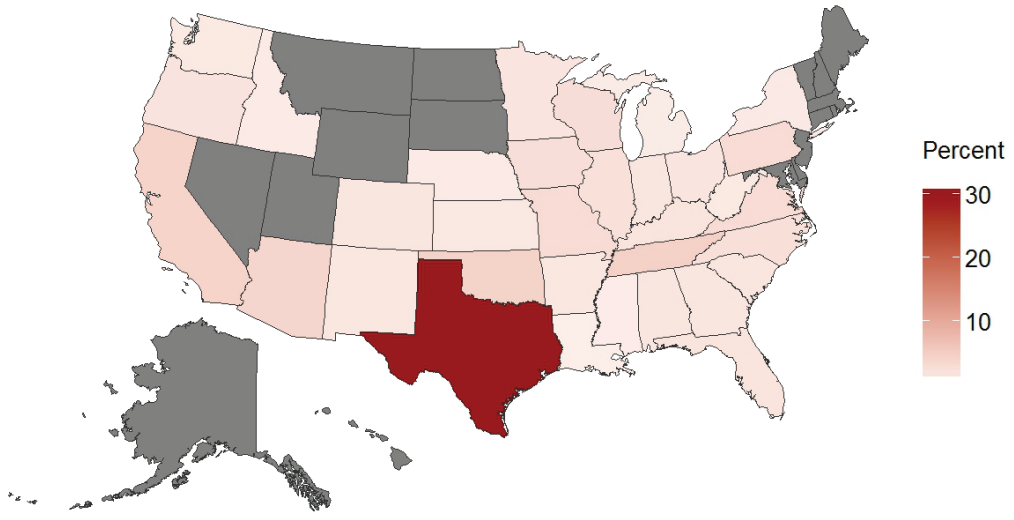
State	Adult goats[1]	Kid crop (2015)[2]
NE	16,200	19,500
New England[3]	25,700	20,900
NM	25,300	24,500
NY	21,100	18,600
NC	53,200	27,600
OH	29,400	30,100
OK	69,400	74,000
OR	35,800	28,300
PA	49,900	48,600
SC	30,000	25,300
TN	73,600	80,800
TX	557,900	507,000
VA	49,400	49,300
WA	21,400	19,700
WV	23,900	19,200
WI	45,800	46,600
Other States[4]	86,200	95,700
U.S.	1,829,600	1,677,000

[1]Includes does, bucks, and market goats 1 year and older. Estimated by NAHMS.

[2] State-level kid crop estimated by NAHMS; U.S total published by NASS.

[3]New England includes CT, ME, MA, NH, RI, and VT.

Percentage of U.S. goat and kid inventory, by State



The States composing the "New England" group (CT, ME, MA, NH, RI, and VT) are not shaded in the map above because of their small contribution to the U.S. goat and kid inventory (1.3 percent of U.S. goat and kid inventory when combined). The same is true for the "Other States" group (AK, DE, HI, MD, MT, NV, NJ, ND, SD, UT, and WY), which, when combined, make up only 5.2 percent of U.S. goat and kid inventory.

Section II: Population Estimates—Death Losses

Note: unless otherwise specified, all tables in this section refer to the calendar year 2015.

A. Predator and Nonpredator Goat and Kid Death Losses

1. Overall death losses—2015

Previous national estimates established that about 80 percent of goat operations and inventory were devoted to raising “meat or other” production goat types (tables A.1.b and A.2.a, respectively). Correspondingly, nearly 85 percent of adult-goat and kid deaths occurred in this goat type. Considering deaths within goat types, kid losses made up about two-thirds of all losses.

A.1.a. Number of adult goat and kid death losses due to all causes and total value of losses, by goat type:

Number and Value ($1,000)

Goat Type

	Angora number	Angora value	Milk number	Milk value	Meat/ other number	Meat/ other value	Total number	Total value
Goats	6,700	705	19,900	4,538	153,400	27,856	180,000	33,099
Kids	14,500	1,195	37,000	6,231	273,500	29,128	325,000	36,554
Total goats and kids	21,200	1,900	56,900	10,769	426,900	56,984	505,000	69,653

Overall, death losses in “meat and other” goats accounted for 10.7 percent of goat inventory, while losses in Angora goats accounted for 5.8 percent.

A.1.b. Adult goat death losses as a percentage of adult goat inventory on January 1, 2016, by goat type:

Percent Inventory			
Goat Type			
Angora	Milk	Meat and other	Total
5.8	8.0	10.7	9.8

Kid deaths as a percentage of 2015 kid crop ranged from 13.3 percent in milk goats to 20.7 percent in “meat and other” goats.

A.1.c. Kid death losses as a percentage of 2015 kid crop, by goat type:

Percent Kid Crop			
Goat Type			
Angora	Milk	Meat and other	Total
18.3	13.3	20.7	19.4

About three-fourths of goat and kid death losses were due to nonpredator causes.

A.1.d. Number and percentage of goat and kid death losses, by class and by cause of death:

	Number and Percent					
	Cause					
	Predator		Nonpredator		Total	
Class	No.	Pct.	No.	Pct.	No.	Pct.
Adult	38,880	21.6	141,120	78.4	180,000	100.0
Preweaned kids	63,823	26.5	177,258	73.5	241,081	100.0
Postweaned kids	19,930	23.7	63,989	76.3	83,919	100.0
Total	122,633	24.3	382,367	75.7	505,000	100.0

2. Overall death losses by State

As might be expected for a State that had the most goats and kids on January 1, 2016, (table B.1), Texas had by far the most goats die due to both nonpredator and predator causes. The total value of goat losses in the United States in 2015 was $33.1 million.

A.2.a. Number of goats that died, by State and by cause of death:

	Number of Goats That Died					
	Cause					
	Nonpredator		Predator		All causes	
State	Number	Std. error	Number	Std. error	Number	Std. error
AL	3,129	(488)	695	(173)	3,824	(574)
AZ	607	(300)	4,100	(2,951)	4,707	(2,967)
AR	3,231	(712)	871	(281)	4,101	(767)
CA	3,018	(404)	887	(141)	3,905	(434)
CO	998	(141)	301	(187)	1,299	(233)
FL	3,898	(1,101)	862	(274)	4,759	(1,133)
GA	3,497	(595)	1,326	(577)	4,824	(825)
ID	(D)	(—)	(D)	(—)	1,403	(425)
IL	2,954	(1,461)	291	(128)	3,245	(1,467)
IN	2,341	(621)	667	(250)	3,008	(667)
IA	2,441	(634)	181	(160)	2,622	(654)
KS	2,483	(331)	308	(74)	2,791	(349)
KY	1,709	(490)	464	(366)	2,173	(611)
LA	1,093	(262)	524	(372)	1,617	(417)
MI	1,975	(627)	34	(13)	2,009	(627)
MN	1,723	(321)	68	(29)	1,791	(324)
MS	2,014	(504)	732	(281)	2,746	(576)
MO	4,679	(1,370)	392	(108)	5,071	(1,374)

continued→

A.2.a. Number of goats that died, by State and by cause of death (cont'd):

	Number of Goats That Died					
	Cause					
	Nonpredator		Predator		All causes	
State	Number	Std. error	Number	Std. error	Number	Std. error
NE	1,078	(167)	25	(7)	1,103	(167)
New England[1]	1,417	(374)	103	(49)	1,520	(376)
NM	622	(171)	715	(254)	1,337	(335)
NY	(D)	(—)	(D)	(—)	1,921	(548)
NC	2,629	(549)	227	(168)	2,856	(572)
OH	3,913	(656)	728	(279)	4,641	(738)
OK	10,772	(4,796)	1,437	(592)	12,209	(4,833)
OR	1,642	(319)	375	(93)	2,017	(338)
PA	3,651	(1,722)	0	(0)	3,651	(1,722)
SC	3,761	(1,764)	1,314	(550)	5,074	(1,839)
TN	4,310	(861)	576	(174)	4,887	(895)
TX	46,395	(4,625)	18,906	(2,447)	65,301	(5,531)
VA	2,884	(533)	157	(26)	3,041	(533)
WA	1,334	(481)	131	(80)	1,465	(486)
WV	1,665	(397)	628	(551)	2,293	(678)
WI	2,728	(260)	29	(21)	2,757	(261)
Other States[2]	(D)	(—)	(D)	(—)	8,032	(1,350)
U.S.	141,120		38,880		180,000	

[1]New England includes CT, ME, MA, NH, RI, and VT.

[2]Other States include AK, DE, HI, MD, MT, NV, NJ, ND, SD, UT, and WY.

(D) = Numbers suppressed to avoid potential disclosure.

A.2.b. Value of goats that died, by State and by cause of death:

	Value ($1,000) **of Goats That Died**		
	Cause		
State	**Nonpredator**	**Predator**	**All causes**
AL	571	124	695
AZ	80	680	760
AR	625	181	805
CA	532	160	692
CO	198	54	252
FL	726	171	896
GA	644	230	875
ID	272	2	275
IL	554	53	606
IN	445	129	574
IA	466	20	486
KS	459	56	515
KY	316	85	401
LA	204	87	290
MI	410	7	417
MN	348	13	361
MS	373	132	505
MO	875	70	946

continued→

A.2.b. Value of goats that died, by State and by cause of death (cont'd):

	Value (x$1,000) **of Goats That Died**		
	Cause		
	Nonpredator	**Predator**	**All causes**
NE	199	5	204
New England[1]	279	20	299
NM	99	102	202
NY	373	3	377
NC	490	41	531
OH	746	141	886
OK	2,166	259	2,426
OR	327	64	391
PA	751	0	751
SC	689	255	943
TN	781	106	888
TX	8,217	3,294	11,511
VA	536	28	564
WA	256	24	281
WV	314	113	427
WI	581	6	587
Other States[2]	1,335	147	1,482
U.S.	26,237	6,862	33,101

[1]New England includes CT, ME, MA, NH, RI, and VT.

[2]Other States include AK, DE, HI, MD, MT, NV, NJ, ND, SD, UT, and WY.

Texas and Oklahoma accounted for about 40 percent of all preweaned and postweaned kid deaths. Tennessee also had a large number of preweaned losses.

A.2.c. Number of preweaned kid goats that died, by State and by cause of death:

	Number of Preweaned Kid Goats That Died					
	Cause					
	Nonpredator		Predator		All causes	
State	Number	Std. error	Number	Std. error	Number	Std. error
AL	3,398	(629)	1,509	(427)	4,907	(794)
AZ	1,544	(847)	4,372	(3,047)	5,916	(3,161)
AR	2,876	(741)	2,295	(722)	5,171	(1,047)
CA	3,757	(348)	1,033	(200)	4,791	(428)
CO	3,185	(1,144)	194	(76)	3,379	(1,154)
FL	3,966	(1,194)	1,645	(447)	5,610	(1,323)
GA	4,514	(640)	1,545	(376)	6,060	(734)
ID	(D)	(—)	(D)	(—)	1,755	(444)
IL	6,128	(2,317)	86	(29)	6,214	(2,317)
IN	2,847	(487)	105	(42)	2,952	(493)
IA	4,331	(565)	49	(24)	4,380	(566)
KS	2,916	(397)	421	(134)	3,337	(432)
KY	2,635	(427)	401	(105)	3,036	(441)
LA	1,096	(386)	249	(104)	1,345	(404)
MI	(D)	(—)	(D)	(—)	2,243	(939)
MN	2,477	(383)	20	(9)	2,497	(383)
MS	2,548	(642)	793	(351)	3,341	(873)
MO	7,385	(1,175)	640	(121)	8,025	(1,183)

continued→

A.2.c. Number of preweaned kid goats that died, by State and by cause of death (cont'd):

	Number of Preweaned Kid Goats That Died					
	Cause					
	Nonpredator		Predator		All causes	
State	Number	Std. error	Number	Std. error	Number	Std. error
NE	2,016	(507)	132	(54)	2,148	(509)
New England[1]	1,556	(390)	38	(8)	1,594	(390)
NM	1,387	(291)	1,144	(897)	2,531	(945)
NY	1,553	(315)	228	(197)	1,781	(371)
NC	3,368	(573)	353	(101)	3,721	(586)
OH	3,678	(586)	281	(158)	3,959	(604)
OK	7,827	(1,800)	1,283	(331)	9,110	(1,831)
OR	3,148	(1,470)	429	(58)	3,577	(1,471)
PA	5,385	(2,719)	65	(45)	5,451	(2,721)
SC	1,769	(278)	2,469	(1,489)	4,238	(1,520)
TN	9,253	(1,560)	1,932	(612)	11,185	(1,725)
TX	53,789	(6,136)	37,370	(2,932)	91,159	(6,826)
VA	4,487	(1,335)	1,200	(654)	5,687	(1,486)
WA	1,477	(461)	134	(63)	1,611	(463)
WV	4,536	(2,345)	224	(45)	4,760	(2,345)
WI	4,002	(461)	24	(6)	4,026	(461)
Other States[2]	(D)	(—)	(D)	(—)	9,583	(1,548)
U.S.	177,258		63,823		241,081	

[1]New England includes CT, ME, MA, NH, RI, and VT.

