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Report 1

Goat 2019

Part I: Reference of Goat Management Practices in the United States, 2019

USDA–APHIS–VS−CEAH–NAHMS
NRRC Building B, M.S. 2E7
2150 Centre Avenue
Fort Collins, CO 80526-8117
970.494.7000
http://www.aphis.usda.gov/nahms

Cover photo courtesy of Pixabay.

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Amy Delgado
Director
Center for Epidemiology and Animal Health

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Contacts for further information:
Questions or comments on data analysis: Dr. Natalie Urie (866) 907–8190
Information on reprints or other reports: Ms. Abby Zehr (866) 907–8190

For questions about this report or additional copies, please contact:

USDA–APHIS–VS–CEAH
NRRC Building B, M.S. 2E7
2150 Centre Avenue
Fort Collins, CO 80526-8117
NAHMS@usda.gov

Items of Note

The NAHMS Goat 2019 study was conducted in 24 of the Nation's major goat-producing States (see map on p 2). At the time of the study, these States represented 75.8 percent of U.S. goat operations with five or more adult goats and 80.4 percent of adult goats in the United States (NASS 2017 Census of Agriculture). Unless otherwise noted, estimates in this report refer to the period from July 1, 2018, to June 30, 2019, the dates following the 12 months prior to questionnaire administration. To simplify the report, however, this period is referred to as "in the previous 12 months."

Operations were placed in one of three size categories based on their July 1, 2019 goat inventory: small (5-19), medium (20-99), and large (100 or more).

Overall, 62.2 percent of goats were used primarily for meat production, and 19.1 percent were used primarily for milk production. Only 2.6 percent of goats were used primarily as pets/companions. A higher percentage of goats in the West region (10.3 percent) than in the East region (0.8 percent) were primarily used for angora/fiber.

Overall, 53.4 percent of operations expected to have about the same number of goats in 5 years, as compared with their inventory on July 1, 2019, and 27.0 percent expected to have more goats in 5 years compared with their inventory on July 1, 2019.

Only 1.5 percent of all operations used open range as their primary land/facilities management type. Most operations (88.0 percent) used fenced range or fenced farm. A higher percentage of large operations (59.8 percent) used fenced range as their primary land/facilities management type than small and medium operations (43.0 and 46.3 percent, respectively). Conversely, a higher percentage of small and medium operations (46.5 and 41.5 percent, respectively) used fenced farm than large operations (21.2 percent). A higher percentage of operations in the West region (61.4 percent) used fenced range as their primary land/facilities management type than operations in the East region (39.7 percent). A higher percentage of operations in the East region (47.7 percent) used fenced farm compared with operations in the West region (28.3 percent).

Overall, 86.3 percent of all operations bred any goats in the previous 12 months. The percentage of operations that bred any goats increased as herd size increased, with 76.2 percent of small, 95.1 percent of medium, and 99.3 percent of large operations breeding any goats.

Of operations that bred any goats, 60.4 percent had a defined breeding season. A higher percentage of large operations (73.2 percent) had a defined breeding season than small operations (53.2 percent). There were no regional differences in the percentage of operations that had a defined breeding season.

For operations that bred goats, 26.7 percent used performance traits or a performance testing program to improve genetic traits in their herd. The percentage of operations that used performance traits or performance testing for genetic selection increased as herd size increased; 18.9 percent of small, 29.4 percent of medium, and 48.7 percent of large operations used performance traits or performance testing when selecting bucks or does.

A higher percentage of medium and large operations (95.1 and 99.4 percent, respectively) had kids born on the operation compared with small operations (75.0 percent). Small operations are more likely than large and medium operations to have goats for purposes other than meat and dairy production (e.g., pet/companion, brush control, or packing), which might explain why small operations had a lower percentage of goats born. A higher percentage of meat and dairy operations (91.5 and 86.7 percent, respectively) had kids born on the operation than other operations (72.2 percent).

For operations that had any kids born on the operation, 95.4 percent indicated that their first-choice breeding method was to breed any of their does naturally using the operation's bucks. A higher percentage of medium and large operations (5.6 and 7.9 percent, respectively) used artificial insemination as their first-choice breeding method to breed any does than small operations (0.8 percent). Only 1.2 percent of operations used embryo transfer as their first-choice breeding method for any does.

For operations that had any kids born, 41.8 percent left the placentas in the field/birthing area and did not remove them. A higher percentage of large operations (62.7 percent) left placentas in the field/birthing area and did not remove them compared with small and medium operations (34.5 and 44.1 percent, respectively).

A higher percentage of small and medium operations (11.2 and 11.9 percent, respectively) disposed of placentas in a dump/landfill than large operations (3.6 percent). For operations that had any kids born, a higher percentage of meat operations (46.7 percent) left placentas in the field/birthing area and did not remove them than dairy operations (30.1 percent). A higher percentage of dairy operations (22.6 percent) composted placentas than meat or other operations (10.6 and 7.8 percent, respectively).

For operations that had any kids born, 29.2 percent disbudded or planned to disbud any kids, and 25.3 percent of all kids were or were expected to be disbudded. There were no differences by herd size or by region in the percentage of operations that had or were expected to disbud kids or the percentage of kids that were or were expected to be disbudded. A higher percentage of kids in the East region (34.1 percent) than in the West region (14.9 percent) were or were expected to be disbudded. A higher percentage of dairy operations (64.4 percent) disbudded or planned to disbud any kids compared with meat operations (16.5 percent) or other operations (33.0 percent). A lower percentage of kids on meat operations (9.1 percent) were or were expected to be disbudded compared with kids on dairy operations (67.3 percent) or other operations (22.8 percent).

Overall, 45.7 percent of operations had any buck kids that had been or were expected to be castrated, and 37.5 percent of buck kids were or were expected to be castrated. There were no differences by herd size in the percentage of operations that had any buck kids that had been or were expected to be castrated, nor were there any differences in the percentage of buck kids that had been or were expected to be castrated. A higher percentage of buck kids in the West region (45.1 percent) than in the East region (31.0 percent) had been or were expected to be castrated.

Overall, operators on 49.8 percent of operations had consulted a veterinarian for any reason related to goat health, productivity, or management. Operators on a higher percentage of large operations (59.5 percent) than small operations (45.0 percent) had consulted a veterinarian.

Overall, 45.4 percent of operations had never heard of a VCPR. Operators on a higher percentage of large operations (58.9 percent) had at least a basic understanding of the meaning of a VCPR than operators on small operations (43.2 percent).

Overall, 38.7 percent of operations did not use any antibiotics in the previous 12 months. Overall, 10.5 percent of operations usually used a veterinarian to determine antibiotic withdrawal periods, but note that only 49.8 percent of operations had consulted a veterinarian in the past year. Antibiotic withdrawal periods were never considered on 9.0 percent of operations. A higher percentage of small operations (49.6 percent) never used antibiotics than medium or large operations (27.4 and 33.8 percent, respectively).

Almost all operations (92.6 percent) had visitors, most of which were family, friends, and/or neighbors (87.3 percent). Other common visitors included customers and private or company veterinarians (40.9 and 34.1 percent of operations, respectively).

Overall, 93.0 percent of operations had domesticated animals other than goats on the operation at any time in the previous 12 months. Cattle, horses/donkeys, poultry, and dogs were present on 36.8, 44.5, 47.7, and 81.9 percent of operations, respectively, and 17.6 percent operations had domesticated sheep. A higher percentage of large operations (28.2 percent) than medium operations (15.6 percent) had domesticated sheep on the operation, and a higher percentage of large operations (63.2 percent) had cattle than small and medium operations (31.5 percent and 37.8 percent, respectively).

Overall, 21.8 percent of operations added any adult goats in the previous 12 months, and 29.9 percent added any adult or kid goats. A higher percentage of medium and large operations (34.3 percent and 39.5 percent, respectively) added any adult goats or kids than small operations (24.3 percent). A higher percentage of medium and large operations added pregnant does (5.1 percent and 7.1 percent, respectively), than small operations (1.8 percent).

For operations that added any goats or kids in the previous 12 months, 85.0 percent required inspections or treatments for new arrivals, either before arriving on the operation or after arriving but before commingling with other goats in the herd; 55.9 percent of operations required inspections and treatments for new arrivals both before arriving on the operation and before commingling with other goats. Overall, 52.6 percent of operations required any vaccinations for new arrivals before or after they arrived and before commingling with other goats; 64.1 percent required internal parasite treatments; and 67.0 percent required that goats be inspected for abscesses and/or scars from previous abscesses.

Overall, 68.3 percent of operations sold or otherwise permanently removed any goats or kids. A higher percentage of medium and large operations (78.7 and 88.8 percent, respectively) sold or permanently removed any goats or kids than small operations (55.6 percent).

For the operations that permanently removed any goats or kids, 43.8 percent culled any goats; 31.6 percent culled breeding does; and 19.3 percent culled breeding bucks. A higher percentage of medium and large operations (48.3 percent and 64.0 percent, respectively) culled any goats than small operations (32.7 percent). The percentage of operations that culled breeding does increased as herd size increased: 21.9 percent of small, 34.1 percent of medium, and 56.0 percent of large operations culled breeding does.

For operations that had any goats with any form of ID, a higher percentage of large operations (21.4 percent) used ear notches than small and medium operations (3.5 percent and 3.7 percent). A higher percentage of medium operations used electronic ID (6.9 percent) than large operations (2.8 percent). A higher percentage of operations in the East region (38.7 percent) used tattoos as ID than operations in the West region (26.4 percent). A higher percentage of operations in the West region (10.6 percent) used ear notches for ID than operations in the East region (3.6 percent). A higher percentage of operations in the East region (61.2 percent) used any official ear tag than operations in the West region (44.4 percent).

Only 2.7 percent of all operations had any goats or kids with a primary use of fiber production, and only 2.5 percent of operations sheared, clipped, or combed any goats or kids for fiber. A higher percentage of large operations (9.6 percent) sheared, clipped, or combed any goats or kids for fiber than small and medium operations (2.2 percent and 1.3 percent).

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Introduction

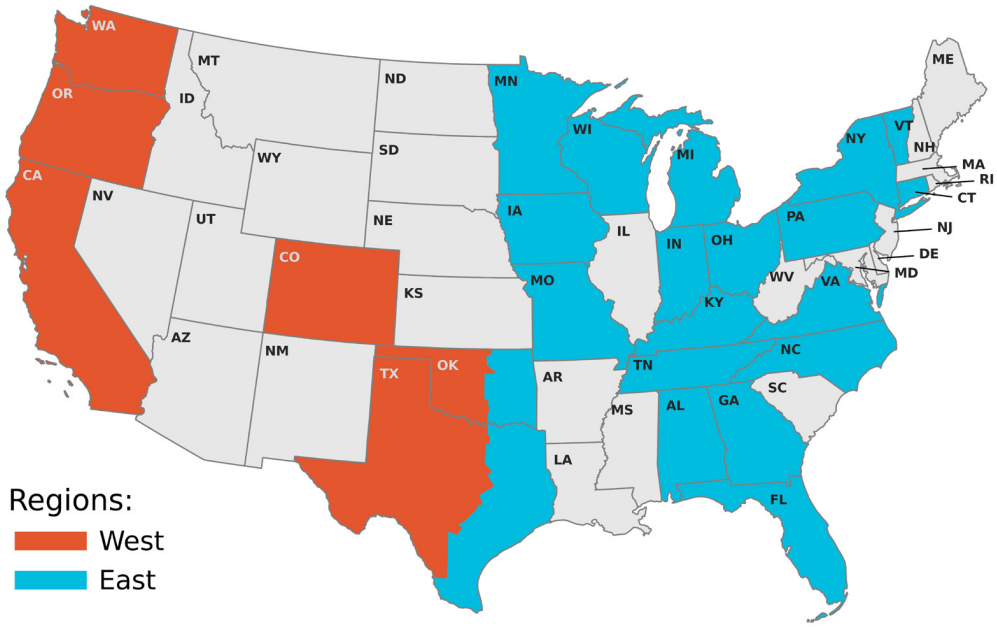
The National Animal Health Monitoring System (NAHMS) is a nonregulatory program of the United States Department of Agriculture's (USDA) Animal and Plant Health Inspection Service. NAHMS is designed to help meet the Nation's animal health information needs and has collected data on the health and management practices of the U.S. goat industry in one previous study, Goat 2009.

NAHMS Goat 2009 was the first national study of the U.S. goat industry and was conducted in 21 of the Nation's major goat-producing States. At the time of the study, these States represented 75.5 percent of U.S. goat operations and 82.2 percent of U.S. goats (NASS 2007 Census of Agriculture). Goat 2009 provided participants, industry, and animal health officials with baseline information on the Nation's goat operations and their health and management practices. Operations with one or more goats were selected using a stratified random sample from a NASS list frame for participation in the study. Selected operations with 1 to 9 goats provided information via a mail-in questionnaire or by a follow-up telephone interview. Operations with 10 or more goats participated in an in-person interview conducted by a NASS enumerator. Operations that completed the in-person interview and were interested in participating in the study's second phase were left a mail-in questionnaire that focused on biosecurity and disease-prevention practices in the U.S. goat industry. More information is provided in the Goat 2009 study descriptive reports available on the NAHMS Web site.

NAHMS Goat 2019 was conducted in 24 of the Nation's major goat-producing States (see map on p 2). At the time of the study, these States represented 75.8 percent of U.S. goat operations with five or more adult goats and 80.4 percent of adult goats in the United States (NASS 2017 Census of Agriculture). Unlike the Goat 2009 study, in which operations with one or more goats were selected for participation, the Goat 2019 study selected only operations with five or more adult goats, thereby reducing the number of noncommercial operations (i.e. operations that kept goats as pets) participating in the study. In addition, Goat 2019 takes a closer look at the dairy and agritourism segments of the U.S. goat industry.

This report "Part I: Reference of Goat Management Practices in the United States, 2019," is the first in a series of reports containing national information from the NAHMS Goat 2019 study.

States/regions participating in the NAHMS Goat 2019 study



Note: Texas and Oklahoma were divided on a line corresponding to Interstate 35. The western halves of the States were included in the West region, and the eastern halves in the East region. For more detailed information regarding the counties involved, see Appendix II on p 304.

Detailed information on study methods and number of respondents can be found in the Methodology section on p 289.

Terms Used in This Report

Animal average— The average value for all animals; the single reported value for each operation multiplied by the number of animals on that operation is summed over all operations and divided by the number of animals on all operations. This way, the result is adjusted for the number of animals on each operation.

Abortion— Expulsion of a dead or nonviable fetus prior to the time of normal kidding.

Angora/fiber— Goats kept primarily for their hair and fiber production. Angora goats and Angora-breed crosses are the predominant fiber producing goats.

Antibiotic— A chemical compound generally produced by molds that inhibits and/or kills certain bacteria. Antibiotics are very effective against illnesses caused by bacteria.

Antimicrobial— Any substance of natural, semisynthetic, or synthetic origin that kills or inhibits the growth of microorganisms but causes little or no damage to the host. All antibiotics are antimicrobials, but not all antimicrobials are antibiotics. For the purposes of this report, the terms "antimicrobial" and "antibiotic" are considered synonyms.

Artificial insemination (AI)— Mechanical placement of semen into a female.

Auction— Refers to an auction or a sale barn where goats and other animals are sold to the highest bidder.

Breeding season— Goats are usually seasonal breeders and typically come into heat (estrus) in late summer as daylight hours subside. The natural breeding season usually occurs from late summer through early winter and is the period during which female goats are exposed to bucks or artificially inseminated. Operations might have one, two, or more defined breeding seasons, or they might not have a defined breeding season at all. Operations that keep bucks with does for fewer than 4 months have a defined breeding season.

Browsing— The act of feeding on high-growing vegetation such as leaves, twigs, or bushes. Goats browse for food, although if necessary they will graze; in other words, they will feed on low growing plants on pasture.

Brucellosis— Bacterial disease of mammals that can cause abortions in does and inflamed testicles in bucks. When Brucella (the bacteria that causes Brucellosis) first enters a herd, an outbreak of abortions usually occurs; these outbreaks are commonly referred to as abortion storms. Brucellosis in goats is typically caused by Brucella melitensis, which is not currently in the United States but is found in Mexico. Brucella abortus, a cause of brucellosis in cattle, can also affect goats; however, due to eradication programs in the United States, disease with this bacterium in goats is rare and persists only in the Greater Yellowstone region where bison serve as a reservoir for cattle infections. Brucellosis can affect humans, causing an illness with recurrent flu-like symptoms (undulant fever) or high fever known as “Malta fever.”

Buck— An uncastrated male goat.

Buck breeding performance— A collection of factors that can influence an operator’s decision to keep a breeding buck; these factors include the ability to breed several does, number of offspring produced, and profitability of the offspring.

Central nervous system (CNS)— The brain and spinal cord.

Commercial complete feed— A feed purchased at a feed store or feed mill that provides all necessary nutrients for the animal.

Commercial warehouse— Place that sorts and stores fiber before it is sold to processors.

Commingling— Animals from one operation come in contact with animals from another operation.

Cooperative pool— Operators who pool their products (animals, milk, or fiber) to sell to a buyer.

Crop residue/by-product— Material left after a crop has been harvested. These residues are frequently fed to livestock and might include stalks, stems, leaves, or seedpods of harvested crops.

Crossbred/experimental breeds— Goats of two or more breeds. Goats are crossed with multiple breeds to help promote hybrid vigor, which, in turn, may increase meat, milk, or angora/fiber production.

Cull— Adult animals permanently removed from the herd. Operations cull animals for various reasons such as old age or infertility, disease or injury, to reduce herd size for reasons such as high feed costs, or to improve genetics or desirable phenotypic traits.

Dairy goat— A goat kept to produce milk. Normally, dairy goats are dairy breeds or dairy-breed crosses.

Dairy Herd Improvement Association (DHIA)— An organization intended to improve the production of dairy animals, the profitability of dairy farming, and the record-keeping strategies regarding milk production and management.

Direct sale— Selling method in which goats are purchased directly from a farm or ranch, not at an auction or sale barn. Direct sales include Internet and video marketing.

Disbudding— A procedure performed on young kids to ensure that they do not grow horns. Disbudding is used mostly on dairy operations, but it does occur on meat and fiber operations. Typically, disbudding is performed on kids 3 weeks of age or younger. After 3 weeks, the developing horn tissue is attached to the skull and difficult to remove.

Doe— A female goat.

Dry lot— An enclosed pen with a dirt, concrete, or any other surface not used for grazing or browsing.

Embryo transfer— A reproductive method typically performed by a veterinarian. Embryo transfer involves the surgical collection and transfer of embryos, which can be performed both in and out of the normal breeding season. Embryos are collected from donor does and implanted in recipient does that have been synchronized to be at the same stage of estrous as the donor doe.

Estrus synchronization— Does are treated with hormones or exposed to a teaser buck so that they enter estrus and ovulate at about the same time.

Flushing— The practice of providing does extra nutrition prior to and during part of the breeding season. Flushing increases the number of ovulations, and does that are flushed produce a higher proportion of twins and triplets.

Fresh goat— A goat that has recently given birth. The term “freshen” is usually used to designate the act of kidding and the initiation of lactation.

Genetic evaluation information— Used for predictive purposes; the assessment of productive improvement or conformational characteristic e.g., the gain to be derived by using the animal in question in the breeding program.

Goat— Adult goat aged 1 year or more.

Herd- and animal-level identification (ID)— For herd-level ID, all animals in the herd have the same ID as e.g., a brand indicating the animals' operation of origin. For animal-level ID, each animal in the herd has its own unique ID, e.g., an ear tag with a unique number.

Herd management type

Open range—any unfenced acreage, even a few acres surrounded by residential areas, with a herder.

Fenced range—any fenced area not specifically cultivated to raise forage or browse.

Fenced farm—any fenced area specifically cultivated to raise forage or browse.

Herd size— Based on an operation's July 1, 2019, inventory of goats and kids. Operations were placed in one of three size categories: small (5 to 19 head), medium (20 to 99 head), and large (100 or more head).

Internal parasites— Internal parasites (usually worms) are the leading cause of disease in goats. A high parasite burden can cause anemia, watery feces, bottle jaw, and death. Worms can become resistant to anthelmintics (dewormers) if deworming agents are used inappropriately, making it harder to control these parasites.

Kid— A young goat generally less than 1 year old.

Kid Crop— All kids born during a kidding season. If an operation has no defined breeding season, its kid crop is considered to include all kids born in a 12-month period.

Lactation Period— The period in which a doe produces milk after kidding. Lactation begins at the time of kidding. For dairy goats, lactation continues until the doe has dried-off (stops milking) in preparation for the next kidding. For meat and other goats this period ends with weaning.

List frame— A list of sampling units (e.g., farms or operations) in a target population that enumerates and identifies the subjects in a population. A list frame includes information that allows contact with sampling units and may contain auxiliary information about sampling units (such as the size of the farm or the types of animals on the farm) that can aid in carrying out complex sampling designs.

Market goats or kids— Animals raised primarily for sale.

Meat goats— For the purposes of this study, this term refers to goats raised primarily to produce meat, regardless of their breed.

Milk/dairy goats— This term refers to goats raised primarily to produce milk or dairy products, regardless of their breed.

Mill buyer— A person representing a fiber mill who buys fiber from individual operators.

Natural breeding— Bucks and does are turned out together and allowed to breed on their own.

Neurologic signs— Problems associated with the nervous system. Animals with neurologic problems can exhibit odd behaviors such as circling, tremors, lip smacking, loss of coordination, and rubbing against fences. These animals might be dull, depressed, aggressive, or comatose, and they can appear weak, may stagger when walking, or assume abnormal postures. Neurologic signs are the predominant clinical signs of scrapie.

Off the operation— Refers to sites distinct from the current premises. Some sites, such as grazing land located off the operation, might be owned by the same operator or by someone else.

Operation— An area of land managed as a unit by an individual, partnership, or hired manager. The term “operation” might be used interchangeably with the term “premises” in this report.

Operation average— The average value for all operations. A single value for each operation is summed over All operations reporting and divided by the number of operations reporting.

Operator— The primary manager of the goat operation. Although operations might have more than one person managing the operation, for this report the person who was interviewed is considered the operator.

Pack goats— Goats used for packing cargo (e.g. supplies, food, gear). Goats make great pack animals, as they are intelligent and extremely social when trained properly. Pack goats can be of any breed and are typically wethers (castrated males). These goats often have horns, as horns help them dissipate heat and protect them from predators.

Pasture— Areas with plants such as grass grown for feeding or grazing animals. Some pastures may include areas with bushes and trees that allow goats to browse.

Physical contact— Includes nose-to-nose contact or sniffing, touching, or licking each other, including through a fence. This this term is used interchangeably with the term direct contact.