[2]Other States include AK, DE, HI, MD, MT, NV, NJ, ND, SD, UT, and WY.

(D) = Numbers suppressed to avoid potential disclosure of respondents.

A.2.d. Number of postweaned kid goats that died, by State and by cause of death:

	Number of Postweaned Kid Goats That Died					
	Cause					
	Nonpredator		Predator		All causes	
State	Number	Std. error	Number	Std. error	Number	Std. error
AL	1,300	(312)	865	(304)	2,165	(434)
AZ	391	(269)	3,694	(3,018)	4,085	(3,030)
AR	2,885	(1,141)	498	(169)	3,383	(1,157)
CA	1,027	(143)	497	(120)	1,524	(204)
CO	341	(70)	36	(10)	377	(71)
FL	1,259	(333)	879	(197)	2,138	(383)
GA	1,270	(241)	568	(213)	1,838	(318)
ID	(D)	(—)	(D)	(—)	154	(15)
IL	2,338	(1,029)	201	(97)	2,540	(1,041)
IN	(D)	(—)	(D)	(—)	1,065	(305)
IA	1,510	(229)	0	(—)	1,510	(229)
KS	995	(153)	200	(85)	1,195	(175)
KY	848	(220)	165	(96)	1,013	(256)
LA	539	(305)	248	(133)	786	(331)
MI	(D)	(—)	(D)	(—)	1,210	(634)
MN	700	(143)	288	(207)	988	(277)
MS	534	(180)	119	(52)	653	(187)
MO	3,095	(881)	372	(125)	3,467	(892)

continued→

A.2.d. Number of postweaned kid goats that died, by State and by cause of death (cont'd):

	Number of Postweaned Kid Goats That Died					
	Cause					
	Nonpredator		Predator		All causes	
State	Number	Std. error	Number	Std. error	Number	Std. error
NE	721	(273)	0	(—)	721	(273)
New England[1]	297	(38)	56	(1)	353	(38)
NM	201	(109)	313	(158)	514	(242)
NY	442	(109)	94	(67)	537	(128)
NC	1,005	(220)	130	(36)	1,135	(222)
OH	930	(210)	158	(75)	1,088	(223)
OK	12,790	(9,316)	373	(112)	13,163	(9,316)
OR	692	(241)	249	(119)	941	(285)
PA	1,492	(587)	105	(100)	1,597	(596)
SC	1,369	(342)	888	(304)	2,257	(456)
TN	2,258	(439)	378	(154)	2,636	(471)
TX	14,420	(3,973)	7,114	(887)	21,534	(4,082)
VA	1,337	(374)	378	(196)	1,715	(421)
WA	520	(373)	384	(366)	904	(520)
WV	688	(352)	21	(0)	709	(352)
WI	1,038	(172)	79	(47)	1,117	(178)
Other States[2]	2,360	(651)	548	(136)	2,907	(665)
U.S.	63,989		19,930		83,919	

[1]New England includes CT, ME, MA, NH, RI, and VT.

[2]Other States include AK, DE, HI, MD, MT, NV, NJ, ND, SD, UT, and WY.

(D) = Numbers suppressed to avoid potential disclosure of respondents.

More than $35 million was lost in 2015 due to kid deaths from nonpredator and predator causes. Texas producers lost the most ($11 million). This valuation, however, does not include potential expenses incurred while trying to save these kids.

A.2.e. Value of kids that died, by State and by cause of death:

	Value of Kids that Died ($1,000)		
	Cause		
State	**Nonpredator**	**Predator**	**All causes**
AL	519	245	765
AZ	174	800	974
AR	664	375	1,039
CA	576	176	752
CO	407	25	432
FL	602	291	893
GA	617	223	840
ID	238	4	241
IL	1,001	30	1,031
IN	478	12	491
IA	731	5	736
KS	428	70	498
KY	389	58	446
LA	179	50	229
MI	499	3	502
MN	439	46	485
MS	367	110	478
MO	1,209	106	1,316

continued→

A.2.e. Value of kids that died, by State and by cause of death (cont'd):

	Value of Kids that Died ($1,000)		
	Cause		
State	**Nonpredator**	**Predator**	**All causes**
NE	293	14	306
New England[1]	256	11	268
NM	163	145	308
NY	262	33	295
NC	504	52	556
OH	560	45	605
OK	2,688	178	2,866
OR	540	76	616
PA	914	24	938
SC	343	465	808
TN	1,205	239	1,444
TX	7,120	4,416	11,536
VA	631	164	795
WA	240	56	297
WV	585	26	611
WI	764	14	778
Other States[2]	1,199	180	1,379
U.S.	27,784	8,767	36,554

[1]New England includes CT, ME, MA, NH, RI, and VT.
[2]Other States include AK, DE, HI, MD, MT, NV, NJ, ND, SD, UT, and WY.

The Pacific and Northeast regions had the lowest percentage of operations with any goat deaths compared with the other regions. Approximately one-third of operations in the West Central and Central regions had goat deaths due to any cause in 2015.

A.2.f. Percentage of operations that had any goat deaths, by region and by cause of death:

	Percent Operations					
	Cause					
	Nonpredator		Predator		All causes	
Region	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Pacific	14.3	(2.1)	3.5	(0.6)	17.0	(2.3)
West Central	26.2	(2.1)	9.7	(1.2)	32.8	(2.4)
Central	29.9	(2.7)	3.8	(0.9)	33.1	(2.8)
Northeast	17.8	(2.5)	1.6	(0.5)	18.8	(2.5)
Southeast	26.1	(2.4)	4.5	(0.6)	29.4	(2.6)
U.S.	24.5	(1.2)	5.2	(0.4)	28.2	(1.2)

Across regions, the percentage of operations that had preweaned nonpredator kid deaths was higher than the percentage that had postweaned nonpredator kid deaths. With the exception of the Southeast region, there were no differences across regions in the percentages of operations with pre- and postweaned kid losses due to predators.

A.2.g. Percentage of operations that had any pre- and postweaned kid deaths, by region and by cause of death:

	Percent Operations											
	Cause											
	Nonpredator				Predator				All causes			
	Preweaned		Postweaned		Preweaned		Postweaned		Preweaned		Postweaned	
Region	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Pacific	16.8	(3.7)	4.6	(0.8)	2.6	(0.6)	1.7	(0.5)	18.6	(3.7)	5.9	(0.9)
West Central	28.3	(2.9)	7.7	(1.0)	13.0	(2.3)	7.2	(1.5)	38.5	(3.2)	13.7	(1.8)
Central	27.4	(2.2)	17.5	(2.5)	2.0	(0.3)	1.6	(0.4)	28.7	(2.3)	18.5	(2.5)
North-east	15.2	(2.3)	6.7	(1.4)	2.0	(0.7)	0.8	(0.3)	16.4	(2.4)	7.4	(1.4)
South-east	27.4	(2.5)	9.7	(1.2)	6.7	(0.8)	4.0	(0.5)	31.8	(2.7)	13.2	(1.4)
Total	24.8	(1.3)	9.8	(0.7)	6.3	(0.7)	3.7	(0.4)	29.4	(1.4)	12.8	(0.8)

About one-third of operations (34.2 percent) had kid losses. A lower percentage of operations in the Pacific and Northeast regions had kid losses due to nonpredator causes compared with operations in the other regions.The West Central region had the highest percentage of operations with kid losses due to predators.

A.2.h. Percentage of operations that had any kid deaths, by region and by cause of death:

	Percent Operations		
	Cause		
Region	**Nonpredator**	**Predator**	**All causes**
Pacific	18.3 (3.7)	3.3 (0.7)	20.3 (3.8)
West Central	31.1 (2.9)	17.3 (2.6)	43.3 (3.3)
Central	35.5 (2.9)	3.4 (0.5)	37.3 (2.9)
Northeast	17.5 (2.4)	2.2 (0.7)	18.6 (2.5)
Southeast	31.1 (2.7)	8.8 (0.9)	36.5 (2.9)
U.S.	28.7 (1.4)	8.5 (0.8)	34.2 (1.5)

The percentage of goats lost to nonpredator causes in 2015 ranged from 0.8 percent in Arizona to 15.5 percent in Oklahoma and exceeded 10 percent in 9 States. Goat losses in 13 States exceeded 10 percent of inventory for any cause of loss.

A.2.i. Percentage of January 1, 2016, goat inventory lost in 2015,[1] by State and by cause of death:

	Percent Goat Inventory					
	Cause					
	Nonpredator		Predator		All causes	
State	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
AL	9.6	(1.8)	2.1	(0.6)	11.7	(2.1)
AZ	0.8	(0.5)	5.3	(1.8)	6.1	(1.6)
AR	12.0	(2.3)	3.2	(1.1)	15.2	(2.4)
CA	3.8	(0.4)	1.1	(0.2)	4.9	(0.5)
CO	4.2	(0.5)	1.3	(0.8)	5.5	(0.9)
FL	11.1	(3.2)	2.5	(0.9)	13.6	(3.4)
GA	10.9	(1.9)	4.1	(1.8)	15.0	(2.6)
ID	9.7	(2.5)	0.1	(0.0)	9.8	(2.5)
IL	6.2	(2.6)	0.6	(0.3)	6.8	(2.6)
IN	8.8	(1.6)	2.5	(1.1)	11.3	(2.0)
IA	5.6	(1.4)	0.4	(0.4)	6.0	(1.4)
KS	12.8	(1.4)	1.6	(0.3)	14.4	(1.4)
KY	5.9	(2.1)	1.6	(1.3)	7.5	(2.6)
LA	8.6	(2.9)	4.1	(3.2)	12.7	(4.6)
MI	12.8	(3.6)	0.2	(0.1)	13.0	(3.6)
MN	6.3	(1.5)	0.2	(0.1)	6.5	(1.6)
MS	12.1	(3.1)	4.4	(1.8)	16.5	(3.8)
MO	8.7	(2.0)	0.7	(0.2)	9.4	(2.0)

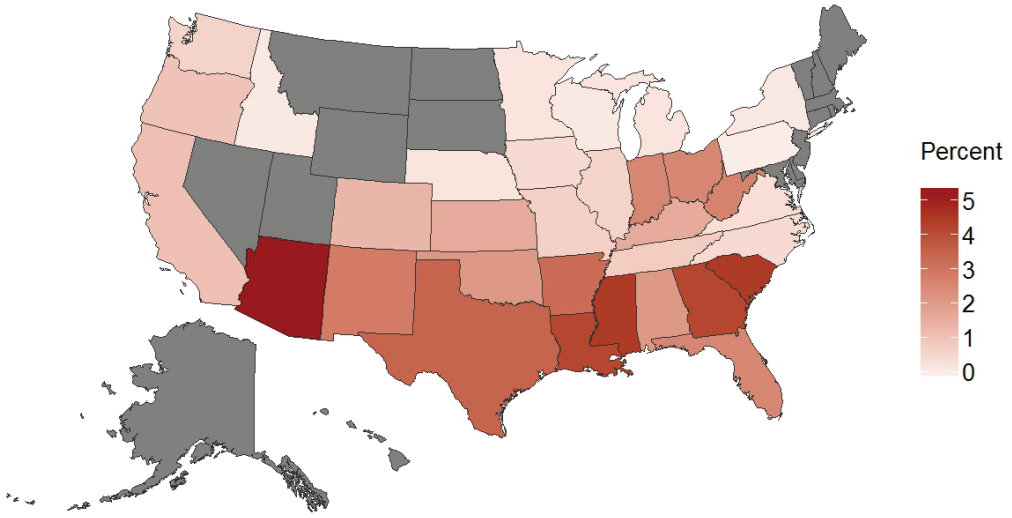
continued→

A.2.i. Percentage of January 1, 2016, goat inventory lost in 2015,[1] by State and by cause of death (cont'd):

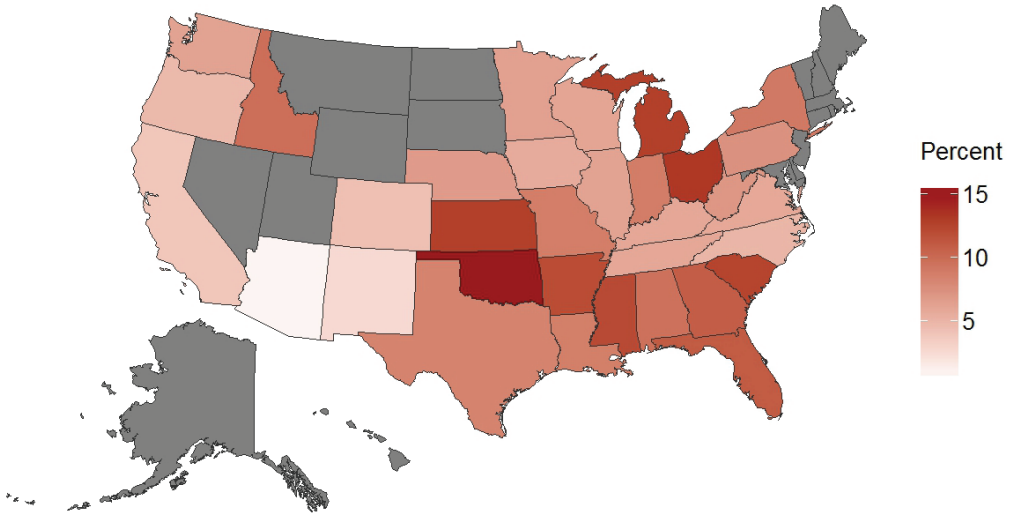
	Percent Goat Inventory					
	Cause					
	Nonpredator		Predator		All causes	
State	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
NE	6.7	(1.1)	0.2	(0.1)	6.8	(1.2)
New England[2]	5.5	(1.5)	0.4	(0.2)	5.9	(1.5)
NM	2.5	(1.0)	2.8	(1.3)	5.3	(2.0)
NY	9.0	(2.7)	0.1	(0.0)	9.1	(2.7)
NC	4.9	(1.5)	0.4	(0.3)	5.4	(1.7)
OH	13.3	(2.2)	2.5	(0.9)	15.8	(2.4)
OK	15.5	(5.6)	2.1	(0.9)	17.6	(5.5)
OR	4.6	(1.0)	1.0	(0.3)	5.6	(1.2)
PA	7.3	(3.3)	0.0	(—)	7.3	(3.3)
SC	12.5	(3.2)	4.4	(2.0)	16.9	(2.7)
TN	5.9	(1.2)	0.8	(0.3)	6.6	(1.3)
TX	8.3	(0.8)	3.4	(0.4)	11.7	(0.9)
VA	5.8	(0.9)	0.3	(0.1)	6.2	(1.0)
WA	6.2	(1.7)	0.6	(0.4)	6.9	(1.7)
WV	7.0	(1.8)	2.6	(2.4)	9.6	(3.1)
WI	6.0	(0.7)	0.1	(0.0)	6.0	(0.7)
Other States[3]	8.4	(1.3)	0.9	(0.2)	9.3	(1.3)
U.S.	7.7	(0.4)	2.1	(0.2)	9.8	(0.4)

[1]As a percentage of adult goat inventory on January 1, 2016.
[2]New England includes CT, ME, MA, NH, RI, and VT.
[3]Other States include AK, DE, HI, MD, MT, NV, NJ, ND, SD, UT, and WY.

Percentage of goat inventory lost to predators, by State



Percentage of goat inventory lost to nonpredator causes, by State



The States composing the “New England” group (CT, ME, MA, NH, RI, and VT) are not shaded in the maps above because of their small contribution to the U.S. goat and kid inventory (1.3 percent of U.S. goat and kid inventory when combined). The same is true for the “Other States” group (AK, DE, HI, MD, MT, NV, NJ, ND, SD, UT, and WY), which, when combined, make up only 5.2 percent of U.S. goat and kid inventory.

The percentage of kids lost to nonpredator causes ranged from 3.6 percent in Arizona to 28.7 percent in Oklahoma. Just over 10 percent of kids lost in Alabama, Arizona, Arkansas, and South Carolina were lost to predators.

A.2.j. Percentage of 2015 kid crop lost, by State and by cause of death:

	Percent Kid Crop Cause					
	Nonpredator		Predator		All causes	
State	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
AL	20.8	(2.4)	10.5	(2.4)	31.4	(3.7)
AZ	3.6	(2.1)	15.1	(5.0)	18.8	(3.3)
AR	21.6	(3.4)	10.5	(2.9)	32.0	(4.1)
CA	9.3	(0.7)	3.0	(0.5)	12.3	(0.9)
CO	12.8	(3.7)	0.8	(0.2)	13.7	(3.6)
FL	16.2	(2.3)	7.8	(2.4)	24.0	(3.6)
GA	20.7	(2.1)	7.6	(1.9)	28.3	(2.6)
ID	10.9	(1.1)	0.2	(0.0)	11.0	(1.1)
IL	26.3	(6.6)	0.9	(0.4)	27.2	(6.7)
IN	16.3	(2.4)	0.5	(0.2)	16.8	(2.5)
IA	11.9	(1.2)	0.1	(0.1)	12.0	(1.2)
KS	18.4	(1.5)	2.9	(0.7)	21.3	(1.6)
KY	17.0	(2.3)	2.8	(0.7)	19.7	(2.4)
LA	18.5	(6.9)	5.6	(2.5)	24.2	(7.7)
MI	18.4	(5.5)	0.1	(0.0)	18.5	(5.5)
MN	9.2	(1.8)	0.9	(0.6)	10.1	(2.1)
MS	22.7	(3.9)	6.7	(2.4)	29.4	(5.1)
MO	21.6	(2.6)	2.1	(0.4)	23.7	(2.7)

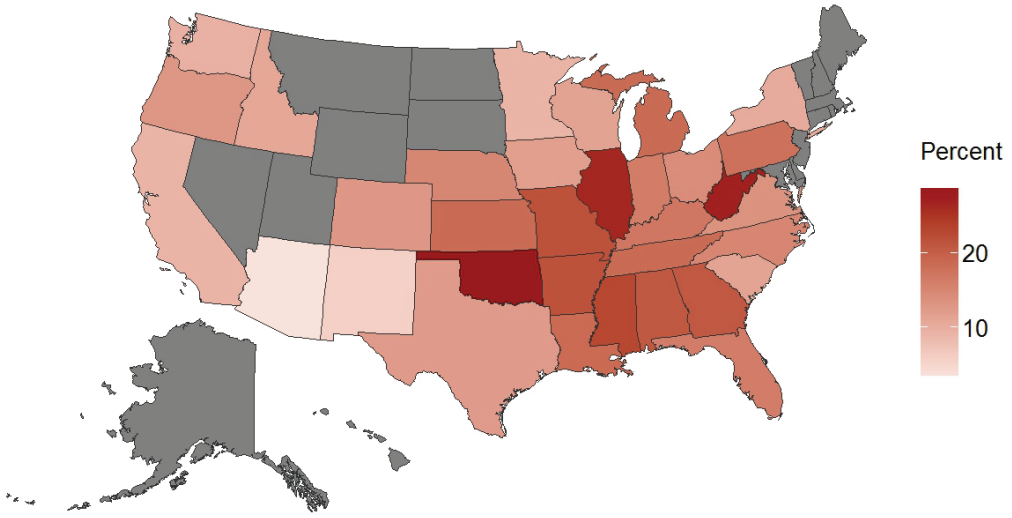
continued→

A.2.j. Percentage of 2015 kid crop lost, by State and by cause of death (cont'd):

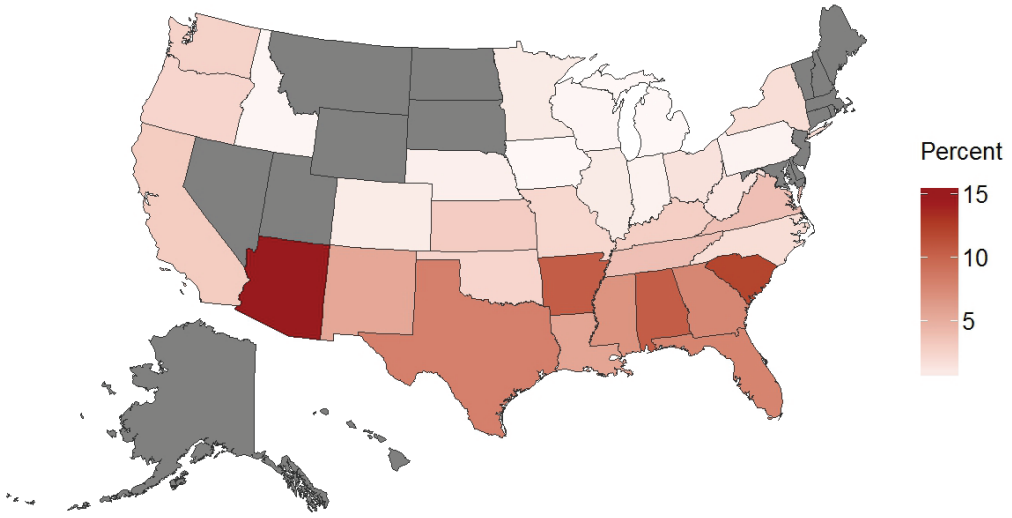
	Percent Kid Crop Cause					
	Nonpredator		Predator		All causes	
State	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
NE	14.9	(1.1)	0.7	(0.3)	15.6	(1.1)
New England[1]	8.0	(1.8)	0.4	(0.1)	8.5	(1.8)
NM	5.9	(3.0)	5.4	(1.2)	11.3	(2.8)
NY	10.4	(2.2)	1.7	(1.3)	12.1	(2.3)
NC	15.0	(1.6)	1.7	(0.4)	16.7	(1.7)
OH	14.2	(1.8)	1.4	(0.6)	15.6	(1.9)
OK	28.7	(9.4)	2.3	(0.7)	31.0	(9.2)
OR	12.9	(1.7)	2.3	(0.8)	15.2	(1.5)
PA	17.8	(6.6)	0.4	(0.3)	18.3	(6.7)
SC	11.3	(3.3)	12.1	(5.1)	23.4	(6.4)
TN	18.4	(2.4)	3.7	(1.0)	22.1	(2.6)
TX	12.4	(1.4)	8.1	(0.6)	20.5	(1.4)
VA	13.5	(2.0)	3.7	(1.7)	17.2	(2.6)
WA	9.6	(3.2)	2.5	(2.0)	12.1	(3.6)
WV	27.0	(11.1)	1.3	(0.3)	28.3	(11.0)
WI	11.4	(0.8)	0.2	(0.1)	11.6	(0.8)
Other States[2]	12.1	(1.6)	1.9	(0.4)	14.0	(1.8)
U.S.	14.4	(0.8)	5.0	(0.4)	19.4	(0.8)

[1]New England includes CT, ME, MA, NH, RI, and VT.
[2]Other States include AK, DE, HI, MD, MT, NV, NJ, ND, SD, UT, and WY.