Population estimates— Estimates in this report are provided with a measure of precision called the standard error. The confidence intervals used to make comparisons in the text of this report were computed using the methods described in Section II.D.2 (p 224). These confidence intervals require more information than is published in the report to compute, but an approximate 95-percent confidence interval can be computed with bounds equal to the estimate plus or minus two standard errors. If the only error is sampling error, the confidence intervals created in this manner will contain the true population value about 95 out of 100 times. For example, an estimated proportion of 7.5 with a standard error of 1.0 results in limits of 5.5 and 9.5 (two times the standard error above and below the estimate). When estimates are reported as being 'higher' or 'lower', a statistical difference is implied by the overlap or absence of overlap between 95-percent confidence intervals for the estimates being compared but was not directly tested. Not all statistically different estimates are mentioned in the text of this report.

Pregnancy toxemia— A metabolic disease that may affect does in late gestation. Pregnancy toxemia is characterized by decreased feed intake, depression, and might include neurologic signs and even death. Pregnancy toxemia is seen most frequently in does carrying multiple fetuses and is often referred to as twin lamb disease or pregnancy ketosis.

Previous 12 months— Refers to the period from July 1, 2018, to June 30, 2019 (questionnaire administration).

Primary production (of operation)— Meat, dairy, other. An operation might have goats to produce meat and other products. If multiple categories applied, operators were asked to select the primary production focus of the operation.

Primary use (of goats)— Fiber, milk, meat, other (including brush control/forage management, showing, competition, 4-H or club, pet/companion goats, pack goats, other). Based on primary use of individual goats regardless of breed.

Quarantine— Physical separation/isolation of an animal or group of animals from other goats on the operation, with no physical contact allowed. Quarantining new additions can help prevent spread of disease.

Regions*

West— California, Colorado, Oregon, Washington, Western Oklahoma,* Western Texas*

East— Alabama, Connecticut, Eastern Oklahoma,* Eastern Texas,* Florida, Georgia, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Vermont, Virginia, Wisconsin

*Texas and Oklahoma were divided on a line corresponding to north-south Interstate 35. The western halves of the States were included in the West region, and the eastern halves were included in the East region. For more detailed information regarding the counties involved, see Appendix II.

Replacement kids— Goat kids that are retained to be used for breeding in the herd. If replacement kids are being raised with the intent of becoming dairy goats, they are called Dairy Replacement Goats.

Reproductive problems— Difficulty in conceiving (infertility), which might be caused by metritis (uterine inflammation), not showing visible signs of estrus (heat), scarring of the uterus, cystic ovarian disease, abortions, and other causes. Reproductive problems also include difficulty kidding or dystocia.

Sample profile— Information that described characteristics of the operations from which Goat 2019 data were collected.

Scrapie— A degenerative, fatal disease affecting the central nervous system of sheep and goats. Infected flocks that contain a high percentage of susceptible animals can experience significant production losses. In these flocks over a period of several years the number of infected animals increases and the age at onset of clinical signs decreases, making these flocks economically unviable. Animals sold from infected flocks spread scrapie to other flocks. The presence of scrapie in the U.S. also prevents the export of breeding stock, semen, and embryos to many other countries.

Scrotum palpation/evaluation— Examination of the buck's testicles for abnormalities and indicators affecting fertility.

Seasonal breeders— Animals that primarily breed during a particular time of year. These goats are also referred to as "short-day breeders." Typically, goats breed in late summer and fall.

Seed stock/breed stock— Animals that are intended to be used for breeding, most often due to their superior genetics.

Semen test— Semen is collected from the buck and viewed under a microscope. The percentage of normal sperm cells and their motility are correlated with the buck's fertility.

Shipment— A group of animals moved all at once from one location, regardless of the number of animals in the shipment or the number of vehicles used to ship them.

Somatic cell count (SCC)— A measure of the number of white blood cells and secretory cells per milliliter of milk. Each bulk tank of milk is usually tested for SCCs as an indication of milk quality. Milk from individual goats can be tested for SCCs, usually through routine Dairy Herd Improvement Association (DHIA) monitoring.

Sore mouth (orf, contagious ecthyma)— Sore mouth is caused by a poxvirus and is highly contagious in goats, especially young kids. Sores caused by the virus usually occur around the mouth and teats but can also occur on the legs, vulva, and face. Scabs, which contain virus, can fall off the animal and remain viable in the environment, providing a source of infection for other animals. The virus is zoonotic, meaning it can infect people. Infected people can develop sores that may be painful and last for 2 months, but the sores usually heal without scarring. This disease is not transmitted from infected people to noninfected people.

Starter grain— Creep feed or other concentrates; the initial high-energy dry feed introduced to kids after birth. Starter grain initiates rumen development in preweaned animals.predators.

Stillborn— For the purposes of this study, a stillborn kid is one that was already dead when it was born or that died within the first two hours following birth. Study respondents might not have known if a kid was born dead or born alive and then died shortly following birth. Likewise, a stillborn kid might never be seen at all, if its carcass is removed by predators.

Surface water— Drinking water provided through natural sources.

Synchronized estrus— Treatment of a group of does using hormones or a teaser buck to induce estrus so that the does are bred at approximately the same time.

Teaser buck— Buck used to stimulate estrus and ovulation in the does, normally after the does had been previously isolated from the buck. The buck can be intact or sterile. The physiologic response in does is due to both smell and sight. The does' response varies and is influenced by breed, season of the year, isolation of from the buck, nutrition, and length of time after a previous kidding event.

Tuberculosis (TB)— Bovine tuberculosis is a contagious, infectious, communicable disease of animals and humans caused by *Mycobacterium bovis*. It is commonly a chronic, debilitating disease, but occasionally it manifests as an acute, rapidly progressive disease. TB is a globally widespread zoonotic disease affecting nearly all species of vertebrates. The disease is spread by direct contact, inhalation of droplets expelled from airways of infected animals, and ingestion of contaminated feed or milk.

Unweaned kid— A kid still nursing from a doe or otherwise consuming milk.

Veterinarian-Client-Patient Relationship (VCPR)— The following is the U.S. Food and Drug Administration's definition of a "valid veterinarian-client-patient relationship" (VCPR). States can have their own definition of a VCPR, as well.

1. A veterinarian has assumed the responsibility for making medical judgments regarding the health of (an) animal(s) and the need for medical treatment, and the client (the owner of the animal or animals or other caretaker) has agreed to follow the instructions of the veterinarian;

2. There is sufficient knowledge of the animal(s) by the veterinarian to initiate at least a general or preliminary diagnosis of the medical condition of the animal(s), and;

3. The practicing veterinarian is readily available for follow-up in case of adverse reactions or failure of the regimen of therapy. Such a relationship can exist only when the veterinarian has recently seen and is personally acquainted with the keeping and care of the animal(s) by virtue of examination of the animal(s), and/or by medically appropriate and timely visits to the premises where the animal(s) are kept.

Veterinary feed directive order— Written authorization allowing the owner or caretaker of animals to obtain and use animal feed containing medically important antibiotics (i.e. medically important to humans, per the U.S. Food and Drug Administration) to treat their animals in accordance with the FDA-approved directions for use.

Weaned kid— A kid no longer nursing a doe or otherwise drinking milk.

Weaning— Removing milk or milk replacer from a kid's diet.

Weaning age— The age of a kid when milk or milk replacer is removed from the diet.

Wether— A castrated male goat.

Withdrawal period— Refers to the period required for an animal's body to break down a drug until it is no longer present as a detectable residue. The length of this period depends upon the drug used, the animal species, and whether the animal product is milk or meat.

Section I: Population Estimates

Where applicable, table column or row totals are shown as 100.0 to aid in interpretation; however, estimates may not always sum to 100.0 due to rounding. Most estimates in this report are rounded to the nearest tenth. If rounded to 100.0 or 0.0, or the standard error is rounded to less than 0.1, the standard error was reported as (0.0). If the estimate was exactly 100.0 or 0.0, no standard error was reported (—).

When estimates are reported as being 'higher' or 'lower,' a statistical difference is implied by the overlap or absence of overlap between 95-percent confidence intervals (see Section II.D.2 p. 224). Not all statistically different estimates are mentioned in the text of this report.

Unless otherwise noted, estimates in this report refer to the period from July 1, 2018, to June 30, 2019, the dates following the 12 months prior to questionnaire administration. To simplify the report, however, this period is referred to as "in the previous 12 months."

A. Inventory

Goats are important sources of meat, milk, fiber, and other by-products. Additionally, in the last decade goats have become common companion animals and are often kept for show purposes, such as 4-H. Operators participating in the Goat 2019 study were asked to report the primary use, regardless of goat breed, for each of the adult and kid goats on their operation on July 1, 2019. Primary uses listed for selection included angora/fiber, milk, meat, seed stock/breed stock, showing and competitions (e.g., 4-H), brush control/ fire suppression, pack goats, pet or companion goats, or some other unlisted use.

1. Primary use of goats or kids

Overall, 63.5 percent of operations used any goats or kids primarily for meat production. Milk production was a primary use for goats on 26.1 percent of all operations. Only 2.7 percent of all operations used any goats primarily for angora/fiber production.

A higher percentage of medium and large operations (72.4 and 71.1 percent, respectively) had any goats or kids used primarily for meat than small operations (54.2 percent). A higher percentage of small and medium operations (15.5 and 9.3 percent, respectively) had any goats or kids used primarily as pets/ companions compared with large operations (1.1 percent).

A slightly higher percentage of operations in the East region (13.6 percent) reported any goats or kids with a primary use as pet/companion than the West region (6.6 percent).

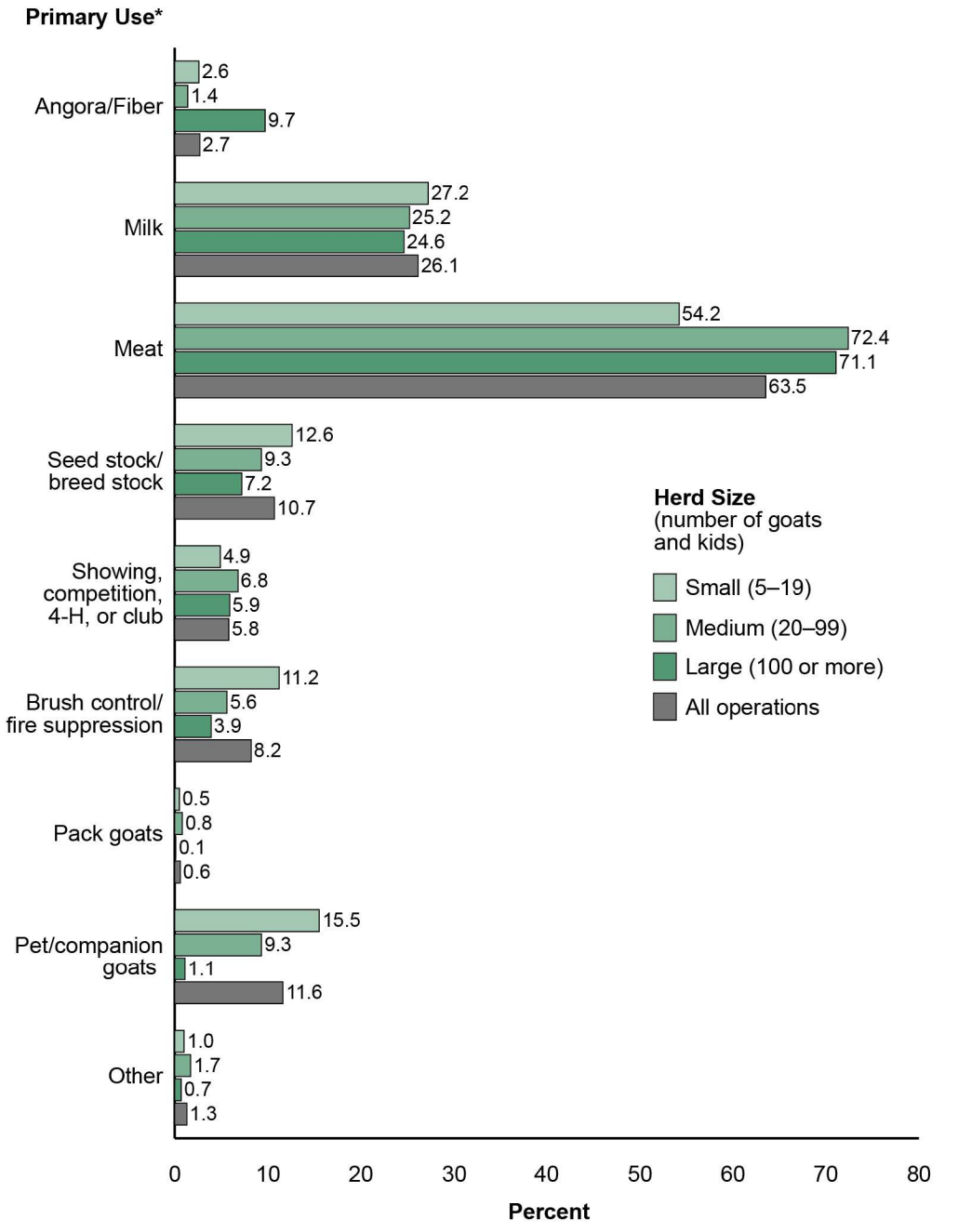
A.1.a. Percentage of operations by primary use of any goats and kids, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Primary use*	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Angora/fiber	2.6	(0.9)	1.4	(0.6)	9.7	(3.1)	4.7	(1.2)	1.9	(0.6)	2.7	(0.6)
Milk	27.2	(2.3)	25.2	(2.0)	24.6	(2.8)	20.0	(2.0)	28.5	(1.8)	26.1	(1.4)
Meat	54.2	(2.9)	72.4	(2.1)	71.1	(3.8)	71.1	(2.6)	60.5	(2.1)	63.5	(1.7)
Seed stock/ breed stock	12.6	(1.7)	9.3	(1.4)	7.2	(2.4)	7.8	(1.3)	11.9	(1.3)	10.7	(1.0)
Showing, competition, 4-H, or club	4.9	(1.3)	6.8	(1.3)	5.9	(2.7)	4.8	(1.4)	6.1	(1.1)	5.8	(0.9)
Brush control/ fire suppression	11.2	(1.9)	5.6	(1.3)	3.9	(1.7)	9.2	(1.9)	7.7	(1.3)	8.2	(1.1)
Pack goats	0.5	(0.2)	0.8	(0.6)	0.1	(0.1)	0.6	(0.2)	0.6	(0.4)	0.6	(0.3)
Pet/companion goats	15.5	(1.9)	9.3	(1.4)	1.1	(0.3)	6.6	(1.3)	13.6	(1.5)	11.6	(1.1)
Other	1.0	(0.6)	1.7	(0.6)	0.7	(0.3)	0.8	(0.3)	1.5	(0.5)	1.3	(0.4)

*An operation might have different goats for different purposes. Therefore, one operation might be represented in more than one primary use category.

Percentage of operations by primary use of goats and kids, and by herd size



*An operation might have different goats for different purposes. Therefore, one operation might be represented in more than one primary use category.

Overall, 62.2 percent of goats were used primarily for meat production, and 19.1 percent were used primarily for milk production. Only 2.6 percent of goats were used primarily as pets/companions.

A higher percentage of goats in the West region (10.3 percent) than in the East region (0.8 percent) were primarily used for angora/fiber.

A.1.b. Percentage of goat inventory by primary use of goats, and by herd size and region:

Percent Goats and Kids

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Primary use	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Angora/fiber	2.3	(0.9)	1.4	(0.7)	9.0	(2.6)	10.3	(2.8)	0.8	(0.3)	5.7	(1.5)
Milk	19.8	(1.7)	15.4	(1.1)	21.2	(4.6)	6.2	(0.7)	32.9	(4.3)	19.1	(2.6)
Meat	49.5	(2.8)	66.8	(2.2)	61.9	(4.8)	74.0	(3.2)	49.5	(3.6)	62.2	(2.7)
Seed stock/ breed stock	6.0	(1.1)	4.6	(0.9)	2.2	(0.9)	1.7	(0.5)	5.2	(1.1)	3.4	(0.6)
Showing, competition, 4-H, or club	3.8	(1.3)	2.6	(0.5)	0.4	(0.1)	0.9	(0.2)	2.2	(0.4)	1.5	(0.3)
Brush control/ fire suppression	8.3	(1.6)	4.1	(1.3)	5.1	(1.6)	5.9	(1.6)	4.3	(1.1)	5.1	(1.0)
Pack goats	0.3	(0.2)	0.1	(0.0)	0.0	(0.0)	0.1	(0.0)	0.1	(0.0)	0.1	(0.0)
Pet/companion goats	9.6	(1.5)	4.5	(0.9)	0.1	(0.0)	0.7	(0.2)	4.6	(0.8)	2.6	(0.4)
Other	0.4	(0.2)	0.6	(0.2)	0.1	(0.0)	0.2	(0.1)	0.3	(0.1)	0.3	(0.1)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

Regardless of herd size or region, about one-fourth of operations kept goats for more than one primary use (e.g., an operation might have meat goats and milk goats).

A.1.c. Percentage of operations that kept goats for more than one primary use,* by herd size and by region:

Percent Goats and Kids

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
23.5	(2.3)	23.4	(2.0)	22.1	(3.6)	21.2	(2.4)	24.2	(1.7)	23.3	(1.4)

*Each individual goat had one primary use, though an operation could have kept multiple goats or multiple groups of goats, each with different primary uses.

A primary production type was computed for each operation based on the primary use of the majority of goats on the operation. For example, if an operation used most of their goats primarily to produce meat but also kept a few show and milk goats, the operation was assigned “meat” as a primary production type.

For most tables in this report, operations were placed into one of three primary production types (meat, dairy, or other); the “other” category includes angora/fiber operations, since for the most part the percentage of these operations was relatively low. In the following table, however, “angora/fiber” is reported separately, as an example of these small percentages. A very small percentage of operations reported an equal number of goats in multiple production types. Those operations were randomly assigned a primary production type based on probability.

Overall, 56.0 percent of operations kept goats primarily for meat production, and 18.7 percent kept goats primarily for milk production. About one-third of small operations (30.2 percent) kept goats for reasons other than meat, dairy, or fiber. A higher percentage of medium and large operations (65.3 and 63.5 percent, respectively) kept goats primarily for meat than small operations (46.4 percent). A higher percentage of small operations (30.2 percent) kept goats for other reasons than medium and large operations (18.1 and 9.6 percent, respectively).

A higher percentage of operations in the East region (21.7 percent) kept goats primarily for milk than operations in the West region (11.3 percent).

A.1.d. Percentage of operations by primary production of operation, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Primary production of operation	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Angora/fiber	2.1	(0.9)	1.2	(0.6)	5.7	(2.3)	3.3	(1.1)	1.5	(0.6)	2.0	(0.5)
Milk	21.3	(2.1)	15.4	(1.3)	21.1	(2.6)	11.3	(0.9)	21.7	(1.5)	18.7	(1.1)
Meat	46.4	(2.9)	65.3	(2.2)	63.5	(4.0)	66.8	(2.6)	51.7	(2.1)	56.0	(1.7)
Other	30.2	(2.7)	18.1	(2.0)	9.6	(2.9)	18.6	(2.5)	25.1	(2.0)	23.3	(1.6)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

2. Age of goats and kids

Overall, 67.9 percent of operations had at least one goat aged 5 or more years, 82.0 percent had at least one goat less than 1 year old (kid), 82.7 percent had goats 1 to 2 years old, and 84.7 percent had goats 3 to 4 years old. A lower percentage of small operations (68.6 percent) had goats less than one year old, commonly referred to as kids, than medium and large operations (94.0 and 97.9 percent, respectively).

A.2.a. Percentage of operations by age of goats, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Age (years)	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than 1	68.6	(2.8)	94.0	(1.3)	97.9	(0.7)	81.4	(2.8)	82.2	(1.9)	82.0	(1.5)
1 - 2	74.4	(2.7)	91.0	(1.6)	88.2	(3.1)	80.1	(2.8)	83.8	(1.8)	82.7	(1.5)
3 - 4	76.6	(2.6)	91.4	(1.5)	97.9	(0.6)	85.1	(2.6)	84.6	(1.8)	84.7	(1.5)
5 or more	63.3	(2.9)	72.4	(2.5)	71.0	(4.1)	66.4	(3.3)	68.4	(2.2)	67.9	(1.8)

A lower percentage of meat operations (61.2 percent) had goats 5 years or older than dairy and other operations (78.2 and 74.8 percent, respectively). A lower percentage of other operations (66.5 percent) had goats less than 1 year of age than meat and dairy goat operations (88.9 and 82.3 percent, respectively).

A.2.b. Percentage of operations by age of goats and by primary production of operation:

Percent Operations

	Primary Production					
	Meat		**Dairy**		**Other**	
Age (years)	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than 1	88.9	(1.8)	82.3	(3.4)	66.5	(3.6)
1 - 2	83.9	(2.0)	86.6	(3.2)	77.4	(3.3)
3 - 4	84.6	(2.0)	88.6	(2.4)	82.2	(3.0)
5 or more	61.2	(2.6)	78.2	(2.9)	74.8	(3.3)

Overall, goats less than one year old represented 37.2 percent of the total U.S. goat inventory. Small operations had a lower percentage of goats less than one year old (27.5 percent) than medium and large operations (37.4 and 39.1 percent, respectively). Conversely, small operations had a higher percentage of goats 5 years or older (22.4 percent) than medium and large operations (15.6 and 12.0 percent, respectively).

Operations in the West region had a higher percentage of goats less than 1 year of age (39.9 percent) than operations in the East region (34.4 percent).

A.2.c. Percentage of goat and kid inventory by age of goats, and by herd size and region:

Percent Goat and Kid Inventory

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Age (years)	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than 1	27.5	(1.2)	37.4	(0.9)	39.1	(1.8)	39.9	(1.5)	34.4	(1.2)	37.2	(1.1)
1 - 2	23.8	(1.2)	22.3	(0.9)	20.4	(1.6)	18.0	(0.9)	25.1	(1.4)	21.4	(0.9)
3 - 4	26.4	(1.4)	24.7	(1.0)	28.5	(1.5)	29.1	(1.6)	24.8	(1.0)	27.0	(0.9)
5 or more	22.4	(1.6)	15.6	(0.9)	12.0	(1.4)	13.0	(1.3)	15.8	(1.2)	14.4	(0.9)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

The highest percentage of meat goats (41.4 percent) were less than one year old. Dairy goat inventory was evenly split among age classes of 4 years or less. Goats 5 years old or more represented the lowest percentage of goat inventory, regardless of primary production type. Goats 5 years or older represented a higher percentage of inventory on "other" operations (20.8 percent) than on meat and dairy operations (12.5 and 14.2 percent, respectively).