Percentage of kid crop lost to nonpredator causes, by State



Percentage of kid crop lost to predators, by State



The States composing the “New England” group (CT, ME, MA, NH, RI, and VT) are not shaded in the maps above because of their small contribution to the U.S. goat and kid inventory (1.3 percent of U.S. goat and kid inventory when combined). The same is true for the “Other States” group (AK, DE, HI, MD, MT, NV, NJ, ND, SD, UT, and WY), which, when combined, make up only 5.2 percent of U.S. goat and kid inventory.

3. Nonpredator goat and kid death losses

The largest numbers and highest percentages of nonpredator death losses in goats and kids were due to undetermined causes (found dead or unknown). Of known causes, internal parasites were the primary cause of loss, resulting in almost 87,000 goat and kid deaths. Weather-related causes and kidding problems were also important causes of loss. On average, kidding problems accounted for approximately 2.5 kid deaths for every goat lost to kidding problems in 2015.

A.3.a. Number and percentage of nonpredator death losses in goats and kids, by cause of death:

	Number and Percent Loss									
	Goats		Preweaned kids		Postweaned kids		Total kids		Total goats and kids	
Cause	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Enterotoxemia (overeating)	1,670	1.2	1,686	1.0	1,511	2.4	3,197	1.3	4,867	1.3
Internal parasites	34,937	24.8	27,658	15.6	24,106	37.7	51,764	21.5	86,701	22.7
Other digestive problems[1]	6,630	4.7	9,411	5.3	3,630	5.7	13,041	5.4	19,671	5.1
Respiratory problems	4,744	3.4	9,874	5.6	3,415	5.3	13,289	5.5	18,033	4.7
Metabolic problems[2]	911	0.6	2,348	1.3	162	0.3	2,510	1.0	3,421	0.9
Other disease problems[3]	3,469	2.5	3,357	1.9	1,806	2.8	5,163	2.1	8,632	2.3
Weather related[4]	5,580	4.0	33,742	19.0	4,152	6.5	37,894	15.7	43,474	11.4
Starvation	1,499	1.1	3,011	1.7	140	0.2	3,150	1.3	4,649	1.2
Kidding problems	7,394	5.2	18,960	10.7	NA	0	18,960	7.9	26,354	6.9
Pregnancy toxemia	2,255	1.6	NA	0	NA	0	NA	0	2,255	0.6
Poisoning[5]	2,273	1.6	2,025	1.1	1,377	2.2	3,402	1.4	5,675	1.5
Theft (stolen)	2,037	1.4	142	0.1	1,146	1.8	1,288	0.5	3,325	0.9
Other nonpredator causes[6]	14,938	10.6	15,490	8.7	5,708	8.9	21,198	8.8	36,136	9.5
Found dead[7]	22,688	16.1	18,879	10.7	6,103	9.5	24,983	10.4	47,671	12.5
Unknown nonpredator causes	30,095	21.3	30,675	17.3	10,732	16.8	41,407	17.2	71,502	18.7
Total	141,120	100.0	177,258	100.0	63,988	100.0	241,246	100.0	382,366	100.0

[1]Such as bloat, scours, or acidosis.
[2]Such as milk fever or grass tetany.
[3]Such as mastitis or foot rot.
[4]Such as chilling, drowning, or lightning.
[5]Such as by nitrate, noxious feeds, or noxious weeds.
[6]Such as lameness.
[7]With cause undetermined.

The percentage of kid crop lost to nonpredator causes (14.4 percent) was almost twice the percentage of goat inventory lost to nonpredator causes (7.7 percent). Kids were lost to weather-related causes at nearly eight times the frequency of goats.

A.3.b. Percentage of January 1, 2016, goat inventory and kid crop lost to nonpredator causes:

Cause	Percent inventory	Std. error	Percent kid crop	Std. error
Enterotoxemia (overeating)	0.1	(0.0)	0.2	(0.0)
Internal parasites	1.9	(0.3)	3.1	(0.6)
Other digestive problems[1]	0.4	(0.1)	0.8	(0.1)
Respiratory problems	0.3	(0.1)	0.8	(0.1)
Metabolic problems[2]	0.1	(0.0)	0.2	(0.1)
Other disease problems[3]	0.2	(0.0)	0.3	(0.1)
Weather related[4]	0.3	(0.0)	2.3	(0.2)
Starvation	0.1	(0.1)	0.2	(0.1)
Kidding problems	0.4	(0.0)	1.1	(0.2)
Pregnancy toxemia	0.1	(0.0)		
Poisoning[5]	0.1	(0.0)	0.2	(0.1)
Theft (stolen)	0.1	(0.0)	0.1	(0.0)
Other nonpredator causes[6]	0.8	(0.1)	1.3	(0.5)
Found dead[7]	1.2	(0.2)	1.5	(0.2)
Unknown nonpredator causes	1.6	(0.1)	2.5	(0.2)
Total	7.7	(0.4)	14.4	(0.8)

[1]Such as bloat, scours, or acidosis.
[2]Such as milk fever or grass tetany.
[3]Such as mastitis or foot rot.
[4]Such as chilling, drowning, or lightning.
[5]Such as by nitrate, noxious feeds, or noxious weeds.
[6]Such as lameness.
[7]With cause undetermined.

Respiratory problems caused a higher percentage of deaths on operations with 100 or more goats and kids than on operations with 1 to 9 goats and kids. Conversely, the percentage of animals found dead was higher on operations with 1 to 9 goats and kids than on operations with 100 or more goats and kids

A.3.c. Percentage of nonpredator death losses in **goats**, by cause of death and by size of operation:

	Percent Loss Size of Operation (number of goats and kids)									
	1–9		10–19		20–99		100 or more		All operations	
Cause	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Enterotoxemia (overeating)	0.4	(0.2)	1.4	(0.7)	1.3	(0.5)	1.5	(0.2)	1.2	(0.2)
Internal parasites	17.5	(4.3)	27.5	(7.4)	30.4	(6.1)	17.8	(1.8)	24.8	(3.2)
Other digestive problems[1]	7.0	(3.9)	5.0	(1.5)	4.7	(1.0)	2.0	(0.3)	4.7	(0.9)
Respiratory problems	1.8	(0.7)	1.0	(0.4)	3.7	(1.9)	6.2	(0.8)	3.4	(0.8)
Metabolic problems[2]	0.1	(0.0)	1.7	(1.1)	0.4	(0.1)	0.8	(0.1)	0.6	(0.2)
Other disease problems[3]	1.9	(0.8)	3.3	(1.4)	1.8	(0.5)	3.5	(0.4)	2.5	(0.4)
Weather related[4]	3.7	(1.2)	5.9	(2.0)	3.1	(0.7)	4.3	(0.8)	4.0	(0.6)
Starvation	0.9	(0.8)	0.0	(0.0)	0.4	(0.2)	3.7	(3.5)	1.1	(0.7)
Kidding problems	4.5	(1.1)	4.8	(1.8)	4.8	(0.7)	7.3	(0.9)	5.2	(0.5)
Pregnancy toxemia	1.9	(1.3)	1.0	(0.5)	2.2	(0.7)	0.5	(0.1)	1.6	(0.4)
Poisoning[5]	2.9	(1.8)	0.4	(0.2)	1.5	(0.5)	1.6	(0.5)	1.6	(0.4)
Theft (stolen)	3.1	(1.7)	0.1	(0.1)	0.8	(0.4)	2.3	(1.2)	1.4	(0.5)
Other nonpredator causes[6]	14.7	(3.0)	13.6	(6.0)	9.4	(2.3)	6.4	(1.3)	10.6	(1.6)
Found dead[7]	21.1	(4.0)	17.2	(4.8)	16.6	(3.6)	8.9	(1.0)	16.1	(1.9)
Unknown nonpredator causes	18.5	(3.3)	16.9	(3.3)	18.8	(2.6)	33.2	(4.6)	21.3	(1.8)
Total	100.0		100.0		100.0		100.0		100.0	

[1]Such as bloat, scours, or acidosis.

[2]Such as milk fever.

[3]Such as mastitis or foot rot.

[4]Such as chilling, drowning, or lightning.

[5]Such as by nitrate, noxious feeds, or noxious weeds.

[6]Such as lameness.

[7]With cause undetermined.

On operations with 20 to 99 goats and kids, nearly 30 percent of nonpredator deaths in kids were due to internal parasites. Statistically, there were few differences across operation sizes in the percentages of kid death losses attributed to any nonpredator cause.

A.3.d. Percentage of nonpredator death losses in **kids,** by cause of death and by size of operation:

	Percent Loss									
	Size of Operation (number of goats and kids)									
	1–9		10–19		20–99		100 or more		All operations	
Cause	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Enterotoxemia (overeating)	0.4	(0.3)	0.8	(0.3)	1.0	(0.2)	2.8	(0.5)	1.3	(0.2)
Internal parasites	16.4	(4.2)	17.0	(4.1)	28.2	(7.1)	15.6	(2.9)	21.5	(3.5)
Other digestive problems[1]	5.8	(1.5)	3.8	(0.9)	4.7	(0.8)	7.8	(1.4)	5.4	(0.5)
Respiratory problems	4.1	(1.2)	4.6	(1.8)	3.9	(0.8)	9.8	(1.8)	5.5	(0.7)
Metabolic problems[2]	0.2	(0.1)	3.3	(2.4)	0.6	(0.2)	0.4	(0.2)	1.0	(0.5)
Other disease problems[3]	1.9	(0.8)	2.3	(0.7)	2.2	(0.6)	1.9	(0.4)	2.1	(0.3)
Weather related[4]	13.0	(2.7)	13.1	(2.8)	17.2	(3.0)	16.5	(2.7)	15.7	(1.6)
Starvation	1.4	(0.8)	0.6	(0.2)	1.8	(0.8)	0.8	(0.2)	1.3	(0.4)
Kidding problems	9.3	(1.9)	10.2	(1.9)	8.3	(2.3)	4.4	(1.6)	7.9	(1.2)
Pregnancy toxemia										
Poisoning[5]	1.7	(1.1)	0.7	(0.3)	1.5	(0.5)	1.7	(0.6)	1.4	(0.3)
Theft (stolen)	1.9	(1.2)	0.2	(0.2)	0.2	(0.1)	0.7	(0.6)	0.5	(0.2)
Other nonpredator causes[6]	3.6	(0.9)	14.9	(5.8)	4.0	(0.8)	15.2	(10.5)	8.8	(3.0)
Found dead[7]	10.9	(2.2)	11.9	(2.5)	11.6	(2.3)	6.6	(1.6)	10.4	(1.2)
Unknown nonpredator causes	29.3	(5.5)	16.7	(3.1)	14.6	(2.1)	15.7	(2.8)	17.2	(1.6)
Total	100.0		100.0		100.0		100.0		100.0	

[1]Such as bloat, scours, or acidosis.
[2]Such as milk fever.
[3]Such as mastitis or foot rot.
[4]Such as chilling, drowning, or lightning.
[5]Such as by nitrate, noxious feeds, or noxious weeds.
[6]Such as lameness.
[7]With cause undetermined.

Generally, there were no regional differences in the percentages of goat deaths attributable to nonpredator causes. One exception was that the Pacific and Northeast regions had a lower percentage of nonpredator deaths attributed to internal parasites than the West Central and Southeast regions. Also, the Pacific region had a higher percentage of nonpredator deaths due to respiratory disease than the West Central region.

A.3.e Percentage of nonpredator death losses in **goats**, by cause of death and by region:

	Percent Loss									
	Region									
	Pacific		West Central		Central		Northeast		Southeast	
Cause	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Enterotoxemia	0.8	(0.5)	1.2	(0.5)	1.2	(0.2)	1.2	(0.8)	1.3	(0.5)
Internal parasites	11.2	(2.7)	27.5	(4.4)	30.3	(9.8)	9.7	(2.5)	23.2	(2.6)
Other digestive	4.0	(1.8)	5.1	(2.3)	3.8	(1.0)	5.2	(1.9)	5.0	(1.0)
Respiratory	12.6	(1.4)	1.3	(0.3)	6.3	(3.2)	2.8	(1.1)	1.8	(0.3)
Metabolic	0.7	(0.2)	0.7	(0.5)	0.3	(0.1)	1.1	(0.2)	0.8	(0.3)
Other diseases	3.6	(1.2)	0.4	(0.1)	3.7	(0.7)	3.3	(2.3)	3.8	(1.1)
Weather	3.3	(0.5)	4.7	(1.0)	4.1	(1.2)	4.0	(2.3)	2.8	(0.8)
Starvation	0.0	(--)	2.0	(1.9)	0.2	(0.1)	0.9	(0.8)	0.8	(0.7)
Kidding problems	6.0	(1.5)	5.0	(0.8)	4.2	(0.9)	6.4	(1.5)	6.0	(1.4)
Pregnancy toxemia	2.2	(0.9)	0.6	(0.2)	1.5	(0.5)	6.8	(3.9)	1.2	(0.3)
Poisoning	1.2	(0.7)	1.9	(1.0)	0.6	(0.2)	0.4	(0.1)	2.7	(1.0)
Theft	5.7	(4.8)	1.6	(0.9)	0.6	(0.1)	0.0	(0.0)	1.7	(0.8)
Other known nonpredator	13.5	(3.5)	6.5	(2.1)	9.5	(2.8)	30.9	(9.6)	9.8	(1.7)
Found dead	18.6	(2.4)	15.0	(2.8)	12.5	(3.8)	8.1	(2.4)	24.0	(4.7)
Unknown nonpredator	16.6	(4.7)	26.6	(3.5)	21.2	(4.4)	19.2	(4.6)	15.1	(2.1)
Total	100.0		100.0		100.0		100.0		100.0	

Generally, there were no substantial differences across regions in the percentages of kid deaths due to nonpredator causes; however, the Pacific region had a lower percentage of nonpredator deaths due to internal parasites than the West Central region.

A.3.f. Percentage of nonpredator death losses in **kids**, by cause of death and by region:

	Percent Loss									
	Region									
	Pacific		West Central		Central		Northeast		Southeast	
Cause	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Enterotoxemia	2.2	(0.5)	0.9	(0.2)	2.4	(0.5)	0.6	(0.2)	0.8	(0.3)
Internal parasites	4.2	(1.2)	25.0	(5.0)	24.9	(10.0)	7.9	(1.8)	20.1	(2.1)
Other digestive	4.1	(0.8)	4.2	(0.9)	7.0	(1.2)	9.6	(3.2)	4.2	(0.7)
Respiratory	12.8	(2.5)	3.5	(1.1)	8.4	(1.8)	5.3	(1.4)	3.5	(0.8)
Metabolic	0.4	(0.2)	2.0	(1.4)	0.3	(0.1)	0.5	(0.3)	0.8	(0.3)
Other diseases	0.9	(0.6)	1.2	(0.4)	2.2	(0.7)	4.4	(1.8)	2.9	(0.7)
Weather	10.0	(2.0)	15.5	(2.5)	16.3	(3.9)	11.2	(2.6)	17.8	(2.4)
Starvation	1.4	(0.6)	1.6	(1.0)	0.9	(0.3)	0.9	(0.4)	1.5	(0.5)
Kidding problems	11.7	(3.0)	5.2	(1.0)	7.7	(1.9)	7.8	(2.3)	10.9	(3.6)
Pregnancy toxemia										
Poisoning	2.4	(1.4)	1.4	(0.6)	0.8	(0.4)	0.0	(0.0)	2.4	(0.8)
Theft	5.3	(3.5)	0.5	(0.4)	0.0	(--)	0.0	(--)	0.5	(0.2)
Other known nonpredator	20.2	(10.2)	11.0	(8.1)	3.4	(0.7)	25.2	(11.1)	4.9	(1.1)
Found dead	10.3	(2.4)	7.4	(1.6)	12.8	(3.2)	9.3	(2.4)	11.7	(1.8)
Unknown nonpredator	14.3	(3.5)	20.6	(3.5)	12.9	(2.5)	17.1	(4.1)	18.1	(2.4)
Total	100.0		100.0		100.0		100.0		100.0	

Overall, 4.3 percent of bred does aborted in 2015. Operations with 100 or more goats and kids had a lower percentage of bred does that aborted compared with the other operation sizes.

A.3.g. For operations with does, percentage of does that aborted (stillborn, mummified fetuses), by size of operation:

Percent Aborted

Size of Operation (number of goats and kids)

1–9		10–19		20–99		100 or more		All operations	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
5.7	(1.0)	5.5	(0.8)	5.3	(0.7)	2.3	(0.2)	4.3	(0.3)

4. Predator goat and kid death losses

Coyotes and dogs accounted for the highest percentages of goat and kid losses due to predators in 2015. Together, these two causes accounted for almost 80,000 goat and kid deaths, or about 65 percent of all losses due to predators.

A.4.a. Number and percentage of death losses in **goats** and **kids** due to predators, by predator:

	Number and Percent Loss									
	Goats		Preweaned kids		Postweaned kids		Total kids		Total goats and kids	
Predator	**No.**	**Pct.**	**No.**	**Pct.**	**No.**	**Pct.**	**No.**	**Pct.**	**No.**	**Pct.**
Bears	336	0.9	212	0.3	139	0.7	351	0.4	687	0.6
Bobcats or lynx	694	1.8	4,328	6.8	911	4.6	5,239	6.3	5,933	4.8
Coyotes	12,581	32.4	33,165	52.0	7,084	35.5	40,249	48.1	52,830	43.1
Dogs	12,605	32.4	9,789	15.3	4,536	22.8	14,326	17.1	26,931	22.0
Foxes	208	0.5	1,350	2.1	275	1.4	1,625	1.9	1,833	1.5
Mountain lions (cougars/pumas)	1,633	4.2	1,039	1.6	1,035	5.2	2,074	2.5	3,707	3.0
Wolves	338	0.9	22	0.0	33	0.2	55	0.1	393	0.3
Vultures	104	0.3	1,646	2.6	73	0.4	1,719	2.1	1,823	1.5
Ravens	72	0.2	275	0.4	0	0.0	275	0.3	347	0.3
Feral pigs	478	1.2	947	1.5	52	0.3	999	1.2	1,477	1.2
Eagles	573	1.5	3,030	4.7	555	2.8	3,585	4.3	4,158	3.4
Other known predator	1,082	2.8	3,085	4.8	598	3.0	3,683	4.4	4,765	3.9
Other unknown predator	8,176	21.0	4,934	7.7	4,638	23.3	9,572	11.4	17,748	14.5
Total	38,880	100.0	63,822	100.0	19,929	100.0	83,752	100.0	122,632	100.0

After canids and "other unknown predator causes," mountain lions accounted for the third highest percentage of goat losses due to predators. There were no differences across operation sizes in the percentages of goats lost to specific predators.

A.4.b. Percentage of **goat** death losses due to predators, by predator and by size of operation:

Percent Goat Loss

Size of Operation (number of goats and kids)

	1–9		10–19		20–99		100 or more		All operations	
Predator	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Bears	3.3	(2.0)	0.0	(—)	0.2	(0.1)	0.3	(0.1)	0.9	(0.5)
Bobcats or lynx	0.5	(0.3)	0.9	(0.5)	1.4	(0.8)	3.4	(1.0)	1.8	(0.4)
Coyotes	27.7	(6.2)	41.4	(9.0)	33.5	(5.7)	30.3	(8.0)	32.4	(3.9)
Dogs	42.0	(7.7)	34.8	(7.9)	31.5	(7.4)	25.9	(16.7)	32.4	(6.0)
Foxes	0.0	(0.0)	0.2	(0.2)	0.3	(0.3)	1.2	(0.7)	0.5	(0.3)
Mountain lions (cougars/pumas)	8.8	(5.8)	2.6	(1.2)	1.7	(0.6)	4.1	(1.3)	4.2	(1.4)
Wolves	0.1	(0.1)	0.0	(—)	2.5	(2.3)	0.4	(0.2)	0.9	(0.7)
Vultures	0.0	(—)	0.1	(0.0)	0.3	(0.2)	0.5	(0.2)	0.3	(0.1)
Ravens	0.0	(—)	0.0	(—)	0.0	(—)	0.5	(0.4)	0.2	(0.1)
Feral pigs	0.0	(—)	0.0	(—)	0.3	(0.2)	3.3	(1.7)	1.2	(0.5)
Eagles	0.0	(—)	0.0	(—)	4.3	(2.8)	0.7	(0.3)	1.5	(0.8)
Other known predator	3.0	(2.1)	4.5	(3.9)	3.4	(1.8)	1.4	(0.3)	2.8	(0.9)
Other unknown predator	14.6	(4.6)	15.6	(5.5)	20.6	(7.8)	27.9	(10.4)	21.0	(4.3)
Total	100.0		100.0		100.0		100.0		100.0	

Dogs accounted for 32.4 percent of goat death losses due to predators (see previous table) and 17.1 percent of kid death losses due to predators. Kid losses were attributed to eagles and feral pigs at a higher proportion of operations with 100 or more head compared with other operation sizes.