A.2.d. Percentage of goat and kid inventory by age of goats, and by primary production of operation:

	Percent Goat and Kid Inventory					
	Primary Production of Operation					
	Meat		Dairy		Other	
Age (years)	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than 1	41.4	(1.2)	30.8	(2.1)	29.9	(1.6)
1 - 2	19.3	(0.8)	29.0	(2.7)	20.7	(1.3)
3 - 4	26.8	(1.2)	26.0	(1.8)	28.5	(2.2)
5 or older	12.5	(1.0)	14.2	(2.3)	20.8	(2.1)
Total	100.0		100.0		100.0	

One-fourth of operations (25.0 percent) had any milk does aged 1 year or more, and 15.3 percent had any bucks aged 1 year or more intended for breeding milk goats.

All operations, regardless of the primary use of goats, had goats intended to remain on the operation or be marketed or sold/given away.

A.2.e. Percentage of operations by operations' intention for the following classes of goats and kids, and by primary use of goats and kids:

Percent Operations

Primary Use of Goats/Kids

	Angora/fiber		Milk		Meat		Other		All operations	
Goat/kid class	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Remain on operation (breeding, milking, pets, etc.)										
Does	2.6	(0.6)	25.0	(1.3)	56.3	(1.7)	24.7	(1.6)	96.4	(0.8)
Bucks	2.4	(0.6)	15.3	(1.0)	47.0	(1.8)	20.5	(1.5)	81.0	(1.6)
Replacement kids	1.3	(0.4)	16.1	(1.0)	33.6	(1.8)	14.7	(1.3)	61.5	(1.9)
Market or sold/given away										
Market goats	0.1	(0.1)	3.9	(0.6)	16.4	(1.5)	5.2	(0.7)	24.7	(1.6)
Market kids	0.5	(0.2)	5.9	(0.6)	39.5	(1.8)	7.0	(0.8)	51.2	(1.8)
Any of the above*	2.7	(0.6)	26.1	(1.4)	63.5	(1.7)	29.8	(1.7)	100.0	(—)

*Includes both categories in table: "remain on operation" and "market or sold/given away."

Of the 62.2 percent of meat goats and kids, 39.9 percent were to remain on the operation as does, bucks, or replacement kids, and 22.2 percent were to be marketed or sold/given away. Of the 19.1 percent of dairy goats, only 1.6 percent were to be marketed or sold/given away.

A.2.f. Percentage of goats and kids by operation's intention for the following goat and kid classes, and by primary use of goats and kids:

Percent Goats and Kids

Primary Use

	Angora/fiber		Milk		Meat		Other		All operations	
Goat/kid class	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Remain on operation (breeding, milking, pets, etc.)										
Does	3.2	(0.8)	12.2	(2.1)	30.1	(1.5)	7.4	(0.8)	52.9	(1.3)
Bucks	0.5	(0.1)	0.8	(0.1)	2.6	(0.2)	1.2	(0.2)	5.1	(1.8)
Replacement kids	0.5	(0.2)	4.4	(0.5)	7.2	(0.5)	3.0	(0.5)	15.0	(0.6)
Market or sold/given away										
Market goats	0.4	(0.3)	0.4	(0.1)	3.4	(0.6)	0.5	(0.1)	4.7	(1.6)
Market kids	1.2	(0.4)	1.2	(0.2)	18.8	(1.3)	1.0	(0.1)	22.2	(1.2)
Total*	5.7	(1.5)	19.1	(2.6)	62.2	(2.7)	13.0	(1.3)	100.0	(—)

*Includes both categories in table: "remain on operation" and "market or sold/given away."

Almost all operations (96.4 percent) had does aged one year or more that were to remain on the operation for breeding, milking, companionship, etc. Approximately one-half of operations (51.2 percent) had market kids less than 1 year old. A higher percentage of large and medium operations (75.1 and 64.1 percent, respectively) had market kids less than 1 year old compared with small operations (35.7 percent).

A.2.g. Percentage of operations by operations' intention for the following goat and kid classes, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Goat/kid class	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Remain on operation (breeding, milking, pets, etc.)												
Does	95.0	(1.4)	97.4	(0.9)	99.4	(0.3)	98.6	(0.7)	95.6	(1.0)	96.4	(0.8)
Bucks	74.6	(2.6)	85.7	(2.1)	93.9	(2.5)	84.0	(2.6)	79.8	(2.0)	81.0	(1.6)
Replacement kids	50.9	(2.9)	70.5	(2.5)	76.5	(3.4)	51.9	(3.2)	65.3	(2.3)	61.5	(1.9)
Market or sold/given away												
Market goats	19.4	(2.4)	31.1	(2.5)	22.2	(3.2)	20.5	(2.5)	26.3	(2.0)	24.7	(1.6)
Market kids	35.7	(2.8)	64.1	(2.6)	75.1	(3.4)	57.2	(3.2)	48.9	(2.2)	51.2	(1.8)

Nearly All operations had does 1 year or older, regardless of the operations' primary production. A higher percentage of dairy operations (75.1 percent) than meat or other operations (58.7 and 57.7 percent, respectively) kept replacement kids under 1 year old. A higher percentage of meat operations (64.8 percent) had market kids under 1 year old than dairy and other operations (38.7 and 30.6 percent, respectively).

A.2.h. Percentage of operations by operations' intention for the following classes of goats and kids,and by primary production of operation:

Percent Operations

Primary Production

	Meat		Dairy		Other	
Goat/kid class	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Remain on the operation (breeding, milking, pets, etc.)						
Does	95.5	(1.2)	99.5	(0.4)	96.1	(1.6)
Bucks	80.3	(2.3)	85.3	(2.7)	79.5	(3.1)
Replacement kids	58.7	(2.6)	75.1	(3.4)	57.7	(3.7)
Market or sold/given away						
Market goats	28.7	(2.5)	22.7	(2.9)	17.4	(2.4)
Market kids	64.8	(2.6)	38.7	(3.2)	30.6	(3.3)

Does aged 1 year or more accounted for 52.9 percent of all goats. Bucks aged 1 year or more accounted for 5.1 percent of all goats, and replacement kids accounted for 15.0 percent of all goats.

More than one-fourth of the goat and kid inventory on all operations (26.9 percent) were animals intended for market or to be sold/given away. Kids accounted for a higher percentage of inventory on operations in the West region (29.0 percent) than on operations in the East region (14.9 percent).

A.2.i. Percentage of goats and kids by operation's intention for the following classes of goats and kids, and by herd size and region:

Percent Goats and Kids

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Goat/kid class	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Remain on the operation (breeding, milking, pets, etc.)												
Does	56.1	(1.4)	50.8	(1.1)	53.6	(2.3)	51.3	(1.9)	54.6	(1.8)	52.9	(1.3)
Bucks	10.7	(0.6)	6.2	(0.4)	3.3	(0.3)	4.3	(0.3)	6.0	(0.4)	5.1	(0.3)
Replacement kids	14.9	(1.1)	17.1	(0.9)	13.8	(1.0)	10.9	(1.0)	19.5	(0.7)	15.0	(0.6)
Market or sold/given away												
Market goats	5.7	(1.0)	5.6	(0.8)	4.0	(1.0)	4.5	(1.1)	5.0	(0.6)	4.7	(0.6)
Market kids	12.5	(1.1)	20.3	(1.2)	25.2	(2.1)	29.0	(1.6)	14.9	(1.2)	22.2	(1.2)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

Overall, 22.8 percent of replacement kids on dairy operations and 11.7 percent on meat operations were intended to remain on the operation. Meat operations intended to send 29.8 percent of their market kids to market, while dairy operation intended to send 8.0 percent of their market kids to market. Market kids that were not intended for market might be sold to other producers, as 4-H projects, or for other purposes such as pack goats or brush control.

A.2.j. Percentage of goats and kids by operation's intention for the following classes of goats and kids, and by primary production of operation:

Percent Goats and Kids

Primary Production of Operation

	Meat		Dairy		Other	
Goat/kid class	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Remain on the operation (breeding, milking, pets, etc.)						
Does	48.9	(1.5)	62.0	(3.0)	56.9	(1.7)
Bucks	4.1	(0.2)	4.8	(0.6)	8.7	(0.8)
Replacement kids	11.7	(0.7)	22.8	(1.0)	18.2	(2.2)
Market or sold/given away						
Market goats	5.5	(0.9)	2.4	(0.6)	4.5	(1.4)
Market kids	29.8	(1.3)	8.0	(1.4)	11.7	(2.1)
Total	100.0		100.0		100.0	

3. Goat breeds

In general, certain breeds of goats have been bred to perform specific functions. Boer and Spanish goats, for example, are usually bred for meat, and Nubians and Alpines for dairy. Breeds can be and are kept for purposes other than those for which they were initially bred; for example companionship or show. Boer goats are the most popular breed in the U.S. goat industry; 48.8 percent of all operations had at least one Boer goat. About one-fourth of all operations (26.7 percent) had crossbred/experimental goats. A higher percentage of operations in the West region had Spanish goats (17.7 percent) than operations in the East region (5.4 percent).

A.3.a. Percentage of operations with at least one goat of the following breed(s), by herd size and by region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Breed	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Alpine	9.5	(1.4)	12.0	(1.5)	16.9	(2.5)	8.5	(1.5)	12.2	(1.2)	11.2	(1.0)
Angora	2.8	(1.0)	1.8	(0.6)	9.8	(3.1)	4.7	(1.2)	2.2	(0.7)	2.9	(0.6)
Boer	47.2	(2.9)	51.6	(2.7)	44.0	(4.5)	52.9	(3.2)	47.2	(2.2)	48.8	(1.8)
Cashmere	1.0	(0.5)	1.0	(0.5)	0.4	(0.1)	0.2	(0.1)	1.2	(0.5)	0.9	(0.3)
Fainting goats (Myotonic, Tennessee)	4.7	(1.3)	3.9	(1.0)	2.1	(0.7)	0.5	(0.2)	5.6	(1.1)	4.2	(0.8)
Kiko	4.6	(1.3)	11.0	(1.8)	5.4	(1.3)	3.4	(1.1)	9.1	(1.4)	7.5	(1.0)
LaMancha	5.0	(1.0)	8.3	(1.2)	10.2	(1.5)	6.1	(1.2)	7.1	(0.9)	6.8	(0.7)
Nigerian dwarf	16.6	(2.0)	10.7	(1.4)	4.7	(2.2)	7.8	(1.1)	15.1	(1.6)	13.0	(1.2)
Nubian	17.3	(2.0)	19.4	(1.9)	11.0	(2.1)	16.6	(2.2)	18.1	(1.6)	17.7	(1.3)
Oberhasli	1.7	(0.5)	2.5	(0.6)	2.3	(0.6)	1.5	(0.3)	2.3	(0.5)	2.1	(0.4)
Pygmy	9.1	(1.7)	8.2	(1.7)	0.9	(0.3)	3.6	(0.9)	9.8	(1.4)	8.1	(1.1)
Pygora	1.6	(0.8)	0.1	(0.0)	0.5	(0.2)	0.7	(0.4)	0.9	(0.5)	0.9	(0.4)
Saanen	4.5	(1.1)	6.3	(0.9)	13.3	(1.9)	2.6	(0.5)	7.3	(0.9)	6.0	(0.6)
Sable	0.3	(0.2)	0.4	(0.2)	1.1	(0.3)	0.3	(0.1)	0.5	(0.2)	0.4	(0.1)
Savannah	1.7	(0.8)	2.8	(0.8)	2.3	(0.5)	1.0	(0.3)	2.7	(0.7)	2.2	(0.5)
Spanish	6.4	(1.6)	7.6	(1.5)	29.7	(4.1)	17.7	(2.6)	5.4	(1.1)	8.9	(1.1)
Toggenburg	2.3	(0.6)	4.4	(1.0)	5.1	(1.0)	2.7	(0.8)	3.7	(0.7)	3.4	(0.5)
Crossbred/ experimental	25.0	(2.4)	28.6	(2.3)	27.2	(3.0)	22.8	(2.5)	28.3	(1.9)	26.7	(1.5)
Other	4.4	(1.2)	3.3	(1.0)	0.9	(0.3)	3.6	(1.2)	3.6	(0.9)	3.6	(0.7)

Almost two-thirds of meat operations (65.3 percent) had at least one Boer goat, and about one-fourth (24.2 percent) had at least one crossbred/experimental goat. In contrast, dairy operations had no predominant dairy breed.

A.3.b. Percentage of operations with at least one goat of the listed breed, by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Breed	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Alpine	6.7	(1.3)	28.6	(2.7)	8.1	(1.6)
Angora	2.2	(0.9)	1.9	(1.0)	5.3	(1.4)
Boer	65.3	(2.4)	17.4	(2.8)	35.7	(3.7)
Cashmere	0.4	(0.3)	0.9	(0.9)	2.0	(1.0)
Fainting goats (Myotonic, Tennessee)	3.5	(1.1)	2.9	(1.4)	6.6	(1.8)
Kiko	10.0	(1.6)	1.6	(0.7)	6.1	(2.1)
LaMancha	3.7	(0.9)	16.7	(1.9)	6.5	(1.6)
Nigerian dwarf	4.8	(1.1)	29.8	(3.3)	18.8	(2.6)
Nubian	10.2	(1.5)	36.9	(3.2)	20.0	(3.0)
Oberhasli	0.7	(0.2)	6.1	(1.3)	2.3	(1.0)
Pygmy	5.3	(1.2)	3.3	(1.4)	17.6	(2.9)
Pygora	0.0	(—)	0.3	(0.1)	3.1	(1.6)
Saanen	2.4	(0.7)	18.9	(2.2)	4.4	(1.1)
Sable	0.0	(0.0)	2.0	(0.6)	0.0	(0.0)
Savannah	3.1	(0.9)	1.4	(1.0)	0.6	(0.4)
Spanish	13.3	(1.7)	0.2	(0.1)	5.6	(2.1)
Toggenburg	1.6	(0.5)	8.9	(1.7)	3.5	(1.2)
Crossbred/ experimental	24.2	(2.2)	35.1	(3.2)	26.1	(2.9)
Other	2.3	(0.8)	5.1	(1.8)	5.4	(1.8)

Boer, Spanish, and crossbred/experimental breeds made up 68.5 percent of goat inventory (28.6, 20.3, and 19.6 percent of goats, respectively). Spanish goats accounted for a higher percentage of inventory on large operations (32.2 percent) than on small and medium operations (4.9 and 5.6 percent, respectively).

Spanish goats accounted for a higher percentage of inventory in the West region (36.5 percent) than in the East region (2.9 percent). Spanish goats tend to do well in dry environments and are generally used as meat goats, which makes them a popular choice for large operations in the West that focus on meat production.

A.3.c. Percentage of inventory by breed of goats and kids, and by herd size and region:

Percent Goats and Kids

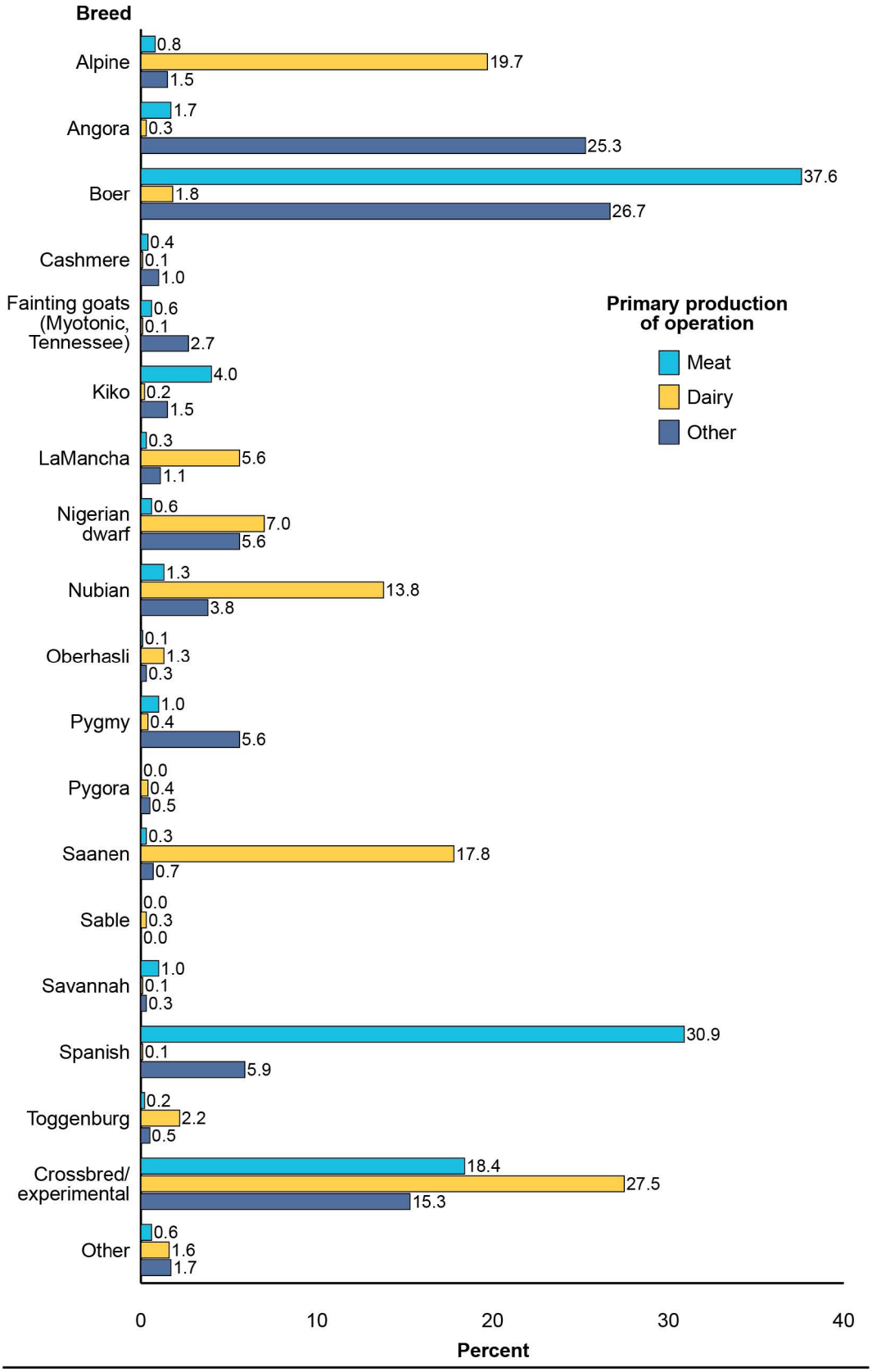
	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Breed	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Alpine	4.5	(0.9)	3.9	(0.6)	5.1	(1.5)	1.3	(0.2)	8.2	(1.6)	4.6	(0.9)
Angora	2.8	(1.2)	1.5	(0.8)	9.0	(2.6)	10.2	(2.8)	1.1	(0.4)	5.8	(1.5)
Boer	35.3	(2.7)	38.5	(2.6)	21.4	(3.3)	28.4	(3.4)	28.9	(2.5)	28.6	(2.1)
Cashmere	0.4	(0.2)	0.9	(0.4)	0.1	(0.1)	0.2	(0.1)	0.7	(0.3)	0.4	(0.2)
Fainting goats (Myotonic, Tennessee)	1.7	(0.6)	1.8	(0.7)	0.2	(0.1)	0.0	(0.0)	1.9	(0.5)	0.9	(0.2)
Kiko	2.7	(1.0)	5.3	(1.1)	1.3	(0.3)	0.8	(0.3)	5.0	(0.9)	2.8	(0.4)
LaMancha	2.1	(0.5)	1.8	(0.3)	1.2	(0.2)	1.1	(0.2)	2.0	(0.3)	1.5	(0.2)
Nigerian dwarf	10.1	(1.4)	4.2	(0.7)	0.5	(0.1)	1.1	(0.2)	4.6	(0.6)	2.8	(0.3)
Nubian	8.1	(1.0)	6.1	(0.7)	2.3	(0.9)	1.8	(0.3)	6.7	(0.9)	4.2	(0.5)
Oberhasli	0.6	(0.2)	0.7	(0.2)	0.2	(0.1)	0.2	(0.1)	0.6	(0.2)	0.4	(0.1)
Pygmy	4.9	(1.2)	3.3	(0.8)	0.2	(0.1)	0.4	(0.1)	3.3	(0.7)	1.8	(0.3)
Pygora	0.8	(0.6)	0.0	(0.0)	0.1	(0.1)	0.0	(0.0)	0.3	(0.2)	0.2	(0.1)
Saanen	1.4	(0.4)	2.1	(0.3)	5.2	(1.4)	0.9	(0.2)	6.8	(1.4)	3.7	(0.8)
Sable	0.0	(0.0)	0.1	(0.0)	0.1	(0.0)	0.0	(0.0)	0.1	(0.0)	0.1	(0.0)
Savannah	0.3	(0.1)	1.2	(0.6)	0.5	(0.1)	0.3	(0.1)	1.2	(0.4)	0.7	(0.2)
Spanish	4.9	(1.5)	5.6	(1.3)	32.2	(4.9)	36.5	(4.8)	2.9	(0.9)	20.3	(2.9)
Toggenburg	1.1	(0.3)	0.8	(0.2)	0.5	(0.1)	0.3	(0.1)	1.0	(0.2)	0.7	(0.1)
Crossbred/ experimental	15.6	(1.8)	20.5	(2.1)	19.8	(2.7)	16.3	(2.7)	23.1	(1.6)	19.6	(1.6)
Other	2.6	(0.9)	1.7	(0.6)	0.2	(0.1)	0.3	(0.1)	1.7	(0.5)	1.0	(0.2)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

There was no predominant breed on meat or dairy operations. On meat operations, Boer and Spanish goats represented 68.5 percent of the inventory. On dairy operations, crossbred/experimental, Alpine, Saanen, and Nubian represented 27.5, 19.7, 17.8, and 13.8 percent of the inventory, respectively. On other operations, Angoras accounted for 25.3 percent of inventory, and Boers accounted for 26.7 percent, both of which were likely used for Angora fiber production or show/seed stock, respectively.