A.4.c. Percentage of death losses in **kids** due to predators, by predator and by size of operation:

Percent Kid Loss

Size of Operation (number of goats and kids)

	1–9		10–19		20–99		100 or more		All operations	
Predator	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Bears	0.3	(0.2)	0.5	(0.5)	0.8	(0.7)	0.2	(0.0)	0.4	(0.2)
Bobcats or lynx	2.4	(1.2)	0.8	(0.4)	6.3	(2.0)	9.2	(2.2)	6.3	(1.1)
Coyotes	53.3	(7.5)	56.7	(7.2)	45.0	(3.8)	45.3	(7.4)	48.1	(4.1)
Dogs	27.7	(6.1)	23.2	(5.2)	21.9	(4.0)	9.0	(6.4)	17.1	(2.9)
Foxes	1.3	(0.7)	0.6	(0.4)	3.3	(1.2)	1.8	(0.6)	1.9	(0.4)
Mountain lions (cougars/pumas)	5.3	(3.1)	1.7	(0.8)	2.3	(0.6)	1.8	(0.4)	2.5	(0.6)
Wolves	0.0	(-)	0.0	(-)	0.0	(-)	0.1	(0.1)	0.1	(0.0)
Vultures	0.0	(-)	0.7	(0.4)	3.4	(1.6)	2.5	(0.6)	2.1	(0.5)
Ravens	0.1	(0.0)	0.0	(-)	0.1	(0.0)	0.7	(0.2)	0.3	(0.1)
Feral pigs	0.0	(-)	0.0	(-)	0.6	(0.4)	2.3	(0.8)	1.2	(0.3)
Eagles	0.2	(0.1)	1.2	(0.8)	2.1	(0.7)	7.8	(2.1)	4.3	(0.9)
Other known predator causes	4.3	(2.1)	6.4	(2.6)	1.0	(0.2)	5.7	(1.0)	4.4	(0.6)
Other unknown predator causes	5.2	(1.8)	8.2	(2.2)	13.1	(3.1)	13.6	(5.9)	11.4	(3.0)
Total	100.0		100.0		100.0		100.0		100.0	

Predator-related goat deaths as a percentage of January 1, 2016, goat inventory were 2.1 percent in total but were less than 1 percent for any single predator. All predator causes combined accounted for the loss of 5.0 percent of the 2015 kid crop. Coyotes were the single largest cause of kid deaths due to predators, accounting for 2.4 percent of kids born.

A.4.d. Percentage of January 1, 2016, goat inventory lost and percentage of 2015 kid crop lost, by predator:

Predator	Percent goat inventory	Std. error	Percent kid crop	Std. error
Bears	0.0	(0.0)	0.0	(0.0)
Bobcats or lynx	0.0	(0.0)	0.3	(0.1)
Coyotes	0.7	(0.1)	2.4	(0.2)
Dogs	0.7	(0.2)	0.9	(0.2)
Foxes	0.0	(0.0)	0.1	(0.0)
Mountain lions (cougars/pumas)	0.1	(0.0)	0.1	(0.0)
Wolves	0.0	(0.0)	0.0	(0.0)
Vultures	0.0	(0.0)	0.1	(0.0)
Ravens	0.0	(0.0)	0.0	(0.0)
Feral pigs	0.0	(0.0)	0.1	(0.0)
Eagles	0.0	(0.0)	0.2	(0.0)
Other known predator causes	0.1	(0.0)	0.2	(0.0)
Other unknown predator causes	0.5	(0.1)	0.6	(0.2)
Total	2.1	(0.2)	5.0	(0.4)

Relatively few goats or kids were lost to bears in 2015; in fact, death by bears appeared to be a regional occurrence. Washington and Oregon accounted for nearly 30 percent of all goat deaths due to bears, while Florida had the most kid deaths due to bears: 212 kid deaths or 60.4 percent of all kid deaths were due to bears in Florida.

A.4.e. Number of goats and kids lost to bears, bobcats/lynx, and coyotes, by State:

	Number Goats and Kids Cause of Death					
	Bears		Bobcats/lynx		Coyotes	
State	Goats	Kids	Goats	Kids	Goats	Kids
AL	0	0	0	0	249	1,401
AZ	0	0	0	125	133	558
AR	0	(D)	0	49	508	1,253
CA	21	21	32	(D)	300	854
CO	(D)	(D)	0	0	292	175
FL	(D)	212	0	120	299	1,238
GA	0	(D)	24	174	371	982
ID	0	0	0	0	(D)	(D)
IL	0	0	0	(D)	(D)	31
IN	0	0	0	0	(D)	46
IA	0	0	0	0	(D)	40
KS	0	0	0	(D)	99	216
KY	0	0	0	0	419	437
LA	0	0	0	0	474	153
MI	0	0	0	0	(D)	(D)
MN	(D)	(D)	0	0	0	224
MS	0	0	5	0	260	667
MO	0	0	0	8	266	629

continued→

A.4.e. Number of goats and kids lost to bears, bobcats/lynx, and coyotes, by State (cont'd):

	Number Goats and Kids Cause of Death					
	Bears		Bobcats/lynx		Coyotes	
State	Goats	Kids	Goats	Kids	Goats	Kids
NE	0	0	(D)	0	0	62
New England[1]	0	0	27	34	71	40
NM	0	0	0	0	457	1,373
NY	0	0	0	0	(D)	(D)
NC	170	(D)	0	0	0	101
OH	0	0	0	(D)	87	265
OK	0	0	0	47	292	1,009
OR	61	0	0	0	180	140
PA	0	0	0	0	0	0
SC	0	0	(D)	79	284	2,475
TN	0	0	0	248	237	857
TX	(D)	49	580	4,244	6,709	23,295
VA	0	0	0	(D)	97	891
WA	37	0	0	0	90	57
WV	0	(D)	0	(D)	42	137
WI	0	0	0	0	0	0
Other States[2]	0	(D)	(D)	47	313	624
U.S.	336	351	694	5,239	12,581	40,249

[1]New England includes CT, ME, MA, NH, RI, and VT.

[2]Other States include AK, DE, HI, MD, MT, NV, NJ, ND, SD, UT, and WY.

(D) = Numbers suppressed to avoid potential disclosure of respondents.

Texas, Arizona, and South Carolina accounted for the highest number of adult goats lost to dogs.

A.4.f. Number of goats and kids lost to dogs, foxes, mountain lions, and wolves, by State:

	Number Goats and Kids Cause of Death							
	Dogs		Foxes		Mountain lions		Wolves	
State	Goats	Kids	Goats	Kids	Goats	Kids	Goats	Kids
AL	398	740	0	22	0	0	0	0
AZ	3,727	4,181	0	0	0	26	0	0
AR	258	797	0	0	49	146	0	0
CA	52	24	0	65	385	391	0	0
CO	0	15	0	0	0	(D)	0	0
FL	258	76	0	143	0	69	0	0
GA	867	622	(D)	30	0	0	0	0
ID	(D)	20	0	0	(D)	0	0	0
IL	86	110	0	0	0	0	33	30
IN	69	0	0	0	0	0	0	0
IA	173	0	0	0	0	(D)	0	0
KS	77	112	0	0	0	(D)	0	0
KY	0	55	0	0	0	0	0	0
LA	24	135	0	0	0	0	0	0
MI	0	(D)	0	0	(D)	0	0	0
MN	30	66	0	0	0	0	(D)	0
MS	408	227	0	0	0	0	0	0
MO	57	150	0	8	53	91	0	0

continued→

A.4.f. Number of goats and kids lost to dogs, foxes, mountain lions, and wolves, by State (cont'd):

	Number Goats and Kids Cause of Death							
	Dogs		Foxes		Mountain lions		Wolves	
State	Goats	Kids	Goats	Kids	Goats	Kids	Goats	Kids
NE	0	0	0	0	0	0	0	0
New England[1]	0	(D)	0	0	0	0	0	0
NM	258	75	0	0	0	0	0	0
NY	0	28	0	(D)	0	0	0	0
NC	57	147	0	83	0	0	0	0
OH	67	85	0	0	0	0	0	0
OK	178	317	0	0	39	68	0	0
OR	(D)	147	0	0	90	343	0	0
PA	0	105	0	0	0	0	0	0
SC	1,000	523	0	0	0	0	0	0
TN	318	531	0	25	0	0	0	0
TX	4,002	4,000	192	1,091	397	442	272[2]	(D)
VA	30	538	0	85	(D)	(D)	0	0
WA	0	(D)	0	0	(D)	421	0	0
WV	0	26		0	553	0	0	0
WI	29	30	0	0	0	0	0	0
Other States[3]	175	431	(D)	(D)	56	49	(D)	(D)
U.S.	12,605	14,326	208	1,625	1,633	2,074	338	55

[1]New England includes CT, ME, MA, NH, RI, and VT.

[2]Since Texas is not likely to have either gray or red wolf populations, these deaths were most likely the result of coyotes, or wolf/dog hybrids.

[3]Other States include AK, DE, HI, MD, MT, NV, NJ, ND, SD, UT, and WY.

(D) = Numbers suppressed to avoid potential disclosure of respondents.

Seven times as many kids than goats were lost to predatory birds in 2015.

A.4.g. Number of goats and kids lost to predatory birds (vultures, ravens, eagles), feral pigs, and other known or unknown predators, by State:

	Number Goats and Kids Cause of Death							
	Predatory birds		Feral pigs		Other known		Unknown	
State	Goats	Kids	Goats	Kids	Goats	Kids	Goats	Kids
AL	0	48	0	0	(D)	(D)	(D)	(D)
AZ	0	0	0	0	148	0	92	3,176
AR	(D)	218	0	(D)	(D)	73	48	245
CA	0	55	0	0	0	(D)	97	97
CO	0	(D)	0	0	(D)	(D)	0	(D)
FL	0	46	0	0	110	308	(D)	311
GA	(D)	(D)	0	0	0	122	51	158
ID	0	0	0	0	0	0	0	(D)
IL	0	20	0	0	0	20	(D)	(D)
IN	0	0	0	0	0	0	(D)	67
IA	0	(D)	0	0	0	0	(D)	0
KS	0	(D)	0	0	(D)	39	(D)	218
KY	0	70	0	0	0	(D)	45	(D)
LA	0	(D)	0	0	(D)	196	(D)	(D)
MI	0	0	0	0	0	(D)	28	(D)
MN	(D)	0	0	0	0	0	0	(D)
MS	0	(D)	0	0	0	(D)	(D)	(D)
MO	0	(D)	0	0	(D)	0	(D)	(D)

continued→

A.4.g. Number of goats and kids lost to predatory birds (vultures, ravens, eagles), feral pigs, and other known or unknown predators, by State (cont'd):

	Number Goats and Kids Cause of Death							
	Predatory birds		Feral pigs		Other known		Unknown	
State	Goats	Kids	Goats	Kids	Goats	Kids	Goats	Kids
NE	0	(D)	0	0	0	0	(D)	(D)
New England[1]	0	0	0	0	(D)	(D)	(D)	(D)
NM	0	(D)	0	0	0	(D)	0	(D)
NY	0	0	0	0	(D)	215	0	68
NC	0	0	0	35	0	0	0	(D)
OH	3	0	0	0	0	0	572	(D)
OK	0	43	0	0	(D)	30	(D)	141
OR	0	43	0	0	(D)	(D)	23	(D)
PA	0	0	0	0	0	31	0	34
SC	0	46	0	0	0	44	(D)	189
TN	0	87	0	0	0	78	21	484
TX	712	4,614	(D)	937	556	2,241	5,008	(D)
VA	0	31	0	0	0	22	(D)	(D)
WA	0	0	0	0	0	0	(D)	(D)
WV	0	26	0	0	(D)	0	(D)	51
WI	0	30	0	0	0	0	0	44
Other States[2]	24	151	(D)	(D)	163	202	(D)	70
U.S.	750	5,580	478	999	1,082	3,683	8,176	9,572

[1]New England includes CT, ME, MA, NH, RI, and VT.

[2]Other States include AK, DE, HI, MD, MT, NV, NJ, ND, SD, UT, and WY.

(D) = Numbers suppressed to avoid potential disclosure of respondents.

5. Number of goats and kids injured but not killed by predators

More than twice as many kids than goats (10,124 and 4,325, respectively) were injured but not killed by predators in 2015. Arizona accounted for nearly half of all kids injured but not killed, and preweaned kids accounted for most of these injuries. Overall, preweaned kids accounted for the largest number of kid injuries due to predators.

A.5.a. Number and percentage of goat inventory and kid crop injured but not killed by predators, by State:

	Number and Percentage							
State	Goats	Pct. inventory	Preweaned kids	Pct. kid crop	Postweaned kids	Pct. kid crop	Total kids	Pct. kid crop
AL	153	0.5	37	0.2	24	0.1	61	0.3
AZ	98	0.1	3,115	6.2	1,501	3.0	4,616	9.2
AR	90	0.3	(D)	(D)	(D)	(D)	43	0.2
CA	264	0.3	83	0.2	90	0.2	173	0.4
CO	(D)	0.0	131	0.5	0	0.0	131	0.5
FL	86	0.3	51	0.2	22	0.1	73	0.3
GA	334	1.1	193	0.7	133	0.5	326	1.1
ID	(D)	(D)	(D)	(D)	(D)	(D)	21	0.1
IL	(D)	0.0	(D)	(D)	(D)	(D)	94	0.3
IN	(D)	0.0	139	0.6	0	0.0	139	0.6
IA	(D)	0.0	0	0.0	0	0.0	0	0.0
KS	68	0.4	(D)	0.0	(D)	0.0	(D)	0.0
KY	51	0.2	291	1.5	0	0.0	291	1.5
LA	35	0.3	(D)	(D)	(D)	(D)	223	2.7
MI	0	0.0	(D)	0.0	(D)	0.0	(D)	0.0
MN	28	0.1	(D)	0.0	(D)	0.0	(D)	0.0
MS	(D)	(D)	0	0.0	0	0.0	0	0.0
MO	208	0.4	(D)	0.0	(D)	0.0	29	0.1

continued→

A.5.a. Number and percentage of goat inventory and kid crop injured but not killed by predators, by State (cont'd):

	Number and Percentage							
State	Goats	Pct. inventory	Pre-weaned kids	Pct. kid crop	Post-weaned kids	Pct. kid crop	Total kids	Pct. kid crop
NE	0	0.0	(D)	(D)	(D)	(D)	(D)	(D)
New England[1]	(D)	0.0	(D)	0.0	(D)	0.0	(D)	0.0
NM	131	0.5	167	0.7	47	0.2	214	0.8
NY	(D)	(D)	0	0.0	0	0.0	0	0.0
NC	39	0.1	(D)	(D)	(D)	(D)	130	0.5
OH	82	0.3	(D)	(D)	(D)	(D)	(D)	(D)
OK	26	0.0	36	0.1	122	0.2	158	0.2
OR	289	0.8	(D)	(D)	(D)	(D)	55	0.2
PA	(D)	0.0	32	0.1	0	0.0	32	0.1
SC	159	0.5	(D)	(D)	(D)	(D)	53	0.2
TN	209	0.3	198	0.3	361	0.6	559	0.9
TX	1,626	0.3	1,216	0.2	936	0.2	2,153	0.4
VA	31	0.1	(D)	(D)	(D)	(D)	74	0.2
WA	72	0.4	(D)	(D)	(D)	(D)	(D)	0.0
WV	(D)	(D)	(D)	(D)	(D)	(D)	73	0.4
WI	24	0.1	(D)	(D)	(D)	(D)	52	0.1
Other States[2]	135	0.2	166	0.2	63	0.1	229	0.3
U.S.	4,325	0.3	6,183	0.4	3,941	0.3	10,124	0.6

[1]New England includes CT, ME, MA, NH, RI, and VT.

[2]Other States include AK, DE, HI, MD, MT, NV, NJ, ND, SD, UT, and WY.

(D) = Numbers suppressed to avoid potential disclosure of respondents.

The total value of goats and kids injured but not killed by predators in 2015 was $1.9 million. It was assumed that injured goats or kids had no market value.

A.5.b. Value of goats and kids injured but not killed by predators, by State:

	Value ($1,000)		
State	**Goats**	**Kids**	**Total**
AL	28	6	34
AZ	12	490	502
AR	18	5	23
CA	50	20	71
CO	1	14	15
FL	16	9	25
GA	61	35	96
ID	2	3	4
IL	1	10	11
IN	2	15	17
IA	2	0	2
KS	13	1	14
KY	9	31	40
LA	6	24	30
MI	0	1	1
MN	6	1	7
MS	2	0	2
MO	38	3	41

continued→

A.5.b. Value of adult and kid goats injured but not killed by predators, by State (cont'd):

	Value ($1,000)		
State	**Goats**	**Kids**	**Total**
NE	0	2	2
New England[1]	0	0	1
NM	22	19	41
NY	2	0	2
NC	7	14	21
OH	17	8	25
OK	5	17	22
OR	53	8	61
PA	1	3	4
SC	31	8	39
TN	39	60	100
TX	286	266	552
VA	6	8	13
WA	13	1	14
WV	3	8	11
WI	5	8	12
Other States[2]	24	25	49
U.S.	781	1,123	1,904

[1]New England includes CT, ME, MA, NH, RI, and VT.
[2]Other States include AK, DE, HI, MD, MT, NV, NJ, ND, SD, UT, and WY.

6. Nonlethal methods used to prevent losses caused by wildlife

Overall, 93 percent of operations used some kind of nonlethal method to control predators in 2015. The most common method (besides “other nonlethal”) was fencing, followed by guard dogs and night penning. Night penning includes putting up lights or motion-controlled lighting systems to keep predators away and was used by nearly one-fourth of operations in 2015.

A.6.a. Percentage of operations by nonlethal method(s) used to control predators:

Predator control method	Percent operations	Std. error
Guard dogs for goats	33.0	(1.8)
Llamas for guarding goats	4.2	(0.6)
Donkeys for guarding goats	9.6	(0.8)
Fencing (predator exclusion fencing)	44.5	(1.9)
Kid shed	18.3	(1.3)
Herding	5.5	(0.6)
Night penning	23.8	(1.5)
Fright tactics	2.1	(0.4)
Removing carrion	5.0	(0.5)
Culling older goats to prevent death loss	7.0	(0.8)
Changing bedding grounds	6.3	(0.7)
More frequent checks in high predation areas/seasons	10.3	(0.9)
Altered breeding season so kids are not born when predators such as coyotes are feeding their young	2.3	(0.4)
Other nonlethal	57.8	(1.9)
Any	93.0	(1.0)

Although there was no difference by herd size in the overall percentage of operations that used any nonlethal predator control methods, there were some size-related differences in individual methods. A higher percentage of operations with 10 to 19 goats and kids used fencing than operations with 100 or more goats and kids. In addition, a higher percentage of operations with 100 or more goats and kids culled older goats, did more frequent checks in high predation areas/seasons, and removed carrion to prevent death loss by predators compared with smaller sized operations.

A.6.b. Percentage of operations by nonlethal method(s) used to control predators, and by size of operation:

	Percent Operations									
	Size of Operation (number of goats and kids)									
	1–9		**10–19**		**20–99**		**100 or more**		**All operations**	
Method	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Guard dogs for goats	27.6	(2.4)	37.5	(3.7)	42.4	(2.9)	43.0	(5.9)	33.0	(1.8)
Llamas for guarding goats	2.7	(0.7)	2.7	(0.5)	9.2	(2.3)	11.3	(2.5)	4.1	(0.6)
Donkeys for guarding goats	7.8	(0.9)	8.8	(1.5)	15.8	(2.2)	12.1	(1.7)	9.6	(0.8)
Fencing (predator exclusion fencing)	43.0	(3.0)	48.6	(3.8)	45.8	(2.7)	34.7	(4.2)	44.5	(1.9)
Kid shed	14.1	(1.8)	22.6	(3.1)	25.1	(2.3)	23.6	(3.5)	18.3	(1.3)
Herding	3.4	(0.6)	6.8	(1.7)	8.7	(1.5)	16.0	(7.9)	5.5	(0.6)
Night penning	19.9	(1.8)	33.3	(3.9)	24.8	(2.2)	21.0	(2.8)	23.8	(1.5)
Fright tactics	1.3	(0.3)	3.6	(1.6)	3.1	(0.7)	1.6	(0.3)	2.1	(0.4)
Removing carrion	3.1	(0.5)	5.6	(1.3)	8.8	(1.1)	11.6	(2.2)	5.0	(0.5)
Culling older goats to prevent death loss	2.5	(0.5)	12.0	(2.7)	12.4	(1.5)	22.4	(2.9)	7.0	(0.8)
Changing bedding grounds	4.7	(0.7)	7.7	(1.8)	9.1	(1.6)	7.8	(1.3)	6.3	(0.7)
More frequent checks in high predation areas/ seasons	7.1	(0.9)	12.8	(2.5)	14.9	(1.8)	25.2	(7.3)	10.3	(0.9)
Altered breeding season so kids are not born when predators such as coyotes are feeding their young	1.0	(0.3)	3.3	(1.5)	4.6	(1.2)	3.5	(1.2)	2.3	(0.4)
Other nonlethal	60.0	(3.0)	55.5	(4.0)	54.1	(2.8)	55.4	(5.0)	57.8	(1.9)
Any method	95.7	(0.6)	86.8	(3.9)	92.3	(1.2)	92.8	(1.2)	93.0	(1.0)

About the same percentage of operations used two or more predator control methods as used a single method. The most common single method was “other,” which might have included multiple other methods.

A.6.c. For operations that used nonlethal predator control methods, percentage of operations by number of nonlethal methods used:

Number of methods	Percent operations	Std. error
1	46.3	(2.1)
2	19.1	(1.3)
3	11.3	(0.9)
4	8.5	(1.0)
5	6.2	(0.9)
6	2.6	(0.4)
7 or more	6.1	(0.7)
Total	100.0	

Overall, 44.5 percent of operations used fencing either alone or in combination with other nonlethal predator control methods (table A.6.b) and 12.5 percent used fencing only.

A.6.d. Percentage of operations by the top 15 nonlethal predator control methods used singly and in combination:

Rank	Method	Percent operations
1	Other nonlethal methods only	22.8 (1.9)
2	Fencing only	12.5 (2.0)
3	Guard dogs only	6.2 (1.0)
4	Guard dogs Fencing	3.9 (0.5)
5	Fencing Other nonlethal methods	3.1 (0.5)
6	Guard dogs Other nonlethal methods	2.6 (0.6)
7	Night penning Other nonlethal methods	2.1 (0.5)
8	Guard donkeys only	1.7 (0.3)
9	Night penning only	1.7 (0.5)
10	Guard dogs Fencing Other nonlethal methods	1.6 (0.4)
11	Guard dogs Fencing Kid shed Night penning Other nonlethal methods	1.6 (0.6)
12	Fencing Night penning Other nonlethal methods	1.3 (0.3)
13	Fencing Kid shed Other nonlethal methods	1.2 (0.3)
14	Fencing Kid shed	1.1 (0.2)
15	Fencing Kid shed Night penning Other nonlethal methods	0.9 (0.4)
	Other nonlethal predator control method combinations	35.7 (1.7)
	Total	100.0

More than 90 percent of operatons in every State used any nonlethal methods to control predators. All operations in Arizona used at least one nonlethal method to control predators.