A.3.d. Percentage of goats and kids by breed and by primary production of operation:

	Percent Goats and Kids					
	Primary Production of Operation					
	Meat		Dairy		Other	
Breed	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Alpine	0.8	(0.2)	19.7	(2.5)	1.5	(0.3)
Angora	1.7	(0.6)	0.3	(0.2)	25.3	(6.0)
Boer	37.6	(3.1)	1.8	(0.4)	26.7	(4.0)
Cashmere	0.4	(0.2)	0.1	(0.0)	1.0	(0.5)
Fainting goats (Myotonic, Tennessee)	0.6	(0.2)	0.1	(0.1)	2.7	(1.1)
Kiko	4.0	(0.7)	0.2	(0.1)	1.5	(0.5)
LaMancha	0.3	(0.1)	5.6	(1.1)	1.1	(0.4)
Nigerian dwarf	0.6	(0.2)	7.0	(1.4)	5.6	(1.1)
Nubian	1.3	(0.3)	13.8	(1.4)	3.8	(0.7)
Oberhasli	0.1	(0.0)	1.3	(0.4)	0.3	(0.1)
Pygmy	1.0	(0.3)	0.4	(0.2)	5.6	(1.4)
Pygora	0.0	(—)	0.4	(0.2)	0.5	(0.3)
Saanen	0.3	(0.1)	17.8	(2.3)	0.7	(0.3)
Sable	0.0	(0.0)	0.3	(0.1)	0.0	(0.0)
Savannah	1.0	(0.3)	0.1	(0.0)	0.3	(0.1)
Spanish	30.9	(4.1)	0.1	(0.1)	5.9	(1.5)
Toggenburg	0.2	(0.1)	2.2	(0.5)	0.5	(0.2)
Crossbred/ experimental	18.4	(2.4)	27.5	(2.5)	15.3	(2.4)
Other	0.6	(0.3)	1.6	(0.6)	1.7	(0.6)
Total	100.0		100.0		100.0	

Percentage of goats and kids by breed and by primary production of operation



B. General Management

The U.S. goat industry is very diverse. In the last decade, the interest in goat meat and milk has grown rapidly. Goats are a relatively unique agricultural commodity, as they are efficient converters of low-quality forages into high quality meat, milk, or fiber. Additionally, goats are used for fire mitigation, brush control, and as pack animals. The way goats are managed, however, can vary greatly based on the primary production and location of the operation.

1. Operator experience

The average number of years an operator had owned or managed any goats increased as herd size increased: 13.5 years for operators on small operations, 16.0 years for operators on medium operations, and 24.8 years for operators on large operations.

On average, operators in the West region owned or managed goats longer than operators in the East region (18.4 and 14.4 years, respectively).

B.1.a. Average number of years operator had owned or managed any goats, by herd size and by region.

Average Number of Years

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Avg.	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
13.5	(0.6)	16.0	(0.6)	24.8	(1.7)	18.4	(0.8)	14.4	(0.5)	15.5	(0.4)

The average number of years an operator had owned or managed any goats did not differ by primary production of operation.

B.1.b. Average number of years operator had owned or managed any goats, by primary production of operation:

Average Number of Years

Primary Production of Operation

Meat		**Dairy**		**Other**	
Avg.	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
15.3	(0.5)	16.0	(0.9)	15.8	(1.1)

Operators on about one-third of all operations (30.3 percent) had owned or managed goats for 11 to 20 years, and operators on about one-quarter of operations (24.6 percent) had owned or managed goats for 21 or more years. Operators on a higher percentage of large operations (46.3 percent) had owned or managed any goats for 21 or more years than operators on small operations (19.7 percent).

Operators on a higher percentage of operations in the West region (34.1 percent) had owned or managed goats for 21 or more years than operators on operations in the East region (20.9 percent).

B.1.c. Percentage of operations by number of years operator had owned or managed any goats, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Number of years	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
0 to 5	26.4	(2.7)	17.1	(2.2)	9.5	(2.6)	14.5	(2.0)	23.5	(2.0)	21.0	(1.5)
6 to 10	25.3	(2.7)	25.4	(2.3)	10.9	(1.7)	24.7	(2.9)	23.9	(1.9)	24.1	(1.6)
11 to 20	28.6	(2.7)	31.6	(2.6)	33.3	(4.0)	26.6	(2.9)	31.7	(2.1)	30.3	(1.7)
21 or more	19.7	(2.3)	25.9	(2.3)	46.3	(4.4)	34.1	(3.1)	20.9	(1.8)	24.6	(1.6)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

The percentages of operations by number of years that the operator had managed any goats were similar across primary production type of operation.

B.1.d. Percentage of operations by number of years operator had owned or managed any goats, by primary production of the operation:

Percent Operations

Primary Production

	Meat		Dairy		Other	
Number of years	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
0 to 5	19.6	(2.2)	21.1	(3.2)	23.9	(3.2)
6 to 10	24.8	(2.3)	23.9	(2.7)	22.7	(3.2)
11 to 20	32.1	(2.5)	25.2	(2.8)	30.2	(3.4)
21 or more	23.6	(2.2)	29.7	(3.2)	23.1	(3.1)
Total	100.0		100.0		100.0	

2. Expected inventory in 5 years

Overall, 53.4 percent of operations expected to have about the same number of goats in 5 years, as compared with their inventory on July 1, 2019, and 27.0 percent expected to have more goats in 5 years compared with their inventory on July 1, 2019. There were no differences by herd size or region in inventory expected in 5 years.

B.2.a. Percentage of operations by expected inventory in 5 years, as compared with July 1, 2019, inventory, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Expected inventory*	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
None	5.9	(1.3)	3.6	(1.1)	3.7	(2.2)	7.2	(1.7)	3.8	(0.9)	4.7	(0.8)
Fewer	11.7	(1.9)	18.7	(2.0)	13.1	(3.1)	13.7	(2.2)	15.3	(1.6)	14.8	(1.3)
About the same	51.8	(3.1)	55.1	(2.7)	53.7	(4.5)	56.7	(3.3)	52.1	(2.3)	53.4	(1.9)
More	30.5	(2.8)	22.6	(2.3)	29.5	(4.2)	22.3	(2.9)	28.9	(2.1)	27.0	(1.7)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

*Compared with inventory on July 1, 2019.

Regardless of primary production of operation, over one-half of operations expected to have about the same number of goats in 5 years as they had in their July 1, 2019 inventory.

B.2.b. Percentage of operations by expected inventory in 5 years, as compared with July 1, 2019, inventory, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Expected inventory	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
None	5.1	(1.2)	3.8	(1.4)	4.7	(1.4)
Fewer	13.5	(1.8)	14.7	(1.9)	17.9	(2.8)
About the same	51.8	(2.7)	55.3	(3.4)	55.5	(3.8)
More	29.6	(2.5)	26.2	(3.3)	21.9	(3.1)
Total	100.0		100.0		100.0	

*Compared with inventory on July 1, 2019.

Of operations that did not expect to have any goats in 5 years, the majority (78.1 percent) cited the operator's personal or family reasons as the primary reason for leaving the goat business. Just over 1 of 10 operations (11.1 percent) were leaving the goat business because of some other reason, which included low profits and switching to another agricultural commodity.

B.2.c. For the 4.7 percent of operations that did not expect to have any goats in 5 years (table B.2.a), percentage of operations by primary reason for leaving the goat business:

Primary reason	Percent operations	Std. error
Marketing of kids or products	3.4	(2.6)
Internal parasites	0.1	(0.1)
Other disease	0.0	(—)
Predator loss	7.3	(6.2)
Personal or family situation	78.1	(8.3)
Government regulations	0.0	(—)
Other reason*	11.1	(6.3)
Total	100.0	

*Substantial other reasons included business reasons and switching to another agricultural commodity.

3. Record keeping

Record-keeping systems are used to track productivity, reproduction, and goat health. Operators were asked to identify the primary system they used to maintain records on goat and kid production from July 1, 2018, to June 30, 2019: this period is referred to as “in the previous 12 months” throughout the report.

Overall, 59.3 percent of operations used handwritten notes as their primary system for maintaining records on goat and kid production. Conversely, 25.2 percent of operations did not maintain production records for goats and kids. A higher percentage of small operations (30.5 percent) did not maintain any production records compared with medium operations (20.0 percent).

B.3.a. Percentage of operations by primary system used to maintain records on goat and kid production in the previous 12 months, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Primary record type/ system	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Livestock or goat management software program	0.7	(0.4)	3.0	(0.7)	4.5	(1.1)	1.7	(0.4)	2.1	(0.5)	2.0	(0.4)
Other spreadsheet or word document	8.5	(1.6)	13.1	(1.8)	12.4	(3.3)	11.9	(2.2)	10.4	(1.3)	10.8	(1.1)
Handwritten	57.2	(3.0)	61.7	(2.6)	58.8	(4.5)	59.4	(3.2)	59.2	(2.3)	59.3	(1.9)
Other*	3.1	(1.2)	2.1	(0.6)	3.0	(1.9)	2.4	(0.9)	2.8	(0.8)	2.7	(0.7)
Did not maintain adult and kid production records	30.5	(2.8)	20.0	(2.2)	21.3	(4.0)	24.6	(3.1)	25.5	(2.0)	25.2	(1.7)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

*Substantial other reasons included phone, Web site, or calendar based records, photos, and receipts.

A higher percentage of other operations than dairy operations (35.8 and 14.6 percent, respectively) did not maintain goat and kid production records. Relatively small percentages of operations, regardless of production type, used a livestock- or goat-management software program.

B.3.b. Percentage of operations by primary system used to maintain goat and kid production records in the previous 12 months, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Primary record type/ system	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Livestock or goat management software program	1.8	(0.6)	3.6	(0.9)	1.3	(0.5)
Other spreadsheet or word document	10.8	(1.7)	12.2	(1.7)	9.8	(2.0)
Handwritten	61.8	(2.6)	63.0	(3.3)	51.0	(3.9)
Other*	1.6	(0.6)	6.5	(2.3)	2.2	(1.3)
Did not maintain adult and kid production records	24.0	(2.3)	14.6	(2.5)	35.8	(3.8)
Total	100.0		100.0		100.0	

*Substantial other reasons included phone, Web site, or calendar based records, photos, and receipts.

4. Association membership

Overall, 25.2 percent of operations belonged to a national goat or breed association. A higher percentage of large operations (26.7 percent) belonged to a State or local goat or breed association than small and medium operations (4.3 and 12.9 percent, respectively). A higher percentage of medium and large operations (33.0 and 44.1 percent, respectively) belonged to either a national or State/local goat/breed association than small operations (19.8 percent).

B.4.a. Percentage of operations by type of association(s) the operation belonged to, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Association	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
National	18.2	(1.9)	31.2	(2.3)	34.6	(4.2)	22.4	(2.2)	26.2	(1.8)	25.2	(1.4)
State or local	4.3	(1.1)	12.9	(1.5)	26.7	(4.0)	13.8	(2.0)	8.3	(1.0)	9.9	(0.9)
Either	19.8	(2.0)	33.0	(2.4)	44.1	(4.4)	27.6	(2.5)	27.4	(1.8)	27.5	(1.5)

A higher percentage of dairy operations (45.7 percent) belonged to a national goat or breed association than meat or other operations (18.8 percent and 24.1 percent, respectively). Similarly, a higher percentage of dairy operations (16.0 percent) belonged to a State or local goat or breed association than meat or other operations (8.8 and 7.6 percent, respectively).

B.4.b. Percentage of operations by type of association(s) the operation belonged to, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Association	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
National	18.8	(1.9)	45.7	(3.2)	24.1	(2.9)
State or local	8.8	(1.4)	16.0	(2.0)	7.6	(1.6)
Either	22.4	(2.1)	46.4	(3.2)	24.8	(2.9)

5. Land and feed management

Operators were asked to identify the types of land/facilities they used to manage their goats from July 1, 2018, to June 30, 2019: open range, fenced range, fenced farm, outdoor dry lot, or indoors. In addition, operators were asked to provide the number of months that the majority of goats spent on each type of land/facility during daylight hours only; for example, if the majority of goats were kept on fenced farmland during the day and moved indoors at night, the respondent would provide the number of months that these goats were housed on fenced farmland (daylight), not indoors. A primary land/facilities management type was assigned to each operation based on where the majority of goats spent the most months. A very small percentage of operations had an evenly split land/facilities management type. These operations were randomly assigned a primary management type based on probability. For this report, an open range was defined as any unfenced acreage with a herder; a fenced range was defined as uncultivated fenced acreage, which might include temporary fencing; and a fenced farm was land specifically cultivated for pasture or browse. An outdoor dry lot included a pen with dirt, concrete, or any other surface not used for grazing.

Only 1.5 percent of all operations used open range as their primary land/facilities management type. Most operations (88.0 percent) used fenced range or fenced farm. A higher percentage of large operations (59.8 percent) used fenced range as their primary land/facilities management type than small and medium operations (43.0 and 46.3 percent, respectively). Conversely, a higher percentage of small and medium operations (46.5 and 41.5 percent, respectively) used fenced farm than large operations (21.2 percent).

A higher percentage of operations in the West region (61.4 percent) used fenced range as their primary land/facilities management type than operations in the East region (39.7 percent). A higher percentage of operations in the East region (47.7 percent) used fenced farm compared with operations in the West region (28.3 percent).

B.5.a. Percentage of operations by primary land/facility used to manage the majority of goats[1] in the previous 12 months, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Primary land/ facility	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Open range (unfenced acreage with herder)	1.9	(0.8)	1.1	(0.7)	1.9	(0.6)	3.4	(1.4)	0.8	(0.4)	1.5	(0.5)
Fenced range (uncultivated fenced acreage)	43.0	(2.9)	46.3	(2.7)	59.8	(3.9)	61.4	(3.1)	39.7	(2.2)	45.8	(1.8)
Fenced farm (cultivated pasture or browse)	46.5	(2.8)	41.5	(2.7)	21.2	(3.1)	28.3	(2.7)	47.7	(2.2)	42.2	(1.8)
Outdoor dry lot (pen with dirt, concrete or other surface not used for grazing)	6.8	(1.4)	6.6	(1.2)	9.1	(2.1)	6.5	(1.5)	7.1	(1.1)	6.9	(0.9)
Indoors[2]	1.8	(0.7)	4.5	(1.0)	7.9	(1.5)	0.5	(0.2)	4.7	(0.7)	3.5	(0.5)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

[1]During daylight hours.
[2]Excludes operations that only moved their goats indoors at night.

A higher percentage of dairy operations (11.0 percent) than meat or other operations (1.1 and 3.1 percent, respectively) used the indoors as their primary land/facilities management type. A higher percentage of meat operations (52.8 percent) used fenced range as their primary land/facilities management type than dairy operations (32.2 percent).

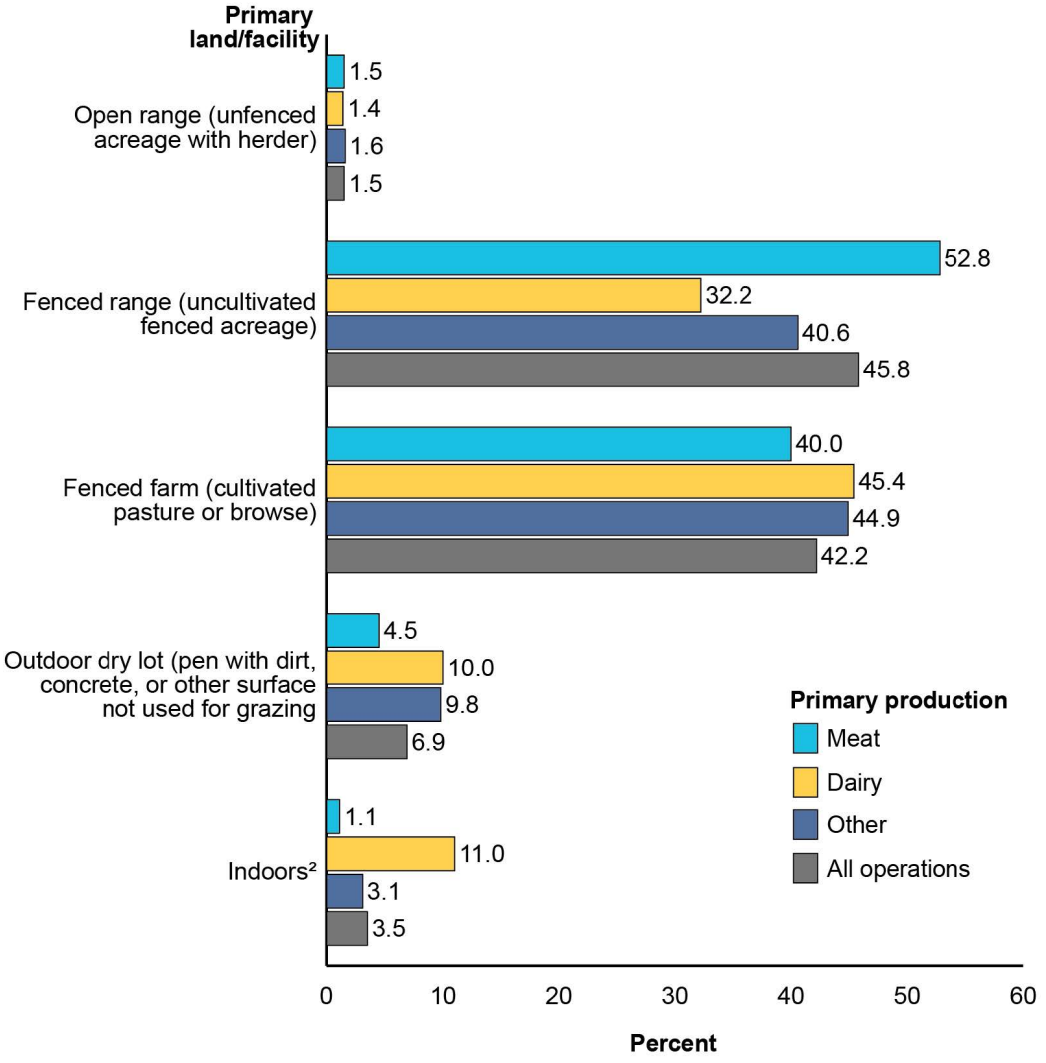
B.5.b. Percentage of operations by primary land/facility used to manage the majority of goats[1] in the previous 12 months, and by primary production of operation:

Percent Operations

	Primary Production					
	Meat		Dairy		Other	
Primary land/ facility	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Open range (unfenced acreage with herder)	1.5	(0.8)	1.4	(0.6)	1.6	(0.7)
Fenced range (uncultivated fenced acreage)	52.8	(2.7)	32.2	(3.3)	40.6	(3.7)
Fenced farm (cultivated pasture or browse)	40.0	(2.5)	45.4	(3.4)	44.9	(3.8)
Outdoor dry lot (pen with dirt, concrete or other surface not used for grazing)	4.5	(1.1)	10.0	(1.5)	9.8	(2.2)
Indoors[2]	1.1	(0.3)	11.0	(2.1)	3.1	(1.2)
Total	100.0		100.0		100.0	

[1]During daylight hours.
[2]Excludes operations that only moved their goats indoors at night.

Percentage of operations by primary land/facility used to manage the majority of goats[1] in the previous 12 months, and by primary production of operation



[1]During daylight hours.
[2]Excludes operations that only moved their goats indoors at night.

The following three tables (B.5.c., d., and e.) focus on how operations managed the majority of goats at any time of the year during daylight hours, meaning that each operation could have used multiple types of land/facilities; previous tables represented all operations with just one assigned management type. Note that the values for “indoors” in the next three tables exclude the time that goats spent indoors if they were moved from outside areas to indoors only at night.

Only 2.3 percent of all operations managed the majority of goats on open range at any time in the previous 12 months. More than 95 percent of operations managed goats at any time on fenced range or fenced farm (49.7 and 46.0 percent, respectively).

A higher percentage of operations in the West region (64.8 percent) managed goats on fenced range at any time than operations in the East region (43.7 percent). A higher percentage of operations in the East region (51.1 percent) managed goats on fenced farm than operations in the West region (33.0 percent). A higher percentage of operations in the East region (18.5 percent) managed goats indoors than in the West region (5.5 percent).

B.5.c. Percentage of operations by land/facility type(s) used to manage the majority of goats[1] at any time in the previous 12 months, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Land/facility type	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Open range (unfenced acreage with herder)	2.8	(0.9)	1.8	(0.7)	2.1	(0.7)	4.1	(1.4)	1.6	(0.5)	2.3	(0.6)
Fenced range (uncultivated fenced acreage)	46.5	(2.9)	50.8	(2.7)	62.9	(3.8)	64.8	(3.0)	43.7	(2.3)	49.7	(1.8)
Fenced farm (cultivated pasture or browse)	47.7	(2.8)	46.4	(2.7)	33.7	(4.2)	33.0	(2.9)	51.1	(2.3)	46.0	(1.8)
Outdoor dry lot (pen with dirt, concrete or other surface not used for grazing)	11.6	(1.8)	12.3	(1.6)	18.7	(3.1)	11.7	(1.9)	12.8	(1.4)	12.5	(1.1)
Indoors[2]	13.4	(1.7)	16.1	(1.7)	16.3	(2.1)	5.5	(1.3)	18.5	(1.3)	14.8	(1.0)

[1]During daylight hours.
[2]Excludes operations that only moved their goats indoors at night.

A higher percentage of dairy operations (26.5 percent) housed the majority of goats indoors at any time in the previous 12 months, than meat or other operations (11.5 percent and 13.5 percent, respectively). Conversely, a higher percentage of meat operations (55.2 percent) used fenced range at any time in the previous 12 months for the majority of goats than dairy operations (40.4 percent).

B.5.d. Percentage of operations by land/facility type(s) used to manage the majority of goats[1] at any time in the previous 12 months, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Land/facility type	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Open range (unfenced acreage with herder)	2.1	(0.8)	3.0	(1.3)	2.2	(0.8)
Fenced range (uncultivated fenced acreage)	55.2	(2.6)	40.4	(3.5)	44.3	(3.7)
Fenced farm (cultivated pasture or browse)	44.5	(2.6)	48.0	(3.4)	47.8	(3.8)
Outdoor dry lot (pen with dirt, concrete or other surface not used for grazing)	9.9	(1.6)	15.5	(2.1)	15.8	(2.6)
Indoors[2]	11.5	(1.4)	26.5	(2.8)	13.5	(2.4)

[1]During daylight hours.
[2]Excludes operations that only moved their goats indoors at night.

For the 2.3 percent of operations that managed the majority of goats on open range at any time in the previous 12 months (table B.5.c), 59.9 percent managed the majority of goats on open range year-round, and 15.9 percent managed the majority on open range 6 months out of the year. For the 14.8 percent of operations that managed the majority of goats indoors at any time throughout the year (table B.5.c), only 6.0 percent managed the majority of goats indoors year-round, and 87.0 percent managed the majority indoors for 6 months or less during the year.

B.5.e. For operations that used the following land/facility type(s) to manage the majority of goats[1] at any time in the previous 12 months, percentage of operations by number of months the majority of goats were managed on the following land/facility type(s):

Percent Operations

Land/Facilities Type

	Open range (unfenced acreage with herder)		**Fenced range** (uncultivated fenced acreage)		**Fenced farm** (cultivated pasture or browse)		**Outdoor dry lot** (pen with dirt, concrete or other surface not used for grazing)		**Indoors[2]**	
Number of months	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
1	3.0	(2.0)	0.4	(0.2)	0.2	(0.1)	2.9	(1.3)	11.3	(2.6)
2	12.3	(8.8)	0.1	(0.1)	0.9	(0.4)	6.9	(2.6)	8.2	(2.0)
3	2.1	(1.7)	1.3	(0.6)	0.7	(0.4)	10.8	(3.1)	22.6	(3.5)
4	1.7	(1.4)	1.6	(0.5)	2.3	(0.8)	10.0	(2.6)	17.8	(3.5)
5	1.9	(1.6)	1.9	(0.7)	0.6	(0.2)	8.0	(2.8)	9.8	(2.8)
6	15.9	(6.8)	5.7	(1.1)	7.8	(1.5)	18.5	(3.8)	17.3	(3.4)
7	0.3	(0.3)	1.9	(0.6)	4.1	(1.1)	1.3	(0.5)	4.4	(1.9)
8	2.0	(1.4)	3.6	(1.0)	4.6	(1.1)	3.2	(1.1)	0.8	(0.4)
9	0.3	(0.3)	3.3	(0.9)	4.2	(1.0)	5.4	(2.5)	0.8	(0.3)
10	0.5	(0.3)	1.3	(0.5)	1.9	(0.8)	1.9	(1.4)	0.4	(0.2)
11	0.0	(—)	1.0	(0.4)	2.9	(0.8)	0.3	(0.1)	0.7	(0.4)
12	59.9	(11.0)	77.8	(2.0)	69.8	(2.3)	30.9	(4.4)	6.0	(1.6)
Total	100.0		100.0		100.0		100.0		100.0	

[1]During daylight hours.
[2]Excludes operations that only moved their goats indoors at night.

Only 1.9 percent of all operations placed any goats or kids on public land or other land not owned, rented, leased, or borrowed by the operation. There were no differences by herd size or region in the percentages of operations by types of land on which goats or kids were placed. Other land not owned, rented, leased, or borrowed includes land on which goats or kids were placed for brush control and/or fire mitigation.

B.5.f. Percentage of operations that placed any goats or kids on the following type(s) of land in the previous 12 months, by herd size and by region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Land type	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Public (State or Federal)	0.1	(0.1)	0.3	(0.3)	0.4	(0.1)	0.1	(0.0)	0.2	(0.2)	0.2	(0.1)
Other (not owned, rented, leased or borrowed by this operation)	1.1	(0.5)	2.0	(0.5)	4.2	(2.2)	2.6	(0.8)	1.4	(0.4)	1.7	(0.4)
Either	1.2	(0.5)	2.3	(0.6)	4.5	(2.2)	2.7	(0.8)	1.6	(0.5)	1.9	(0.4)
Neither	98.8	(0.5)	97.7	(0.6)	95.5	(2.2)	97.3	(0.8)	98.4	(0.5)	98.1	(0.4)

There were no differences by primary production of operation in the percentages of operations that placed any goats or kids on public land or other land not owned, rented, leased, or borrowed by the operation.

B.5.g. Percentage of operations that placed any goats or kids on the following types of land in the previous 12 months, by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Land type	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Public (State or Federal)	0.2	(0.2)	0.0	(—)	0.3	(0.2)
Other (not owned, rented, leased, or borrowed by operation)	1.4	(0.4)	1.8	(1.0)	2.4	(1.0)
Either	1.6	(0.4)	1.8	(1.0)	2.6	(1.0)
Neither	98.4	(0.4)	98.2	(1.0)	97.4	(1.0)

On average, operations that placed any goats or kids on public land kept them on the land for 10.6 months.

B.5.h. Average number of months that any goats or kids placed on the following types of land in the previous 12 months, remained on the land:

Land type	Average number of months	Std. error
Public (State or Federal)	10.6	(1.0)
Other (not owned, rented, leased, or borrowed by this operation)	5.7	(0.8)
Either	6.3	(0.8)

For the operations that placed any goats or kids on public or other land not owned, rented, leased, or borrowed by the operation, 63.2 percent placed them on the land for 6 months or less.

B.5.i. For the 1.9 percent of operations that placed any goats or kids on **either** public (State or Federal) or other land (not owned, rented, leased, or borrowed by this operation) in the previous 12 months, (table B.5.f), percentage of operations by number of months adult or kid goats were placed:

Number of months	Percent operations	Std. error
1 to 3	28.9	(9.6)
4 to 6	34.3	(10.0)
7 to 9	3.7	(1.7)
10 to 12	33.2	(9.9)
Total	100.0	

For the operations that placed goats on either public or other land not owned, rented, leased, or borrowed by the operation, less than one-fifth (16.2 percent) commingled their goats with goats or sheep from other operations. Commingling goats with goats or sheep from other operations can increase the risk of spreading disease between herds.

B.5.j. For the 1.9 percent of operations that placed any goats or kids on **either** public land (State or Federal) or on other land (not owned, rented, leased, or borrowed by the operation) in the previous 12 months, (table B.5.f), percentage of operations that commingled any goats or kids with goats or sheep from other operations:

Percent operations	Std. error
16.2	(6.5)

Goats prefer browse (leaves, soft shoots, shrubs) over legumes or grass. Browse material grows higher off the ground than legumes or grasses and, therefore, usually contains fewer parasites, which helps decrease the overall internal parasite burden of goats.

Overall, 44.4 percent of operations allowed their goats to spend any of their feeding time browsing from April 1 through June 30, 2019, while 9.2 percent allowed their goats to spend 100 percent of their feeding time browsing. There were no differences by herd size or region in the percentages of feeding time goats spent browsing. Overall, 43.3 percent of operations allowed their goats to spend 100 percent of their feeding time grazing. Only 17.2 percent of operations housed their goats in a dry lot at any time.

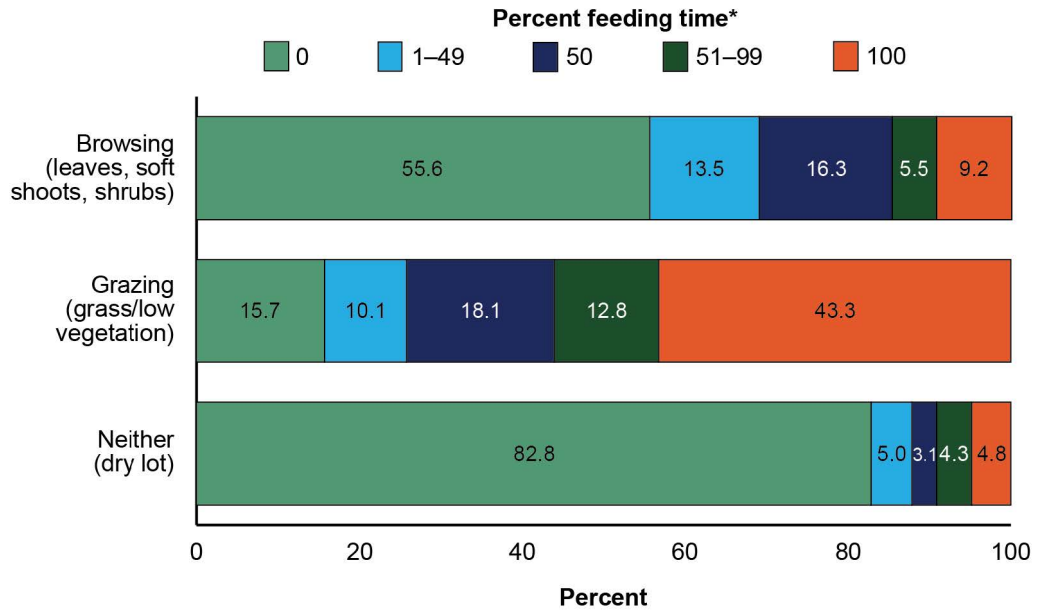
B.5.k. Percentage of operations by percentage of feeding time that the majority of goats spent browsing or grazing from April 1 through June 30, 2019, and percentage of operations by percentage of feeding time goats were housed in a dry lot from April 1 through June 30, 2019, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Percent time*	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Browsing (leaves, soft shoots, shrubs)												
0	55.7	(2.9)	57.6	(2.7)	43.6	(4.3)	49.9	(3.4)	57.8	(2.2)	55.6	(1.8)
1 - 49	12.9	(1.8)	14.3	(1.9)	12.8	(2.7)	16.2	(2.4)	12.4	(1.4)	13.5	(1.2)
50	18.5	(2.3)	12.8	(1.7)	21.4	(3.6)	14.1	(2.4)	17.1	(1.7)	16.3	(1.4)
51 - 99	4.1	(1.1)	5.5	(1.2)	13.1	(3.5)	7.1	(1.5)	4.8	(0.9)	5.5	(0.8)
100	8.7	(1.6)	9.8	(1.7)	9.2	(2.4)	12.8	(2.1)	7.8	(1.3)	9.2	(1.1)
Total	100.0		100.0		100.0		100.0		100.0		100.0	
Grazing (grass/ low vegetation)												
0	13.9	(1.9)	16.6	(2.0)	21.3	(3.1)	19.4	(2.5)	14.3	(1.5)	15.7	(1.3)
1 - 49	6.9	(1.3)	11.7	(1.7)	20.2	(3.7)	10.7	(1.7)	9.8	(1.2)	10.1	(1.0)
50	20.4	(2.4)	15.0	(1.9)	21.2	(3.6)	15.2	(2.4)	19.3	(1.8)	18.1	(1.5)
51 - 99	13.7	(2.0)	12.0	(1.8)	11.4	(2.6)	13.2	(2.3)	12.7	(1.5)	12.8	(1.2)
100	45.0	(3.0)	44.7	(2.7)	25.9	(4.2)	41.4	(3.3)	44.0	(2.2)	43.3	(1.9)
Total	100.0		100.0		100.0		100.0		100.0		100.0	
Neither (dry lot/indoors)												
0	86.1	(1.8)	80.4	(1.9)	75.9	(3.3)	85.3	(2.0)	81.8	(1.5)	82.8	(1.2)
1 - 49	4.7	(1.2)	5.3	(0.9)	5.0	(2.2)	4.3	(1.3)	5.3	(0.9)	5.0	(0.7)
50	1.9	(0.5)	4.4	(1.1)	2.5	(1.2)	1.7	(0.5)	3.6	(0.7)	3.1	(0.5)
51 - 99	3.5	(1.0)	5.1	(1.2)	5.3	(1.5)	4.4	(1.3)	4.3	(0.8)	4.3	(0.7)
100	3.8	(1.0)	4.8	(0.9)	11.3	(2.0)	4.4	(1.1)	5.0	(0.8)	4.8	(0.6)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

*From April 1 through June 30, 2019.

Percentage of operations by percentage of feeding time that the majority of goats spent browsing or grazing, and percentage of operations by percentage of feeding time goats were housed in a dry lot



*From April 1 through June 30, 2019

A higher percentage of dairy operations (10.3 percent) than meat operations (2.0 percent) had goats that spent 100 percent of their time on a dry lot.

B.5.I. Percentage of operations by percentage of time that the majority of goats were allowed to browse or graze from April 1 through June 30, 2019, and percentage of operations by percentage of time goats were housed in a dry lot from April 1 through June 30, 2019, and by primary production of operation:

Percent Operations

Primary Production

	Meat		Dairy		Other	
Percent time*	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Browsing (leaves, soft shoots, shrubs)						
0	54.7	(2.6)	59.9	(3.3)	54.3	(3.7)
1 - 49	14.2	(1.8)	14.4	(2.1)	11.3	(2.1)
50	14.0	(1.8)	17.7	(2.9)	20.3	(3.2)
51 - 99	6.7	(1.3)	2.5	(0.9)	4.8	(1.1)
100	10.4	(1.6)	5.5	(1.4)	9.4	(2.0)
Total	100.0		100.0		100.0	
Grazing (grass/ low vegetation)						
0	14.0	(1.8)	17.7	(2.0)	18.1	(2.8)
1 - 49	10.9	(1.6)	11.1	(1.7)	7.5	(1.5)
50	15.6	(1.9)	21.2	(3.0)	21.4	(3.2)
51 - 99	13.6	(1.8)	12.1	(2.1)	11.6	(2.3)
100	45.9	(2.7)	37.9	(3.4)	41.4	(3.8)
Total	100.0		100.0		100.0	
Neither (dry lot/indoors)						
0	86.0	(1.8)	72.3	(2.5)	83.5	(2.5)
1 - 49	5.5	(1.1)	4.5	(1.2)	4.2	(1.2)
50	2.9	(0.8)	4.6	(1.2)	2.4	(0.7)
51 - 99	3.7	(1.0)	8.3	(1.4)	2.8	(1.0)
100	2.0	(0.6)	10.3	(1.4)	7.1	(2.0)
Total	100.0		100.0		100.0	

*From April 1 through June 30, 2019.

Overall, 42.2 percent of operations allowed goats access to surface water. A higher percentage of large operations (54.1 percent) than medium operations (39.4 percent) allowed goats access to surface water.

A higher percentage of operations in the West region (51.0 percent) allowed goats access to surface water than operations in the East region (38.7 percent).

B.5.m. Percentage of operations that allowed goats access to surface water, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
42.6	(2.9)	39.4	(2.7)	54.1	(4.3)	51.0	(3.3)	38.7	(2.2)	42.2	(1.8)

A higher percentage of meat operations (48.4 percent) allowed goats access to surface water than dairy operations (27.8 percent).

B.5.n. Percentage of operations that allowed goats access to surface water, by primary production of operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
48.4	(2.7)	27.8	(3.3)	38.7	(3.8)

Because goats housed in a dry lot or indoors have limited or no access to browsing or grazing, it might be necessary to supply these goats with supplemental nutrition, such as cut hay, a complete feed, or concentrates. Concentrates are usually digested more rapidly than forages, and they can be used as an energy supplement, especially for late pregnancy, lactation, or periods of rapid growth. Additionally, due to differences in soil types, it might be important to provide goats with salt or mineral supplements.

Almost all operations provided cut hay and a salt/mineral block to any goats (92.3 and 91.2 percent, respectively). A lower percentage of large operations (83.7 percent) fed cut hay than small and medium operations (92.9 and 93.2 percent, respectively). A higher percentage of medium operations (32.9 percent) fed a high protein feed (not including commercial complete feeds) than small operations (22.3 percent).

A higher percentage of operations in the East region (70.0 percent) provided goats with a commercial complete feed than operations in the West region (52.7 percent).

B.5.o. Percentage of operations by feed source or supplements provided to any goats during the previous 12 months, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Feed source	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Cut hay[1]	92.9	(1.6)	93.2	(1.3)	83.7	(2.1)	88.5	(1.7)	93.8	(1.1)	92.3	(1.0)
Commercial complete feed[2]	65.5	(3.0)	66.4	(2.5)	56.3	(4.1)	52.7	(3.4)	70.0	(2.2)	65.1	(1.8)
Concentrate/ grain rations[3] (excluding complete feed)	37.8	(2.9)	41.7	(2.6)	48.9	(4.4)	43.0	(3.4)	39.4	(2.2)	40.4	(1.8)
High protein feed[4] (excluding complete feed)	22.3	(2.5)	32.9	(2.6)	32.7	(4.3)	33.6	(3.2)	25.4	(2.0)	27.7	(1.7)
Crop residue by-products[5] (excluding complete feed)	5.1	(1.4)	8.7	(1.4)	13.0	(3.5)	8.3	(1.8)	7.0	(1.1)	7.3	(1.0)
Salt/mineral blocks[6]	90.6	(1.7)	92.4	(1.4)	88.9	(3.7)	91.9	(2.0)	91.0	(1.3)	91.2	(1.1)
Other[7]	14.6	(2.0)	14.5	(1.6)	16.1	(2.5)	16.2	(2.4)	14.1	(1.4)	14.7	(1.2)

[1]Grass or legume.
[2]For example, "goat chow."
[3]For example, corn, milo, barley, wheat, oats, rye.
[4]For example, cottonseed meal, soybean meal, fish meal, or other specialty protein.
[5]For example, fat, soy hulls, wheat middlings.
[6]Also includes loose salt/minerals.
[7]Substantial others include baking soda, corn, seeds and nuts, fruits and vegetables, and protein supplements.

A higher percentage of dairy operations (21.8 percent) than meat operations (12.1 percent) provided goats other feed sources, which included baking soda, corn, sunflower seeds and nuts, fruits, vegetables, and protein supplements. Baking soda is thought to support the balance of pH levels of the rumen and can help to prevent bloat and other digestive issues.

B.5.p. Percentage of operations by feed source or supplements provided to any goats during the previous 12 months, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Feed source	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Cut hay[1]	90.1	(1.5)	96.5	(1.3)	94.0	(1.4)
Commercial complete feed[2]	62.3	(2.6)	73.0	(3.0)	65.5	(3.6)
Concentrate/ grain rations[3] (excluding complete feed)	40.5	(2.6)	44.3	(3.4)	37.4	(3.8)
High protein feed[4] (excluding complete feed)	31.2	(2.5)	24.4	(3.1)	22.6	(3.0)
Crop residue by-products[5] (excluding complete feed)	8.1	(1.4)	6.4	(1.3)	6.3	(2.0)
Salt/mineral blocks[6]	91.3	(1.5)	91.3	(2.0)	91.1	(2.1)
Other[7]	12.1	(1.6)	21.8	(2.9)	15.2	(2.3)

[1]Grass or legume.
[2]For example, "goat chow."
[3]For example, corn, milo, barley, wheat, oats, rye.
[4]For example, cottonseed meal, soybean meal, fish meal, or other specialty protein.
[5]For example, fat, soy hulls, wheat middlings.
[6]Also includes loose salt/minerals.
[7]Substantial others include baking soda, corn, seeds and nuts, fruits and vegetables, and protein supplements.

C. Breeding Management

Breeding practices and reproductive outcomes that result in high pregnancy and kidding rates should be central to managing a goat herd, unless goats are being kept as pets/ companions, pack animals, or to control brush. Throughout this section the term “in the previous 12 months” refers to the period from July 1, 2018, to June 30, 2019.

1. Operations that bred any goats

Overall, 86.3 percent of all operations bred any goats in the previous 12 months. The percentage of operations that bred any goats increased as herd size increased, with 76.2 percent of small, 95.1 percent of medium, and 99.3 percent of large operations breeding any goats.

There were no differences across regions in the percentage of operations that bred any goats.

C.1.a. Percentage of operations that bred any goats in the previous 12 months, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
76.2	(2.4)	95.1	(1.1)	99.3	(0.3)	88.5	(2.3)	85.4	(1.6)	86.3	(1.3)

A higher percentage of meat and dairy operations (91.7 and 89.0 percent, respectively) bred any goats than other operations (72.4 percent).

C.1.b. [C1] Percentage of operations that bred any goats in the previous 12 months, by primary production of operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
91.7	(1.5)	89.0	(2.7)	72.4	(3.4)

2. Natural breeding

For operations that bred any goats, almost all (98.1 percent), regardless of herd size or region, used bucks for natural breeding during the last breeding season.

C.2.a. For the 86.3 percent of operations that bred any goats in the previous 12 months, (table C.1.a), percentage of operations that used any bucks (regardless of ownership) for natural breeding during the last breeding season, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
97.4	(1.0)	98.4	(0.7)	99.7	(0.1)	99.7	(0.1)	97.5	(0.8)	98.1	(0.6)

For operations that bred any goats, there were no differences by primary production of operation in the percentage of operations that used bucks for natural breeding during the last breeding season.

C.2.b. For the 86.3 percent of operations that bred any goats in the previous 12 months (table C.1.a), percentage of operations that used any bucks (regardless of ownership) for natural breeding during the last breeding season, by primary production of operation:

Percent Operations

Primary Production

Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
97.9	(0.8)	98.5	(1.0)	98.2	(1.0)

3. Defined breeding season

Having a defined breeding season can be beneficial to operations by minimizing the period that does kid, which might help provide more uniform kid sizes at marketing. For this report, to have a defined breeding season, operations must have kept the buck with the does for no longer than 4 consecutive months.

Of operations that bred any goats, 60.4 percent had a defined breeding season. A higher percentage of large operations (73.2 percent) had a defined breeding season than small operations (53.2 percent).

There were no regional differences in the percentage of operations that had a defined breeding season.

C.3.a. For the 86.3 percent of operations that bred any goats in the previous 12 months, (table C.1.a), percentage of operations that had a defined breeding season, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
53.2	(3.4)	64.4	(2.7)	73.2	(3.7)	64.0	(3.5)	58.9	(2.4)	60.4	(2.0)

Of operations that bred any goats, a higher percentage of dairy operations (73.6 percent) than meat operations (56.7 percent) had a defined breeding season. A defined breeding season on a dairy operation increases the number of milking does available during a specific period, which might allow for bulk milk sales. Additionally, a defined breeding season on any type of goat operation will allow groups of kids to be raised and managed together, thus concentrating the period that additional labor might be needed.

C.3.b. For the 86.3 percent of operations that bred any goats in the previous 12 months, (table C.1.a), percentage of operations that had a defined breeding season, by primary production of operation:

Percent Operations

Primary Production

Meat		Dairy		Other	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
56.7	(2.6)	73.6	(3.5)	58.9	(4.2)

Accelerated breeding programs result in does that kid more than once a year. These programs can increase profit and ensure that operations have goats to sell during specific holidays. Accelerated breeding programs, however, are labor intensive and require that does receive a high plane of nutrition (high quality feed and potentially grain, minerals, and vitamins) to ensure optimal health.

Of operations that had a defined breeding season, 88.0 percent bred their does to kid once a year. Only 7.1 percent of operations bred their does to kid more frequently than once a year.

C.3.c. For the operations that had a defined breeding season* (table C.3.a.), percentage of operations by kidding frequency of the majority of bred does, herd size, and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Kidding frequency	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than once a year	5.7	(1.9)	4.9	(1.2)	2.3	(0.8)	3.0	(0.8)	5.7	(1.3)	4.9	(1.0)
Once a year	88.6	(2.7)	87.5	(2.0)	88.4	(2.9)	89.8	(2.4)	87.2	(1.9)	88.0	(1.5)
More than once a year (e.g., three times in two years)	5.8	(2.0)	7.6	(1.6)	9.3	(2.8)	7.1	(2.3)	7.1	(1.3)	7.1	(1.2)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

*Refers to the 52.1 percent of operations overall that had a defined breeding season. This estimate comes from the 86.3 percent of operations that bred any goats in the previous 12 months (table C.1.a), of which 60.4 percent had a defined breeding season (table C.3.a.), or 52.1 percent of operations overall.