A.6.e. Percentage of operations that used any nonlethal methods to control predators, by State:

State	Percent operations	Std. error
AL	95.4	(2.3)
AZ	100.0	(—)
AR	93.7	(4.4)
CA	96.5	(1.3)
CO	94.9	(3.0)
FL	90.3	(3.7)
GA	92.5	(2.5)
ID	95.7	(4.1)
IL	96.3	(1.7)
IN	95.5	(2.3)
IA	95.7	(1.8)
KS	92.8	(2.8)
KY	96.9	(1.7)
LA	96.2	(2.3)
MI	98.5	(0.5)
MN	92.3	(5.6)
MS	94.8	(2.6)
MO	97.4	(1.6)

continued→

A.6.e. Percentage of operations that used any nonlethal methods to control predators, by State (cont'd):

State	Percent operations	Std. error
NE	79.2	(10.8)
New England[1]	98.7	(0.8)
NM	62.9	(23.3)
NY	96.1	(2.8)
NC	98.4	(0.9)
OH	83.5	(6.1)
OK	93.8	(1.9)
OR	97.2	(1.2)
PA	98.4	(0.9)
SC	94.5	(2.4)
TN	97.6	(1.1)
TX	85.0	(3.3)
VA	98.3	(1.1)
WA	88.9	(5.9)
WV	90.7	(6.0)
WI	97.6	(1.2)
Other States[2]	94.7	(1.3)
U.S.	93.0	(1.0)

[1]New England includes CT, ME, MA, NH, RI, and VT.
[2]Other States include AK, DE, HI, MD, MT, NV, NJ, ND, SD, UT, and WY.

A higher percentage of operations with 1 to 9 goats and kids used only nonlethal methods of predator control than operations with 100 or more goats and kids (90.4 and 65.6 percent, respectively). However, a higher percentage of operations with 100 or more goats used both nonlethal and lethal methods compared with the other operation sizes.

A.6.f. Percentage of operations by method used to control predators, and by size of operation:

Percent Operations

Size of Operation (number of goats and kids)

	1–9		10–19		20–99		100 or more		All operations	
Method	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Lethal only*	0.4	(0.3)	0.5	(0.3)	0.8	(0.4)	1.1	(0.3)	0.5	(0.2)
Nonlethal only	90.4	(1.1)	83.3	(3.0)	83.7	(1.8)	65.6	(7.2)	86.7	(1.0)
Both	4.7	(0.8)	7.2	(1.5)	9.1	(1.5)	27.4	(7.8)	6.8	(0.7)
None	4.5	(0.7)	9.0	(2.8)	6.4	(1.0)	6.0	(1.2)	6.0	(0.8)
Total	100.0		100.0		100.0		100.0		100.0	

*The study questionnaire asked if producers had spent any money on lethal predator control methods. There may have been producers who used lethal methods but did not spend any money on them.

More than 10 percent of operations in Arizona, Florida, Georgia, New Mexico, Tennessee, and "Other" States used both lethal and nonlethal methods to control predators in 2015.

A.6.g. Percentage of operations by method(s) used to control predators, and by State:

	Method of Control							
	Lethal only		Nonlethal only		Both		None	
State	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
AL	0.0	(—)	88.3	(3.3)	7.1	(2.3)	4.6	(2.5)
AZ	0.0	(—)	89.5	(6.2)	10.5	(6.2)	0.0	(—)
AR	0.0	(—)	91.1	(3.4)	8.8	(3.4)	0.1	(0.0)
CA	0.0	(—)	92.0	(2.4)	4.6	(1.6)	3.4	(1.4)
CO	3.8	(3.4)	89.3	(4.7)	2.7	(0.6)	4.2	(3.4)
FL	0.0	(—)	80.1	(5.0)	12.0	(3.6)	8.0	(2.9)
GA	0.0	(—)	81.9	(3.8)	12.9	(3.2)	5.1	(2.2)
ID	0.0	(—)	88.8	(7.4)	6.1	(5.3)	5.1	(4.9)
IL	0.0	(—)	91.3	(2.9)	4.4	(2.0)	4.3	(1.9)
IN	2.3	(2.0)	92.9	(3.0)	1.5	(0.5)	3.3	(2.1)
IA	0.1	(0.0)	94.2	(2.1)	1.1	(0.4)	4.6	(1.9)
KS	0.0	(—)	85.9	(3.7)	8.5	(2.8)	5.6	(2.6)
KY	0.0	(—)	95.6	(2.0)	1.2	(0.6)	3.2	(1.8)
LA	0.0	(—)	96.9	(2.6)	3.0	(2.6)	0.1	(0.0)
MI	0.0	(—)	97.5	(0.8)	0.8	(0.4)	1.7	(0.6)
MN	0.0	(—)	89.1	(6.4)	2.4	(1.3)	8.4	(6.2)
MS	0.0	(—)	86.4	(4.7)	7.7	(3.5)	5.9	(3.0)
MO	0.0	(—)	92.1	(3.0)	4.6	(2.1)	3.3	(2.0)

continued→

A.6.g. Percentage of operations by method(s) used to control predators, and by State (cont'd):

	Method of Control							
	Lethal only		Nonlethal only		Both		None	
State	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
NE	1.5	(1.4)	71.3	(11.1)	6.6	(2.9)	20.6	(11.4)
New England[1]	0.0	(—)	89.7	(7.9)	8.8	(7.8)	1.5	(0.9)
NM	0.0	(—)	81.6	(11.6)	17.9	(11.6)	0.5	(0.3)
NY	0.0	(—)	91.5	(3.6)	4.7	(2.7)	3.8	(2.0)
NC	0.4	(0.4)	95.9	(2.3)	2.5	(1.5)	1.2	(0.8)
OH	0.0	(—)	74.0	(6.8)	7.4	(3.1)	18.6	(6.7)
OK	0.6	(0.6)	87.0	(4.0)	6.5	(3.4)	5.8	(1.9)
OR	0.0	(—)	94.7	(2.0)	2.6	(1.1)	2.8	(1.4)
PA	0.0	(—)	97.9	(1.0)	0.3	(0.1)	1.8	(1.0)
SC	0.5	(0.4)	86.6	(3.9)	7.6	(2.9)	5.4	(2.5)
TN	0.6	(0.6)	84.8	(2.2)	12.6	(1.8)	2.0	(1.0)
TX	1.2	(0.6)	75.8	(3.7)	8.7	(1.7)	14.3	(3.5)
VA	0.0	(—)	91.1	(5.3)	6.8	(5.1)	2.1	(1.3)
WA	0.0	(—)	83.5	(7.2)	3.6	(2.2)	13.0	(6.9)
WV	6.6	(6.2)	87.5	(6.3)	2.8	(1.2)	3.1	(1.5)
WI	0.0	(—)	93.6	(2.5)	3.0	(1.7)	3.4	(1.7)
Other States[2]	0.5	(0.2)	85.3	(3.9)	10.7	(3.9)	3.5	(0.8)
U.S.	0.5	(0.2)	86.7	(1.0)	6.8	(0.7)	6.0	(0.8)

[1]New England includes CT, ME, MA, NH, RI, and VT.

[2]Other States include AK, DE, HI, MD, MT, NV, NJ, ND, SD, UT, and WY.

Only 6.9 percent of operations spent any money on lethal predator control ($444 on average). A higher percentage of operations with 100 or more goats and kids spent money on lethal predator control than operations with 1 to 9 or 10 to 19 goats and kids; however, there was no statistical difference when standard errors are considered.

A.6.h. Percentage of operations that spent any money on **lethal** predator control methods, by size of operation:

Percent Operations

Size of Operation (number of goats and kids)

1–9		10–19		20–99		100 or more		All operations	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
4.8	(0.8)	7.7	(1.5)	9.8	(1.6)	28.3	(7.7)	6.9	(0.6)

A.6.i. For operations that spent any money on **lethal** predator control methods, average amount spent on these measures, by size of operation:

Average Amount ($)

Size of Operation (number of goats and kids)

1–9		10–19		20–99		100 or more		All operations	
Avg.	Std. error	Avg.	Std. error	Avg.	Std. error	Avg.	Std. error	Avg.	Std. error
597	(312)	215	(46)	237	(33)	831	(310)	444	(132)

Overall, a higher percentage of operations spent money on nonlethal than lethal predator control methods. More operations with 100 or more goats and kids spent money (and more of it) on nonlethal predator control than operations with 1 to 9 goats and kids.

A.6.j. Percentage of operations that spent any money on **nonlethal** predator control measures, by size of operation:

Percent Operations

Size of Operation (number of goats and kids)

1–9		10–19		20–99		100 or more		All operations	
Avg.	Std. error	Avg.	Std. error	Avg.	Std. error	Avg.	Std. error	Avg.	Std. error
15.8	(1.6)	26.4	(3.2)	28.7	(2.7)	28.9	(3.7)	20.8	(1.3)

A.6.k. For operations that spent money on **nonlethal** predator control measures, average amount of money spent on these measures, by size of operation:

Average Amount ($)

Size of Operation (number of goats and kids)

1–9		10–19		20–99		100 or more		All operations	
Avg. $	Std. error	Avg. $	Std. error	Avg. $	Std. error	Avg. $	Std. error	Avg. $	Std. error
903	(146)	1,172	(269)	954	(108)	3,431	(1,093)	1,085	(111)

A higher percentage of operations with 100 or more goats and kids used the assistance of a State or Federal government trapper to control predators. There was no difference across regions in the percentage of operations that used the assistance of a State or Federal government trapper.

A.6.l. Percentage of operations in which State or Federal government trappers helped control predators, by size of operation:

Percent Operations

Size of Operation (number of goats and kids)

1–9		10–19		20–99		100 or more		All operations	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
1.1	(0.3)	1.4	(0.8)	5.3	(2.3)	14.5	(1.9)	2.3	(0.5)

A.6.m. Percentage of operations in which State or Federal government trappers helped control predators, by region

Percent Operations

Region

Pacific		West Central		Central		Northeast		Southeast	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
2.2	(0.6)	3.1	(0.5)	2.9	(2.1)	2.5	(1.5)	1.1	(0.4)

7. Operations not raising goats in the future

Overall, 7.7 percent of operations quit raising goats and kids in 2015. A higher percentage of operations with 1 to 9 goats and kids than operations in the other size categories quit raising goats in 2015.

A.7.a. Percentage of operations that quit raising goats in 2015, by size of operation:

Percent Operations

Size of Operation (number of goats and kids)

1–9		10–19		20–99		100 or more		All operations	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
10.5	(1.4)	4.6	(0.9)	3.8	(0.8)	1.1	(0.2)	7.7	(0.8)

There were no regional differences in the percentage of operations that quit raising goats.

A.7.b. Percentage of operations that quit raising goats in 2015, by region:

Percent Operations

Region

Pacific		West Central		Central		Northeast		Southeast	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
5.4	(1.9)	6.4	(1.1)	11.5	(3.1)	6.8	(1.6)	7.5	(1.0)

For the 7.7 percent of operations that quit raising goats in 2015, “other” was the main reason for quitting on the highest percentage of operations, followed by retirement.

A.7.c. For operations that quit raising goats in 2015 (table A.7.a), percentage of operations by main reason for quitting and by size of operation:

Reason	Percent operations	Std. error
Disease	6.2	(2.2)
Predator loss	6.0	(1.6)
Price of meat or milk	1.5	(0.7)
Retirement	25.5	(6.5)
Parasites or worms	5.3	(1.8)
Other	55.4	(5.6)
Total	100.0	

Section III: Methodology

1. Survey procedures

A random sample of U.S. goat and kid producers was surveyed by NASS to provide data for estimates in this report. Detailed goat death loss questions were included in NASS' annual "Sheep and Goat" survey, which is administered every January. Survey procedures ensured that all goat producers, regardless of operation size, had an opportunity to be included in the survey. Large operations were sampled more heavily than small operations. About 26,500 operators were contacted during the first half of January 2016 by mail, telephone, and/or face-to-face interviews; information provided by 63.0 percent of those contacts was usable.

2. Estimation procedures

Data were weighted to allow inference to the population of all U.S. goat and kid producers. For estimates generated by NAHMS, SAS and SUDAAN® software were used. Standard errors account for the stratified sample design with unequal weights.

3. Revision policy

There are no planned revisions for estimates in this report.