Of operations that had a defined breeding season, the percentages of operations by kidding frequency did not differ substantially by primary production of operation.

C.3.d. For the operations that had a defined breeding season* (table C.3.a.), percentage of operations by kidding frequency of the majority of bred does, and by primary production of operation:

Percent Operations

Primary Production

	Meat		Dairy		Other	
Kidding frequency	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less frequently than once a year	3.9	(1.4)	8.9	(2.0)	3.1	(1.2)
Once a year	86.4	(2.3)	87.6	(2.4)	92.9	(2.4)
More frequently than once a year (e.g., three times in two years)	9.8	(1.9)	3.5	(1.5)	4.0	(2.1)
Total	100.0		100.0		100.0	

*Refers to the 52.1 percent of operations overall that had a defined breeding season. This estimate comes from the 86.3 percent of operations that bred any goats in the previous 12 months (table C.1.a), of which 60.4 percent had a defined breeding season (table C.3.a.), or 52.1 percent of operations overall.

4. Synchronized estrus

Estrus synchronization allows an operation to manipulate the estrous cycle of does. This technique can help ensure shorter breeding and kidding periods. Additionally, it can be used to implement enhanced breeding techniques such as artificial insemination or embryo transfer. Estrus synchronization can be completed by using hormones, introducing does to a teaser buck after a period of isolation, or using artificial lighting, since does are seasonal breeders and their estrous cycles can be influenced by daylight.

Overall, 9.7 percent of operations that bred does used any estrus synchronization technique. There were no differences across herd sizes or regions in the percentage of operations that used estrus synchronization.

C.4.a. For the 86.3 percent of operations that bred any goats in the previous 12 months, (table C.1.a.), percentage of operations that synchronized estrus, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
7.1	(1.7)	10.7	(1.5)	16.0	(3.4)	10.3	(1.8)	9.4	(1.3)	9.7	(1.1)

Of operations that bred any goats, a higher percentage of other operations (17.4 percent) than meat operations (7.1 percent) synchronized estrus. It is possible that a higher percentage of other operations were breeding goats for seed stock or show and, therefore, were synchronizing estrus to facilitate artificial insemination, embryo transfer programs, or to correlate with the show season.

C.4.b. For the 86.3 percent of operations that bred any goats in the previous 12 months, (table C.1.a.), percentage of operations that synchronized estrus, by primary production of operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
7.1	(1.3)	9.2	(1.7)	17.4	(3.1)

Of operations that synchronized estrus, 47.5 percent did so to have a more uniformly sized or aged kid crop, 47.2 percent to condense the kidding period to optimize labor, and 42.8 percent to time the market. Other reasons for synchronizing estrus included building restrictions and veterinarian-related issues.

C.4.c. For the operations that synchronized estrus[1] (table C.4.a), percentage of operations by reason(s) for doing so:

Reason	Percent operations	Std. error
More uniformly sized or aged kid crop	47.5	(5.8)
Condensed kidding to optimize labor	47.2	(5.8)
More efficient use of facilities	39.2	(5.6)
Market timing	42.8	(5.8)
More efficient use of bucks	26.2	(5.5)
Artificial insemination	36.6	(5.7)
Embryo transfer	11.5	(3.4)
Other[2]	16.0	(4.1)

[1]Refers to the 8.4 percent of operations overall that synchronized estrus. This estimate comes from the 86.3 percent of operations that bred any goats in the previous 12 months (table C.1.a.), of which 9.7 percent synchronized estrus (table C.4.a.), or 8.4 percent of operations overall.
[2]Substantial others include building space restrictions and veterinarian related issues.

5. Reproductive practices

The reproductive performance of a goat herd can be improved by intensive management practices such as providing does with an extra energy ration prior to breeding (flushing), synchronizing estrus with hormones, using a teaser buck, genetic selection of goats that breed out of season, and light regulation. Ultrasound examination for pregnancy diagnosis and fetal counting allows an operation to manage does differently based on pregnancy status and the number of kids expected. Flushing increases the number of ovulations, resulting in a higher proportion of twins and triplets.

For operations that bred any goats, providing an extra energy ration prior to breeding was the only reproductive practice implemented by more than 20 percent of operations and was used by a similar percentage of operations, regardless of herd size or region. A higher percentage of medium and large operations than small operations used hormones for estrus synchronization and a teaser buck. A higher percentage of large operations (11.1 percent) than small operations (3.1 percent) used ultrasound examination for pregnancy diagnosis and fetal counting.

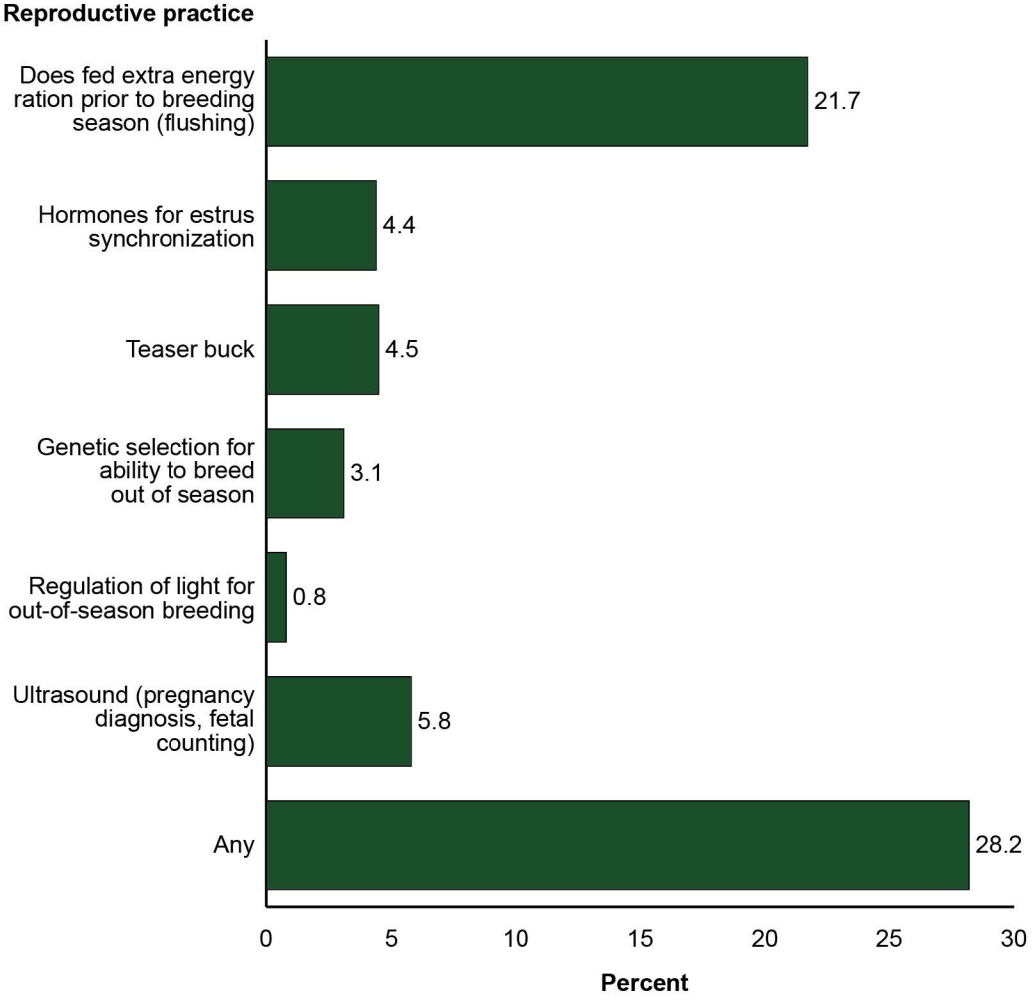
A higher percentage of operations in the East region (3.8 percent) genetically selected goats for their ability to breed out of season than operations in the West region (1.3 percent).

C.5.a. For the 86.3 percent of operations that bred any goats in the previous 12 months, (table C.1.a.), percentage of operations by reproductive practice used, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Reproductive practice	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Does fed extra energy ration prior to breeding season (flushing)	18.3	(2.5)	24.6	(2.4)	22.2	(3.8)	24.7	(3.1)	20.5	(1.9)	21.7	(1.6)
Hormones for estrus synchronization	1.0	(0.8)	6.8	(1.2)	8.0	(2.3)	4.7	(1.2)	4.3	(0.9)	4.4	(0.7)
Teaser buck	1.5	(0.8)	6.4	(1.1)	8.1	(2.4)	4.3	(1.3)	4.5	(0.8)	4.5	(0.7)
Genetic selection for ability to breed out of season	1.4	(0.5)	3.8	(1.1)	7.0	(2.3)	1.3	(0.3)	3.8	(0.8)	3.1	(0.6)
Regulation of light for out-of-season breeding	0.3	(0.2)	1.0	(0.6)	2.3	(0.4)	0.5	(0.2)	1.0	(0.4)	0.8	(0.3)
Ultrasound (pregnancy diagnosis, fetal counting)	3.1	(1.1)	7.1	(1.0)	11.1	(2.5)	3.9	(0.5)	6.5	(1.0)	5.8	(0.7)
Any	21.4	(2.6)	33.6	(2.6)	31.3	(3.9)	29.2	(3.1)	27.7	(2.0)	28.2	(1.7)

For the 86.3 percent of operations that bred any goats in the previous 12 months, percentage of operations by reproductive practice used



For operations that bred goats, a higher percentage of dairy operations (16.7 percent) used ultrasound examination than meat or other operations (2.1 and 6.1 percent, respectively). A higher percentage of other operations (9.9 percent) used hormones for estrus synchronization than meat operations (2.3 percent), and a higher percentage of dairy and other operations (7.5 and 7.5 percent, respectively) used a teaser buck than meat operations (2.4 percent).

C.5.b. For the 86.3 percent of operations that bred any goats in the previous 12 months, (table C.1.a.), percentage of operations by reproductive practices used, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Practice	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Does fed extra energy ration prior to breeding season (flushing)	23.5	(2.3)	18.9	(2.9)	19.2	(3.1)
Hormones for estrus synchronization	2.3	(0.6)	5.1	(1.2)	9.9	(2.6)
Teaser buck	2.4	(0.7)	7.5	(1.4)	7.5	(2.2)
Genetic selection for ability to breed out of season	2.3	(0.7)	3.2	(0.7)	5.1	(2.0)
Regulation of light for out-of-season breeding	0.4	(0.2)	2.8	(1.5)	0.4	(0.2)
Ultrasound (pregnancy diagnosis, fetal counting)	2.1	(0.5)	16.7	(2.6)	6.1	(1.6)
Any	25.4	(2.3)	36.6	(3.4)	28.1	(3.6)

6. Buck and doe selection

Selecting does based on their performance traits (number of kids born alive, pounds of milk produced, pounds of meat produced, or angora/fiber quality and amount) can accelerate genetic improvements in a herd. The same is true for selecting bucks; performance traits for bucks include performance testing (e.g., testing for buck performance is typically done under the auspices and supervision of State university personnel in animal science and/or extension).

For operations that bred goats, 26.7 percent used performance traits or a performance testing program to improve genetic traits in their herd. The percentage of operations that used performance traits or performance testing for genetic selection increased as herd size increased; 18.9 percent of small, 29.4 percent of medium, and 48.7 percent of large operations used performance traits or performance testing when selecting bucks or does.

C.6.a. For the 86.3 percent of operations that bred any goats in the previous 12 months, (table C.1.a.), percentage of operations that selected bucks or does for breeding using performance traits or performance testing programs to improve genetics in their herd, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
18.9	(2.4)	29.4	(2.4)	48.7	(4.5)	26.9	(3.0)	26.6	(2.0)	26.7	(1.6)

For operations that bred goats, a higher percentage of dairy operations (41.5 percent) used performance traits or performance testing programs for genetic selection than meat operations (21.5 percent).

C.6.b. For the 86.3 percent of operations that bred any goats in the previous 12 months, (table C.1.a.), percentage of operations that selected bucks or does for breeding using performance traits or a performance testing program to improve genetics in their herd, by primary production of operation:

Percent Operations					
Primary Production					
Meat		Dairy		Other	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
21.5	(2.3)	41.5	(3.2)	28.0	(3.6)

Internal parasites, also referred to as gastrointestinal or GI parasites, are a major health concern for goat operators. Parasites have become resistant to anthelmintics commonly used to treat internal parasites in goats, resulting in herds with increased parasite burdens. Ultimately, increased parasite burdens lead to increased production costs and lower profits.

For operations that bred goats, 23.6 percent selected bucks or does for breeding based on their resistance to internal parasites. A higher percentage of large operations (32.8 percent) selected goats for breeding based on their resistance to internal parasites than small operations (17.7 percent).

A higher percentage of operations in the East region selected goats for breeding based on their resistance to internal parasitic infection (27.4 percent) than operations in the West region (14.2 percent).

C.6.c. For the 86.3 percent of operations that bred any goats in the previous 12 months, (table C.1.a.), percentage of operations that selected bucks or does for breeding based on their resistance to internal parasites, by herd size and region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
17.7	(2.3)	27.0	(2.5)	32.8	(4.6)	14.2	(2.2)	27.4	(2.1)	23.6	(1.6)

For operations that bred goats, there were no differences by primary production of operation in the percentage of operations that selected goats for breeding based on their resistance to internal parasites.

C.6.d. For the 86.3 percent of operations that bred any goats in the previous 12 months, (table C.1.a.), percentage of operations that selected bucks or does for breeding based on their resistance to internal parasites, by primary production of operation:

Percent Operations					
Primary Production					
Meat		Dairy		Other	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
25.8	(2.3)	20.5	(2.8)	20.0	(3.3)

7. Breeding records

Breeding records for individual does should include how many services needed to conceive, her estimated due date, how many kids she has, and when she kids. These records help operators make management decisions to promote increased kid crops.

For operations that bred any goats, 48.2 percent recorded the breeding history of individual does. There were no differences by herd size or region in the percentage of operations that maintained breeding records on individual does.

C.7.a. For the 86.3 percent of operations that bred any goats in the previous 12 months, (table C.1.a.), percentage of operations that recorded the breeding history of individual does, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
47.5	(3.5)	50.4	(2.7)	40.6	(4.5)	49.5	(3.4)	47.7	(2.4)	48.2	(2.0)

For operations that bred any goats, a higher percentage of dairy operations (64.2 percent) kept breeding records on individual does than meat and other operations (44.7 and 43.6 percent, respectively).

C.7.b. For the 86.3 percent of operations that bred any goats in the previous 12 months, (table C.1.a.), percentage of operations that recorded the breeding history of individual does, by primary production of operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
44.7	(2.8)	64.2	(3.4)	43.6	(4.1)

D. Kid Crop and Management

Operations that use goats for meat or dairy production rely heavily on their kid crop for income. On meat operations, kids are primarily sold to market, and on dairy operations, doe kids are frequently used as replacement does and buck kids are sold. The number of kids born alive, the number sold, and the market value of the kids can greatly impact the profitability of an operation. Implementing management techniques such as separating first-kidding does, removing placentas from the birthing areas, and allowing kids access to creep feed can all help increase the number of kids that survive to sale. Throughout this section the term “in the previous 12 months” refers to the period from July 1, 2018, to June 30, 2019.

1. Births

Overall, 85.7 percent operations had kids born on the operation from July 1, 2018, to June 30, 2019. This percentage is essentially identical to the 86.3 percent of operations that bred does from July 1, 2018, to June 30, 2019. A higher percentage of medium and large operations (95.1 and 99.4 percent, respectively) had kids born on the operation compared with small operations (75.0 percent). Small operations are more likely than large and medium operations to have goats for purposes other than meat and dairy production (e.g., pet/companion, brush control, or packing), which might explain why small operations had a lower percentage of goats born.

There was no regional difference in the percentage of operations that had kids born on the operation.

D.1.a. Percentage of operations that had any kids born on the operation in the previous 12 months, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
75.0	(2.5)	95.1	(1.1)	99.4	(0.3)	89.2	(2.2)	84.3	(1.7)	85.7	(1.3)

A higher percentage of meat and dairy operations (91.5 and 86.7 percent, respectively) had kids born on the operation than other operations (72.2 percent).

D.1.b. Percentage of operations that had any kids born on the operation in the previous 12 months, by primary production the operation:

Percent Operations					
Primary Production					
Meat		Dairy		Other	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
91.5	(1.6)	86.7	(2.9)	72.2	(3.4)

2. Most recently completed kid crop

For operations that had any kids born on the operation, 95.4 percent indicated that their first-choice breeding method was to breed any of their does naturally using the operation's bucks. A higher percentage of medium and large operations (5.6 and 7.9 percent, respectively) used artificial insemination as their first-choice breeding method to breed any does than small operations (0.8 percent). Only 1.2 percent of operations used embryo transfer as their first-choice breeding method for any does.

There were no regional differences in the percentages of operations by first-choice breeding method used on any does.

D.2.a. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by first-choice method(s) used to breed does,[1] and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Method[2]	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Naturally by operation's bucks	93.7	(1.4)	96.0	(1.2)	99.5	(0.3)	95.7	(1.3)	95.2	(1.1)	95.4	(0.9)
Naturally by another operation's bucks	8.9	(1.7)	8.1	(1.5)	6.4	(2.7)	7.8	(1.6)	8.5	(1.4)	8.3	(1.1)
Artificial insemination	0.8	(0.8)	5.6	(1.1)	7.9	(2.3)	4.0	(1.3)	3.7	(0.8)	3.7	(0.7)
Total	0.3	(0.3)	1.6	(0.6)	3.4	(0.8)	1.0	(0.3)	1.4	(0.5)	1.2	(0.3)

[1]Refers to the last completed breeding season and the following kid crop (that is, the most recently completed kid crop from which all kids had been born).
[2]First-choice method, even if does were bred by more than one method.

Of operations that had any kids born on the operation, a higher percentage of other operations than meat and dairy operations used natural breeding by another operation's buck as their first-choice breeding method for any does.

D.2.b. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by first-choice method(s) used to breed does,[1] by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Method[2]	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Naturally by operation's bucks	96.0	(1.2)	96.5	(1.0)	92.7	(2.1)
Naturally by another operation's bucks	5.8	(1.4)	9.0	(1.6)	14.6	(2.9)
Artificial insemination	1.9	(0.6)	5.7	(1.3)	7.2	(2.4)
Embryo transfer	1.4	(0.5)	0.4	(0.1)	1.5	(0.8)

[1]Refers to the last completed breeding season and the following kid crop (that is, the most recently completed kid crop from which all kids had been born).
[2]First-choice method, even if does were bred by more than one method.

On operations that had any kids born, 93.5 percent of all does were bred naturally by the operation's bucks. Only 3.8 percent of does were bred by artificial insemination, and only 0.5 percent of does were bred by embryo transfer. A higher percentage of small operations (6.1 percent) bred does naturally by another operation's buck than large operations (1.0 percent).

D.2.c. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of does by first method used to breed the does,[1] and by herd size and region:

Percent Does

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Method[2]	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Naturally by operation's bucks	93.4	(1.6)	95.1	(1.1)	92.6	(3.9)	97.1	(0.7)	89.6	(4.4)	93.5	(2.3)
Naturally by another operation's bucks	6.1	(1.6)	3.3	(0.9)	1.0	(0.5)	1.3	(0.4)	3.2	(0.8)	2.2	(0.5)
Artificial insemination	0.3	(0.2)	1.1	(0.3)	5.9	(4.0)	1.1	(0.5)	6.7	(4.7)	3.8	(2.4)
Embryo transfer	0.2	(0.2)	0.5	(0.3)	0.6	(0.2)	0.5	(0.2)	0.5	(0.2)	0.5	(0.1)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

[1]Refers to the last completed breeding season and the following kid crop (that is, the most recently completed kid crop from which all kids had been born).
[2]First-choice method, even if does were bred by more than one method.

For operations that had any kids born, there were no differences by primary production of operation in the percentages of does by method used to breed the does. Overall 96.6 percent of does on meat operations, 85.2 percent on dairy operations, and 93.3 percent on other operations were bred naturally by the operation's buck.

D.2.d. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of does by first method used to breed the does,[1] by primary production of operation:

Percent Does

Primary Production of Operation

	Meat		Dairy		Other	
Method[2]	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Naturally by operation's bucks	96.6	(0.7)	85.2	(8.6)	93.3	(1.9)
Naturally by another operation's bucks	1.8	(0.6)	1.3	(0.4)	4.9	(1.7)
Artificial insemination	0.9	(0.4)	13.3	(8.8)	1.4	(0.5)
Embryo transfer	0.6	(0.2)	0.1	(0.1)	0.4	(0.2)
Total	100.0		100.0		100.0	

[1]Refers to the last completed breeding season and the following kid crop (that is, the most recently completed kid crop from which all kids had been born).
[2]First-choice method, even if does were bred by more than one method.

A higher percentage of large operations (44.7 percent) had does that aborted (known abortion) than small and medium operations (13.6 and 19.1 percent, respectively). The percentage of operations that had any does that never became pregnant or had an unknown abortion increased as herd size increased. A higher percentage of medium and large operations (12.9 and 23.0 percent, respectively) had bred does that died or were removed prior to kidding than small operations (5.6 percent).

D.2.e. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by breeding outcome(s) of does,* and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Breeding Outcome	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Aborted (known abortion)	13.6	(2.5)	19.1	(1.9)	44.7	(4.5)	17.3	(2.7)	19.9	(1.8)	19.1	(1.5)
Never became pregnant or unknown abortion	18.1	(2.5)	31.9	(2.5)	58.2	(4.3)	30.0	(3.2)	27.9	(2.0)	28.5	(1.7)
Died or removed prior to kidding	5.6	(1.5)	12.9	(1.8)	23.0	(3.5)	11.0	(2.1)	10.6	(1.3)	10.7	(1.1)

*Refers to the last completed breeding season and the following kid crop (that is, the most recently completed kid crop from which all kids were born).

For operations that had any kids born, a higher percentage of dairy operations (40.0 percent) than meat (26.5 percent) and other operations (24.1 percent) had any does that never became pregnant or had an unknown abortion.

D.2.f. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by breeding outcomes of does,* and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Breeding Outcome	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Aborted (known abortion)	20.2	(2.2)	21.6	(2.6)	13.9	(2.6)
Never became pregnant or unknown abortion	26.5	(2.3)	40.0	(3.4)	24.1	(3.4)
Died or removed prior to kidding	11.2	(1.5)	13.9	(2.5)	6.5	(1.9)

*Refers to the last completed breeding season and the following kid crop (that is, the most recently completed kid crop from which all kids were born).

On operations that had any kids born, 90.7 percent of does bred for the most recent kid crop gave birth. No differences were noted across herd sizes in the percentages of does that aborted, never became pregnant, or that died or were removed prior to kidding.

A higher percentage of does in the East region (2.8 percent) than in the West region (1.4 percent) aborted (known abortion). A higher percentage of does in the East region (1.9 percent) than in the West region (0.7 percent) died or were removed prior to kidding.

D.2.g. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of does by breeding outcome,* and by herd size and region:

Percent Does

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Breeding Outcome	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Gave birth	89.9	(1.2)	90.6	(0.9)	90.9	(1.2)	91.5	(1.3)	89.8	(0.7)	90.7	(0.8)
Aborted (known abortion)	2.9	(0.6)	2.2	(0.3)	1.8	(0.4)	1.4	(0.2)	2.8	(0.4)	2.1	(0.2)
Never became pregnant or unknown abortion	5.9	(1.0)	5.5	(0.7)	6.2	(1.1)	6.4	(1.3)	5.5	(0.5)	6.0	(0.7)
Died or removed prior to kidding	1.4	(0.4)	1.7	(0.3)	1.1	(0.2)	0.7	(0.1)	1.9	(0.3)	1.3	(0.1)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

*Refers to the last completed breeding season and the following kid crop (that is, the most recently completed kid crop from which all kids were born).

There were no differences by primary production of operation in the percentages of does by breeding outcomes.

D.2.h. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of does by breeding outcome,* and by primary production of operation:

Percent Does

Primary Production of Operation

	Meat		Dairy		Other	
Breeding Outcome	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Gave birth	92.0	(0.8)	89.7	(0.7)	87.0	(2.9)
Aborted (known abortion)	1.6	(0.2)	3.4	(0.7)	2.0	(0.4)
Never became pregnant or unknown abortion	5.2	(0.8)	5.2	(0.4)	10.0	(2.9)
Died or removed prior to kidding	1.2	(0.2)	1.8	(0.2)	1.1	(0.3)
Total	100.0		100.0		100.0	

*Refers to the last completed breeding season and the following kid crop (that is, the most recently completed kid crop from which all kids were born).

Most does are expected to have multiple kids (twins, triplets, etc.). Multiple births can increase the overall income of an operation by providing more kids to sell, future replacement does to milk, or more kids to show. Of operations that had any does give birth, 90.1 percent had does that gave birth to multiple kids (twins, triplets, etc.).

There were no differences by herd size or region in the percentage of operations that had any does that gave birth to multiple kids.

D.2.i. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations that had any does give birth to multiple kids,* by herd size and region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
86.7	(2.4)	93.3	(1.5)	88.4	(2.6)	85.1	(2.8)	92.1	(1.3)	90.1	(1.2)

*Refers to the last completed breeding season and the following kid crop (that is, the most recently completed kid crop from which all kids were born).

For operations that had any does give birth, there were no differences by primary production of operation in the percentage of operations that had does give birth to multiple kids.

D.2.j. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations that had does give birth to multiple kids,* by primary production of operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
90.5	(1.7)	93.2	(1.8)	86.2	(3.0)

*Refers to the last completed breeding season and the following kid crop (that is, the most recently completed kid crop from which all kids were born).

Overall, on the 85.7 percent of operations that had kids born in the previous 12 months, 90.7 percent of bred does gave birth. Of these, 42.7 percent gave birth to multiple kids. A higher percentage of does on small and medium operations (54.8 percent and 54.3 percent) gave birth to multiple kids than does on large operations (31.7 percent).

A lower percentage of does on operations in the West region (26.1 percent) gave birth to multiple kids than does on operations in the East region (60.9 percent).

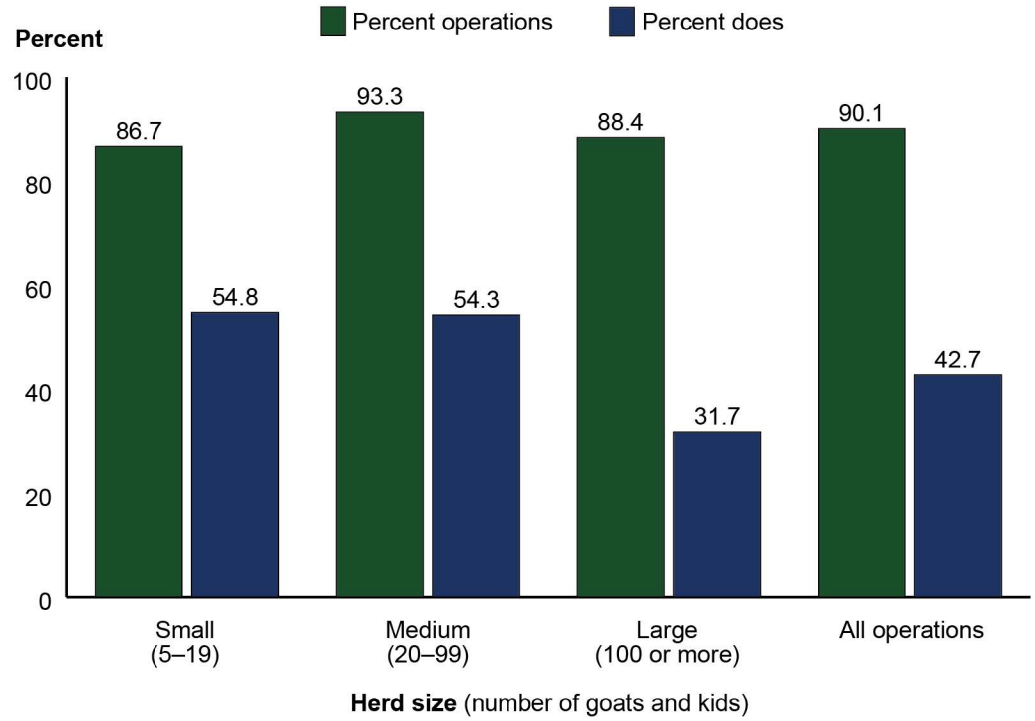
D.2.k. For does that gave birth[1] (table D.2.g.), percentage of does that gave birth to multiple kids,[2] by herd size and by region:

Percent Does

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
54.8	(2.6)	54.3	(2.5)	31.7	(3.1)	26.1	(2.5)	60.9	(2.0)	42.7	(2.1)

[1]Refers to the 90.7 (table D.2.g.) percent of bred does that gave birth during the last completed breeding season on the 85.7 (table D.1.a.) percent of operations that had any kids born on the operation in the previous 12 months.
[2]Refers to the last completed breeding season and the following kid crop (that is, the most recently completed kid crop from which all kids were born).

For operations that had any kids born on the operation, percentage of operations that had any does give birth to multiple kids[1], and for does that gave birth[2], percentage of does on these operations that gave birth to multiple kids, by herd size



[1]Refers to the last completed breeding season and the following kid crop (that is, the most recently completed kid crop from which all kids were born).
[2]Refers to the 90.7 (table D.2.g) percent of bred does that gave birth during the last completed breeding season on the 85.7 (table D.1.a) percent of operations that had any kids born on the operation in the previous 12 months.

For operations that had does give birth, a higher percentage of does on dairy operations (64.0 percent) gave birth to multiples than does on meat or other operations (37.5and 37.0 percent, respectively).

D.2.l. For does that gave birth[1] (table D.2.g.), percentage of does that gave birth to multiple kids,[2] by primary production of operation:

Percent Does

Primary Production of Operation

Meat		Dairy		Other	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
37.5	(2.7)	64.0	(2.7)	37.0	(5.8)

[1]Refers to the 90.7 (table D.2.g.) percent of bred does that gave birth during the last completed breeding season on the 85.7 (table D.1.a.) percent of operations that had any kids born on the operation in the previous 12 months.
[2]Refers to the last completed breeding season and the following kid crop (that is, the most recently completed kid crop from which all kids were born).

For operations that had any known abortions, 51.1 percent had at least one known abortion occur in a first-pregnancy doe.

D.2.m. For operations that had any known abortions[1] (table D.2.e.), percentage of operations that had at least one known abortion occur in a first-pregnancy doe[2]:

Percent operations	Std. error
51.1	(4.5)

[1]Refers to the 16.4 percent of operations overall that had does that had any known abortions during the last completed breeding season. This estimate comes from 85.7 percent of operations that had any kids born on the operation in the previous 12 months, on which 19.1 (table D.2.e.) percent of those operations had does that had any known abortions.
[2]Refers to the last completed breeding season and the following kid crop (that is, the most recently completed kid crop from which all kids were born).

Of the 2.1 percent of does that aborted (known abortion), 42.4 percent were in their first pregnancy.

D.2.n. For does that aborted[1] (table D.2.g.), percentage of does that were in their first pregnancy[2]:

Percent operations	Std. error
42.2	(3.1)

[1]Refers to the 2.1 percent of bred does that aborted during the last completed breeding season (table D.2.g.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).
[2]Refers to the last completed breeding season and the following kid crop (that is, the most recently kid crop from which all kids were born).

All of the 85.7 percent of operations that had any kids born on the operation in the previous 12 months had kids born alive during the last completed breeding season. Of the kids born during most recent kid crop, 94.8 percent were born alive and 5.2 percent were born dead. A higher percentage of kids on large operations (96.0 percent) were born alive than kids on small and medium operations (91.7 and 94.0 percent, respectively).

A higher percentage of kids in the West region (96.6 percent) were born alive than in the East region (93.3 percent).

D.2.o. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of kids born alive and percentage born dead,* by herd size and region:

Percent Kids

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Outcome	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Born alive	91.7	(1.0)	94.0	(0.5)	96.0	(0.4)	96.6	(0.3)	93.3	(0.5)	94.8	(0.3)
Born dead	8.3	(1.0)	6.0	(0.5)	4.0	(0.4)	3.4	(0.3)	6.7	(0.5)	5.2	(0.3)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

*Refers to the last completed breeding season and the following kid crop (that is, the most recently completed kid crop from which all kids were born).

For operations that had any kids born in the previous 12 months, there were no differences by primary production of operation in the percentages of kids born alive or born dead.

D.2.p. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of kids born during the most recent kid crop that were born alive and born dead,* by primary production of the operation:

Percent Kids

Primary Production of Operation

	Meat		Dairy		Other	
Outcome	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Born alive	95.0	(0.4)	94.4	(0.4)	94.5	(1.1)
Born dead	5.0	(0.4)	5.6	(0.4)	5.5	(1.1)
Total	100.0		100.0		100.0	

*Refers to the last completed breeding season and the following kid crop (that is, the most recently completed kid crop from which all kids were born).

For operations that had any kids born on the operation, a higher percentage of large operations (39.1 percent) than small operations (22.6 percent) had kids from the most recent kid crop die before weaning. A higher percentage of large operations (25.2 percent) had kids that died after weaning than small and medium operations (7.0 percent and 9.8 percent, respectively).

D.2.q. For operations that had any kids born alive,[1] percentage of operations by weaning status of kids born alive from the most recent kid crop,[2] and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Weaning status	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Sold prior to weaning	22.3	(2.9)	23.3	(2.1)	33.6	(4.0)	25.6	(3.1)	23.1	(1.9)	23.9	(1.6)
Not yet weaned (at time of study)	37.8	(3.3)	47.3	(2.8)	60.6	(4.2)	40.5	(3.2)	46.2	(2.5)	44.5	(2.0)
Weaned and have been or will be sold	55.6	(3.5)	63.7	(2.7)	62.6	(4.2)	57.0	(3.6)	61.4	(2.4)	60.1	(2.0)
Weaned and are or will be replacements	42.6	(3.5)	51.2	(2.8)	54.2	(4.4)	42.5	(3.5)	50.1	(2.4)	47.8	(2.0)
Died before weaning	22.6	(2.9)	34.8	(2.6)	39.1	(4.0)	24.6	(2.8)	32.3	(2.2)	30.0	(1.8)
Died after weaning	7.0	(1.9)	9.8	(1.6)	25.2	(3.7)	8.8	(2.0)	10.6	(1.4)	10.1	(1.2)
Unknown weaning status	5.7	(1.6)	5.2	(1.3)	4.9	(2.2)	4.4	(1.6)	5.8	(1.2)	5.4	(1.0)

[1]Refers to the 85.7 percent of operations that had any kids born alive during the last kid crop. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the last 12 months (table D.1.a.), of which 100.0 percent had any kids born alive during the last kid crop.
[2]Refers to the last completed breeding season and the following kid crop (that is, the most recent kid crop from which all kids were born).

For operations that had any kids born alive on the operation, a higher percentage of dairy operations (39.2 percent) sold kids prior to weaning (i.e., they were sold and the new owners continued to feed them milk) than meat operations (17.9 percent).

D.2.r. For operations that had any kids born alive,[1] percentage of operations by weaning status of kids born alive from the most recent kid crop,[2] and by primary production of operation:

Percent Operations

Weaning status	Primary Production: Meat		Primary Production: Dairy		Primary Production: Other	
	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Sold prior to weaning	17.9	(2.1)	39.2	(3.3)	27.0	(4.0)
Not yet weaned (at time of study)	43.2	(2.9)	50.8	(3.5)	42.6	(4.1)
Weaned and have been or will be sold	62.7	(2.7)	58.9	(3.4)	54.1	(4.2)
Weaned and are or will be replacements	45.3	(2.8)	55.4	(3.6)	48.3	(4.2)
Died before weaning	30.1	(2.5)	32.5	(3.0)	27.7	(3.8)
Died after weaning	11.6	(1.7)	10.1	(1.8)	5.8	(1.8)
Unknown weaning status	5.3	(1.2)	5.4	(2.2)	5.5	(2.0)

[1]Refers to the 85.7 percent of operations that had any kids born alive during the last kid crop. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the last 12 months (table D.1.a.), of which 100.0 percent had any kids born alive during the last kid crop.
[2]Refers to the last completed breeding season and the following kid crop (that is, the most recent kid crop from which all kids were born). kid crop from which all kids were born).

Overall, 34.3 percent of the most recent kid crop was weaned and sold or weaned and intended for sale. A higher percentage of kids born alive on large operations (24.5 percent) than medium operations (11.8 percent) were sold prior to weaning. A higher percentage of kids on small and medium operations (42.3 and 41.9 percent, respectively) than on large operations (27.6 percent) were weaned and sold or weaned and intended for sale.

A higher percentage of kids born alive on operations in the West region (25.9 percent) than kids on operations in the East region (16.1 percent) had not been weaned at the time of the study. A lower percentage of kids on operations in the West region (12.9 percent) were weaned and were or would be sold than on operations in the East region (21.3 percent).

D.2.s. For kids born alive,[1] percentage of kids by weaning status,[2] and by herd size and region:

Percent Kids

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Weaning status	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Sold prior to weaning	14.6	(2.6)	11.8	(1.4)	24.5	(3.1)	19.4	(2.9)	18.4	(2.3)	18.9	(1.8)
Not yet weaned (at time of study)	16.1	(1.9)	19.4	(1.8)	22.4	(3.0)	25.9	(3.0)	16.1	(1.6)	20.7	(1.7)
Weaned and have been or will be sold	42.3	(3.0)	41.9	(2.2)	27.6	(3.1)	34.7	(2.9)	34.0	(2.9)	34.3	(2.0)
Weaned and are or will be replacements	15.1	(1.6)	15.7	(1.2)	19.0	(2.5)	12.9	(1.6)	21.3	(2.1)	17.4	(1.4)
Died before weaning	7.3	(1.3)	6.7	(0.8)	4.3	(0.7)	4.5	(0.9)	6.4	(0.5)	5.5	(0.5)
Died after weaning	1.6	(0.5)	1.1	(0.2)	1.1	(0.2)	0.9	(0.2)	1.3	(0.2)	1.1	(0.1)
Unknown weaning status	3.0	(1.0)	3.4	(1.3)	1.0	(0.4)	1.7	(0.5)	2.4	(0.9)	2.1	(0.5)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

[1]Refers to the 94.8 percent of kids born that were born alive during the last kid crop (table D.2.o.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).
[2]Refers to the last completed breeding season and the following kid crop, (that is, the most recent kid crop from which all kids were born).

A higher percentage of kids on dairy operations (35.6 percent) were sold prior to weaning than kids on meat and other operations (13.4 and 12.6 percent, respectively). A higher percentage of kids on meat and other operations (24.7 and 23.0 percent, respectively) than kids on dairy operations (9.7 percent) had not been weaned at the time of the study. A higher percentage of kids on meat operations (40.7 percent) than dairy operations (20.1 percent) were weaned and sold or weaned and intended for sale.

D.2.t. For kids born alive[1], percentage of kids by weaning status[2] and by primary production of operation:

	Percent Kids					
	Primary Production of Operation					
	Meat		Dairy		Other	
Weaning status	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Sold prior to weaning	13.4	(2.1)	35.6	(2.5)	12.6	(4.5)
Not yet weaned (at time of study)	24.7	(2.3)	9.7	(1.7)	23.0	(4.3)
Weaned and have been or will be sold	40.7	(2.3)	20.1	(3.4)	32.7	(4.1)
Weaned and are or will be replacements	12.4	(1.1)	27.2	(3.1)	21.0	(3.8)
Died before weaning	5.9	(0.8)	5.2	(0.6)	4.3	(0.7)
Died after weaning	1.0	(0.2)	1.4	(0.3)	1.1	(0.4)
Unknown weaning status	1.9	(0.4)	0.8	(0.3)	5.4	(3.0)
Total	100.0		100.0		100.0	

[1]Refers to the 94.8 percent of kids born that were born alive during the last kid crop (table D.2.o.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).
[2]Refers to the last completed breeding season and the following kid crop, (that is, the most recent kid crop from which all kids were born).

For operations that had any kids born, 35.0 percent had kids born in individual kidding pens. A lower percentage of large operations (20.8 percent) had kids born in individual kidding pens than small and medium operations (36.1 and 36.7 percent, respectively). A higher percentage of large operations had kids born on open range (29.5 percent) compared with small and medium operations (9.5 and 15.6 percent, respectively).

A higher percentage of operations in the East region (28.3 percent) had kids born in a multiple-doe indoor pens compared with operations in the West region (14.0 percent). A higher percentage of operations in the West region had kids born on open range (21.5 percent) compared with operations in the East region (11.4 percent).

D.2.u. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by environment(s) in which any kids were born (dead or alive),* and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Environment	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Individual kidding pen	36.1	(3.2)	36.7	(2.5)	20.8	(3.9)	28.3	(2.8)	37.7	(2.3)	35.0	(1.8)
Multiple-doe indoor pen	23.9	(2.8)	23.4	(2.2)	28.7	(3.8)	14.0	(2.4)	28.3	(2.0)	24.1	(1.6)
Multiple-doe outdoor kidding area that allows increased observation/ shelter	23.6	(3.0)	19.5	(2.4)	25.6	(3.9)	27.5	(3.3)	19.4	(2.0)	21.8	(1.7)
Other multiple doe fenced pasture	18.3	(2.6)	19.8	(2.2)	27.0	(4.4)	22.6	(2.8)	18.7	(1.8)	19.8	(1.5)
Open range	9.5	(2.1)	15.6	(2.2)	29.5	(4.1)	21.5	(2.8)	11.4	(1.7)	14.3	(1.4)
Multiple-doe dry lot	3.3	(0.9)	3.0	(0.9)	2.7	(0.5)	3.1	(0.9)	3.1	(0.8)	3.1	(0.6)
Other	0.3	(0.2)	0.7	(0.3)	1.4	(0.9)	0.2	(0.1)	0.8	(0.3)	0.6	(0.2)

*Refers to the last completed breeding season and the following kid crop, (that is, the most recent kid crop from which all kids were born).

For operations that had any kids born, a higher percentage of dairy operations had any kids born in an individual kidding pen (49.0 percent) compared with meat operations (29.8 percent). In addition, a higher percentage of dairy operations (35.2 percent) had kids born in multiple-doe indoor pens than meat and other operations (21.3 and 22.0 percent, respectively). Conversely, a higher percentage of meat and other operations had any kids born on open range (17.9 and 14.1 percent, respectively) compared with dairy operations (3.6 percent).

D.2.v. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by environment(s) in which any kids were born (dead or alive)* and by primary production of operation:

Percent Operations

	Primary Production					
	Meat		Dairy		Other	
Environment	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Individual kidding pen	29.8	(2.5)	49.0	(3.5)	37.0	(3.9)
Multiple-doe indoor pen	21.3	(2.3)	35.2	(3.1)	22.0	(3.2)
Multiple-doe outdoor kidding area that allows increased observation/ shelter	23.6	(2.4)	13.4	(2.2)	24.3	(4.0)
Other multiple-doe fenced pasture	23.3	(2.2)	14.1	(2.9)	15.2	(2.9)
Open range	17.9	(2.2)	3.6	(1.3)	14.1	(2.9)
Multiple-doe dry lot	2.0	(0.6)	5.3	(1.7)	4.3	(1.4)
Other	0.4	(0.2)	0.9	(0.4)	0.9	(0.5)

*Refers to the last completed breeding season and the following kid crop (that is, the most recent kid crop from which all kids were born).

On operations that had any kids born, 25.0 percent of all kids were born in a multiple-doe indoor pen. A higher percentage of kids on small and medium operations (27.4 and 28.7 percent, respectively) were born in individual kidding pens than kids on large operations (8.2 percent). A higher percentage of kids on small operations (23.6 percent) were born in multiple-doe outdoor kidding areas than kids on large operations (12.7 percent).

A higher percentage of kids in the East region (39.8 percent) were born in multiple-doe indoor pens than kids in the West region (7.4 percent). A higher percentage of kids in the East region were born in individual kidding pens (22.8 percent) than kids in the West region (11.8 percent), and a higher percentage of kids in the West region were born on open range (34.8 percent) than kids in the East region (6.7 percent).

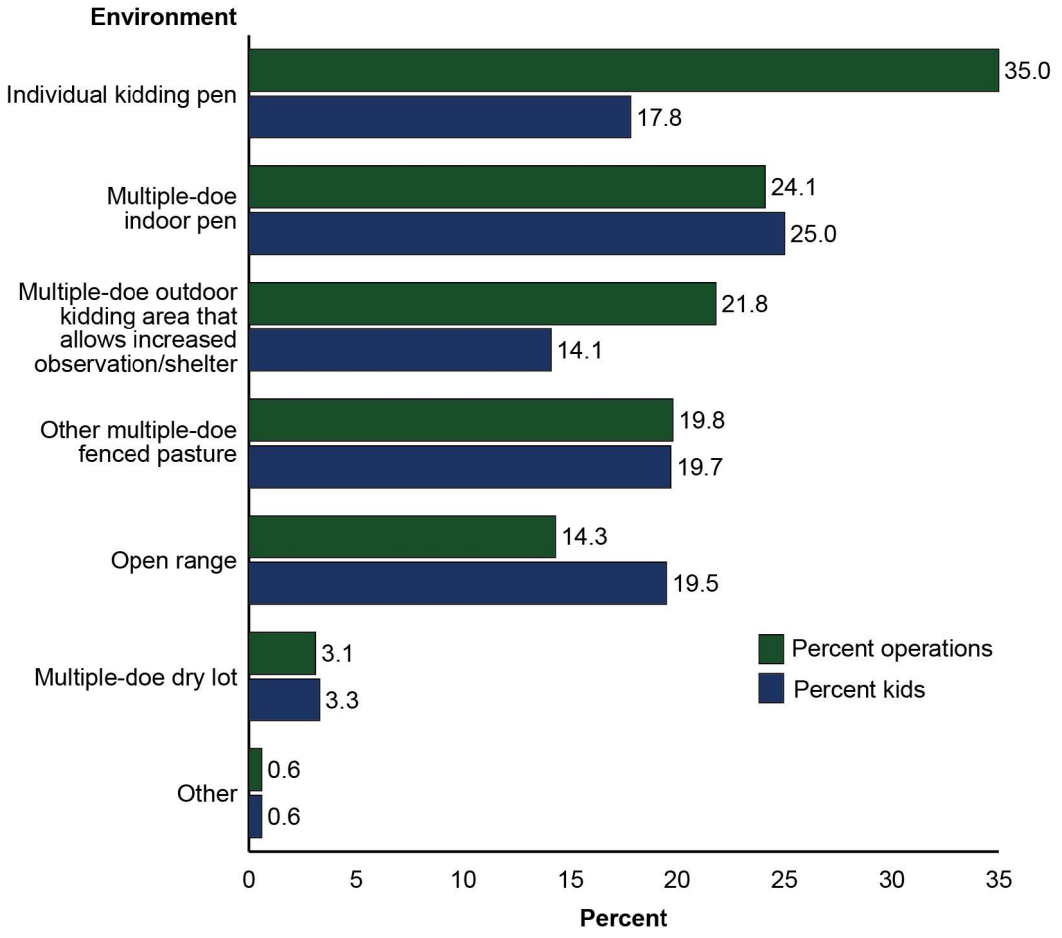
D.2.w. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of kids born (dead or alive) by environment in which kids were born,* and by herd size and region:

Percent Kids

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Environment	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Individual kidding pen	27.4	(3.1)	28.7	(2.4)	8.2	(1.9)	11.8	(2.0)	22.8	(2.4)	17.8	(1.5)
Multiple-doe indoor pen	20.5	(2.7)	23.6	(2.6)	26.9	(5.6)	7.4	(1.5)	39.8	(4.6)	25.0	(3.1)
Multiple-doe outdoor kidding area that allows increased observation/ shelter	23.6	(3.3)	13.6	(1.9)	12.7	(2.0)	17.3	(2.3)	11.5	(1.5)	14.1	(1.3)
Other multiple-doe fenced pasture	17.5	(3.1)	17.9	(2.3)	21.4	(4.3)	25.0	(4.3)	15.3	(2.3)	19.7	(2.4)
Open range	6.9	(1.7)	12.8	(2.1)	26.7	(3.6)	34.8	(3.7)	6.7	(1.2)	19.5	(2.0)
Multiple-doe dry lot	3.7	(1.2)	2.9	(0.9)	3.4	(0.9)	3.5	(1.0)	3.1	(0.7)	3.3	(0.6)
Other	0.3	(0.3)	0.6	(0.3)	0.6	(0.4)	0.3	(0.2)	0.8	(0.4)	0.6	(0.2)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

*Refers to the last completed breeding season and the following kid crop, (that is, the most recent kid crop from which all kids were born).

For the 85.7 percent of operations that had any kids* born in the previous 12 months, percentage of operations by environment(s) in which any kids were born (dead or alive), and percentage of kids born (dead or alive) by environment in which kids were born



*Refers to the last completed breeding season and the following kid crop (that is, the most recent kid crop from which all kids were born).

For operations that had any kids born, a higher percentage of kids on dairy operations were born in multiple-doe indoor pens (61.4 percent) than kids on meat or other operations (13.2 and 10.6 percent, respectively). A higher percentage of kids on meat and other operations were born on open range (25.7 and 26.5 percent, respectively) than on dairy operations (0.7 percent).

D.2.x. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of kids born (dead or alive) by environment in which kids were born* and by primary production of operation:

Percent Kids

Primary Production of Operation

	Meat		Dairy		Other	
Environment	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Individual kidding pen	16.0	(1.9)	18.2	(3.1)	24.3	(4.2)
Multiple doe indoor pen	13.2	(1.8)	61.4	(6.2)	10.6	(2.0)
Multiple doe outdoor kidding area that allows increased observation/ shelter	16.9	(1.8)	6.3	(1.5)	16.2	(4.1)
Other multiple doe fenced pasture	25.9	(3.4)	5.8	(1.9)	18.3	(5.3)
Open range	25.7	(2.7)	0.7	(0.3)	26.5	(5.7)
Multiple doe dry lot	1.6	(0.5)	7.2	(2.0)	3.4	(1.3)
Other	0.6	(0.3)	0.4	(0.2)	0.6	(0.6)
Total	100.0		100.0		100.0	

*Refers to the last completed breeding season and the following kid crop (that is, the most recent kid crop from which all kids were born).

3. Kids born in the previous 12 months

This section refers to kids born from July 1, 2018. to June 30, 2019, which in this report is referred to as the previous 12 months. The number of kids born in this time frame is very similar to what was reported in the previous kid crop (table D.2.o). The number of kids born are similar due to the majority of operations having just one kid crop per year.

Of operations that had any kids born on the operation, 100.0 percent had kids born alive in the previous 12 months. Overall, 48.4 percent had kids born dead. The percentage of operations that had kids born dead increased as size of operation increased, ranging from 37.1 percent of small operations to 69.2 percent of large operations.

There were no regional differences in the percentage of operations that had any kids born dead.

D.3.a. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations that had kids born alive, and percentage of operations that had kids born dead, by herd size and by region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Kids	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Born alive	100.0	(—)	100.0	(—)	100.0	(—)	100.0	(—)	100.0	(—)	100.0	(—)
Born dead	37.1	(3.3)	54.3	(2.8)	69.2	(3.9)	42.6	(3.5)	50.8	(2.4)	48.4	(2.0)

For operations that had any kids born, 100.0 percent had kids born alive, regardless of primary production of operation. Dairy operations accounted for the highest percentage of operations that had kids born dead.

D.3.b. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations that had kids born alive, and percentage of operations that had kids born dead, by primary production of operation:

Percent Operations

Primary Production

	Meat		Dairy		Other	
Kids	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Born alive	100.0	(—)	100.0	(—)	100.0	(—)
Born dead	48.9	(2.8)	58.2	(3.5)	38.3	(3.8)

On operations that had any kids born, 94.3 percent of kids were born alive. There were no differences by herd size in the percentages of kids born alive or born dead.

A higher percentage of kids in the East region (7.6 percent) were born dead than kids in the West region (3.4 percent).

D.3.c. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of kids born alive and percentage born dead, by herd size and by region:

Percent Kids

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Kids	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Born alive	91.9	(0.9)	93.9	(0.5)	95.1	(1.1)	96.6	(0.4)	92.4	(1.0)	94.3	(0.6)
Born dead	8.1	(0.9)	6.1	(0.5)	4.9	(1.1)	3.4	(0.4)	7.6	(1.0)	5.7	(0.6)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

For operations that had any kids born, there were no differences by primary production of operation in the percentages of kids born alive or born dead.

D.3.d. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of kids born alive and percentage born dead, by primary production of operation:

Percent Kids

Primary Production of Operation

	Meat		Dairy		Other	
Kids	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Born alive	94.9	(0.4)	94.3	(0.4)	91.9	(3.4)
Born dead	5.1	(0.4)	5.7	(0.4)	8.1	(3.4)
Total	100.0		100.0		100.0	

Goats are generally considered seasonal or short-day breeders, meaning that they breed in the fall (less daylight) and kid in the spring. Breeding goats in the fall usually results in an increased number of goats that become pregnant, as the fall is their natural breeding season. In the spring, however, prices for kids are usually higher than in other months due to various increased market and holiday demands.

For operations that had any kids born, 47.9 percent had kids born in March. A higher percentage of operations in the West had kids born in October and November (17.3 percent and 20.1 percent, respectively) than operations in the East (7.3 percent and 9.6 percent, respectively).

D.3.e. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by month any kids were born (alive or dead), and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Month	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
July 2018	6.0	(1.7)	4.0	(1.0)	8.6	(2.4)	2.4	(0.7)	6.4	(1.3)	5.2	(0.9)
August 2018	3.8	(1.3)	4.1	(1.2)	8.4	(2.4)	3.2	(1.2)	4.9	(1.1)	4.4	(0.8)
September 2018	5.2	(1.5)	7.3	(1.7)	10.4	(2.5)	7.0	(2.0)	6.5	(1.3)	6.7	(1.1)
October 2018	5.8	(1.5)	13.2	(2.2)	16.3	(3.3)	17.3	(3.0)	7.3	(1.3)	10.3	(1.3)
November 2018	7.4	(1.9)	15.9	(2.2)	20.5	(3.5)	20.1	(3.1)	9.6	(1.4)	12.7	(1.4)
December 2018	11.9	(2.3)	23.6	(2.4)	30.7	(4.1)	18.6	(2.8)	19.5	(1.9)	19.2	(1.5)
January 2019	29.4	(3.2)	29.9	(2.5)	40.5	(4.3)	28.5	(3.2)	31.5	(2.3)	30.7	(1.9)
February 2019	33.4	(3.2)	36.8	(2.6)	53.1	(4.5)	29.6	(2.8)	39.8	(2.4)	36.8	(1.9)
March 2019	38.9	(3.2)	51.4	(2.9)	72.3	(3.7)	45.2	(3.5)	49.1	(2.5)	47.9	(2.0)
April 2019	30.0	(3.1)	41.5	(2.7)	70.6	(3.7)	40.5	(3.3)	38.8	(2.3)	39.3	(1.9)
May 2019	18.3	(2.7)	24.6	(2.2)	39.7	(4.5)	20.2	(2.6)	24.5	(2.0)	23.3	(1.6)
June 2019	11.3	(2.1)	15.7	(2.0)	20.1	(3.4)	10.3	(1.9)	15.9	(1.7)	14.2	(1.3)

For operations that had any kids born, a higher percentage of meat operations had kids born in November (14.0 percent) and December (22.9 percent) than dairy operations (5.9 and 9.7 percent, respectively). A higher percentage of dairy operations had kids born in April and May (55.9 and 37.6 percent, respectively) than meat (35.8 and 18.8 percent, respectively) or other (34.1 and 23.0 percent, respectively) operations.

D.3.f. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by month any kids were born (alive or dead), by primary production of the operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Month	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
July 2018	3.4	(1.0)	7.9	(2.8)	8.2	(2.2)
August 2018	3.9	(1.2)	3.0	(0.8)	7.0	(2.1)
September 2018	8.0	(1.6)	4.2	(1.6)	5.1	(1.6)
October 2018	11.5	(1.8)	5.8	(1.7)	10.9	(2.8)
November 2018	14.0	(1.9)	5.9	(1.6)	14.8	(3.3)
December 2018	22.9	(2.2)	9.7	(2.0)	17.1	(3.1)
January 2019	31.7	(2.7)	34.3	(3.5)	24.5	(3.4)
February 2019	34.3	(2.6)	43.2	(3.2)	38.4	(4.1)
March 2019	45.2	(2.8)	57.3	(3.6)	47.3	(4.3)
April 2019	35.8	(2.6)	55.9	(3.6)	34.1	(3.7)
May 2019	18.8	(2.1)	37.6	(3.4)	23.0	(3.5)
June 2019	10.5	(1.6)	20.1	(3.0)	19.5	(3.4)

On operations that had any kids born, 43.8 percent of kids were born in the spring months: 21.3 percent in March, 16.5 percent in April, and 6.0 percent in May. There were no differences by herd size in the percentages of kids born by month.

A higher percentage of kids in the East region were born in July 2018 and June 2019 than in the West region.

D.3.g. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of kids born (alive or dead) by month born, herd size and region:

Percent Kids

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Month	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
July 2018	2.3	(0.7)	1.6	(0.7)	1.2	(0.5)	0.5	(0.1)	2.2	(0.6)	1.5	(0.4)
August 2018	1.6	(0.6)	1.0	(0.3)	1.1	(0.4)	0.7	(0.2)	1.5	(0.4)	1.1	(0.2)
September 2018	2.3	(0.8)	3.2	(1.3)	1.7	(0.5)	2.4	(1.0)	2.3	(0.5)	2.3	(0.5)
October 2018	3.8	(1.5)	4.6	(1.0)	4.5	(1.2)	6.2	(1.4)	3.0	(0.7)	4.5	(0.8)
November 2018	4.5	(1.3)	5.9	(1.0)	7.9	(1.6)	9.2	(1.8)	4.7	(0.9)	6.8	(0.9)
December 2018	7.4	(1.7)	9.3	(1.2)	6.2	(0.8)	6.0	(0.8)	8.7	(1.0)	7.5	(0.6)
January 2019	16.0	(2.5)	13.2	(1.3)	12.2	(1.5)	10.4	(1.4)	15.1	(1.4)	13.0	(1.0)
February 2019	18.2	(2.2)	14.2	(1.3)	17.4	(1.7)	14.0	(1.8)	18.2	(1.3)	16.3	(1.0)
March 2019	18.1	(2.1)	21.4	(1.7)	21.8	(1.8)	24.0	(1.8)	19.0	(1.3)	21.3	(1.1)
April 2019	15.5	(2.1)	16.0	(1.5)	17.0	(1.9)	19.1	(2.0)	14.3	(1.2)	16.5	(1.2)
May 2019	7.1	(1.5)	5.6	(0.7)	6.0	(0.7)	5.4	(0.8)	6.4	(0.6)	6.0	(0.5)
June 2019	3.1	(0.8)	4.3	(0.9)	2.8	(0.7)	2.0	(0.5)	4.6	(0.8)	3.4	(0.5)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

For operations that had any kids born, a higher percentage of kids on meat operations than dairy operations were born in December (8.5 and 4.6 percent, respectively). Conversely, a higher percentage of kids on dairy operations were born in February (22.3 percent) than on meat operations (13.7 percent).

D.3.h. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of kids born (alive or dead) by month born, and by primary production of operation:

	Percent Kids					
	Primary Production of Operation					
	Meat		Dairy		Other	
Month	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
July 2018	1.2	(0.4)	2.0	(0.9)	1.8	(0.6)
August 2018	0.7	(0.2)	1.6	(0.7)	2.1	(0.7)
September 2018	2.7	(0.8)	2.0	(0.9)	1.3	(0.4)
October 2018	5.6	(1.2)	2.3	(0.9)	3.2	(0.9)
November 2018	7.0	(1.3)	3.8	(1.0)	10.9	(3.3)
December 2018	8.5	(0.9)	4.6	(0.7)	7.8	(2.1)
January 2019	10.9	(1.1)	16.6	(1.9)	15.6	(3.7)
February 2019	13.7	(1.4)	22.3	(2.2)	17.1	(2.8)
March 2019	22.7	(1.5)	20.6	(2.0)	16.3	(2.3)
April 2019	18.6	(1.7)	13.0	(1.3)	13.6	(2.3)
May 2019	5.4	(0.7)	7.0	(0.5)	6.7	(1.6)
June 2019	3.0	(0.6)	4.4	(1.2)	3.5	(1.1)
Total	100.0		100.0		100.0	

For operations that had any kids born, 28.7 percent had nobody present when any does were giving birth. A higher percentage of small (39.4 percent) and medium (29.5 percent) operations had someone present at all births compared with large operations (15.2 percent).

There were no regional differences in the percentages of operations by presence of someone when does were giving birth.

D.3.i. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by percentage of births during which someone was present to help, if needed, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Percent births with someone present	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
0	32.4	(3.4)	25.9	(2.6)	26.3	(3.5)	30.8	(3.4)	27.9	(2.4)	28.7	(2.0)
1 - 49	9.9	(1.9)	14.9	(1.9)	28.6	(4.6)	11.4	(2.3)	15.2	(1.6)	14.1	(1.3)
50	4.8	(1.5)	7.1	(1.4)	4.4	(0.9)	5.3	(1.7)	6.1	(1.1)	5.9	(0.9)
51 - 99	13.5	(2.2)	22.6	(2.2)	25.6	(4.0)	16.7	(2.5)	19.9	(1.8)	19.0	(1.5)
100	39.4	(3.3)	29.5	(2.5)	15.2	(2.7)	35.9	(3.4)	30.9	(2.3)	32.4	(1.9)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

For operations that had any kids born, a higher percentage of dairy operations (27.4 percent) had someone to help at 51-99 percent of births than meat operations (15.5 percent).

D.3.j. [D9] For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by percentage of births during which someone was present to help, if needed, and by primary production of operation:

Percent Operations

Primary Production

	Meat		Dairy		Other	
Percent births with someone present	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
0	29.9	(2.7)	19.0	(3.6)	34.1	(4.2)
1 - 49	16.3	(2.0)	13.8	(2.0)	8.0	(1.7)
50	6.7	(1.3)	4.0	(0.8)	5.2	(1.9)
51 - 99	15.5	(1.9)	27.4	(3.0)	21.2	(3.8)
100	31.6	(2.7)	35.8	(3.3)	31.4	(3.9)
Total	100.0		100.0		100.0	

On operations that had any kids born, 49.9 percent of births were attended by someone to help, if needed. There were no differences by herd size in the percentage of births during which someone was available to help.

A higher percentage of births in the East region (59.9 percent) had someone present to help, if needed, than births in the West region (37.9 percent).

D.3.k. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of births during which someone was present to help, if needed, and by herd size and region:

Percent Births

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
56.1	(3.6)	54.0	(2.6)	45.6	(4.8)	37.9	(3.2)	59.9	(3.3)	49.9	(2.6)

On operations that had any kids born, a higher percentage of births had someone present to help, if needed, on dairy operations (72.3 percent) than on meat and other operations (40.4 percent and 51.7 percent, respectively).

D.3.l. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months, (table D.1.a.), percentage of births during which someone was present to help, if needed, and by primary production of the operation:

Percent Births

Primary Production of Operation

Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
40.4	(2.7)	72.3	(4.5)	51.7	(5.7)

Keeping records on birth information, such as the kidding date and the number of kids born per doe, provides an operator with valuable information for selecting the most productive does.

For operations that had any kids born, over two-thirds of all operations kept records on kidding dates and number of kids born per doe (67.1 and 69.1 percent, respectively). A higher percentage of small and medium operations kept records on the number of kids born per doe (75.2 and 67.3 percent, respectively) than large operations (50.6 percent).

A higher percentage of operations in the East region kept records on kidding dates and number of kids born per doe (71.5 and 73.6 percent respectively) than operations in the West region (56.7 percent and 58.3 percent, respectively).

D.3.m. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by birth information recorded, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Information recorded	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Kidding date	74.1	(2.9)	64.0	(2.7)	51.3	(4.4)	56.7	(3.5)	71.5	(2.1)	67.1	(1.8)
Number of kids born per doe	75.2	(2.9)	67.3	(2.6)	50.6	(4.4)	58.3	(3.5)	73.6	(2.1)	69.1	(1.8)
Number of abortions*	71.6	(8.6)	49.4	(5.6)	62.3	(6.4)	56.2	(9.1)	59.9	(4.6)	58.9	(4.2)

*For operations that had any abortions any time in the previous 12 months.

For operations that had any kids born, a higher percentage of dairy operations (84.3 percent) kept records on kidding dates than meat and other operations (62.6 and 64.3 percent, respectively). A higher percentage of dairy operations (79.8 percent) kept records on the number of kids born per doe than meat operations (65.6 percent).

D.3.n. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by birth information recorded, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Information recorded	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Kidding date	62.6	(2.6)	84.3	(2.5)	64.3	(4.2)
Number of kids born per doe	65.6	(2.5)	79.8	(3.3)	69.1	(4.0)
Number of abortions*	54.5	(5.9)	72.2	(4.8)	58.3	(9.8)

*For operations that had any abortions any time in the previous 12 months.

4. Birthing practices

Placentas have the potential to both attract predators and spread disease to other animals, if they contain an infectious agent such as *Coxiella burnetii*, the causative agent for Q fever. For operations that had any kids born, 41.8 percent left the placentas in the field/birthing area and did not remove them. A higher percentage of large operations (62.7 percent) left placentas in the field/birthing area and did not remove them compared with small and medium operations (34.5 and 44.1 percent, respectively). A higher percentage of small and medium operations (11.2 and 11.9 percent, respectively) disposed of placentas in a dump/landfill than large operations (3.6 percent).

A higher percentage of operations in the West region (53.9 percent) than in the East region (36.7 percent) left placentas in the field/birthing area and did not remove them. A higher percentage of operations in the East region (15.2 percent) composted placentas than operations in the West region (5.2 percent).

D.4.a. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by usual method used to dispose of placentas, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Method of placenta disposal	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Left in the field/ birthing area and removed later	21.4	(2.9)	14.3	(1.9)	14.2	(2.6)	13.8	(2.4)	18.8	(2.0)	17.3	(1.6)
Left in the field/ birthing area and not removed	34.5	(3.2)	44.1	(2.7)	62.7	(4.0)	53.9	(3.4)	36.7	(2.3)	41.8	(1.9)
Buried	14.6	(2.3)	10.5	(1.7)	7.4	(2.8)	9.3	(1.9)	13.0	(1.6)	11.9	(1.3)
Burned/incinerated	4.0	(1.4)	3.6	(0.9)	1.5	(0.5)	3.6	(1.3)	3.6	(0.9)	3.6	(0.7)
Composted	12.2	(2.0)	12.9	(1.7)	9.6	(1.6)	5.2	(1.1)	15.2	(1.6)	12.3	(1.2)
Disposed of in landfill/dump	11.2	(2.0)	11.9	(1.8)	3.6	(0.8)	12.5	(2.4)	10.1	(1.4)	10.8	(1.2)
Other	2.2	(1.0)	2.7	(1.0)	1.0	(0.4)	1.7	(0.8)	2.6	(0.8)	2.3	(0.6)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

For operations that had any kids born, a higher percentage of meat operations (46.7 percent) left placentas in the field/birthing area and did not remove them than dairy operations (30.1 percent). A higher percentage of dairy operations (22.6 percent) composted placentas than meat or other operations (10.6 and 7.8 percent, respectively).

D.4.b. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by usual method used to dispose of placentas, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Method of placenta disposal	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Left in the field/ birthing area and removed later	16.8	(2.1)	16.4	(2.8)	19.5	(3.7)
Left in the field/ birthing area and not removed	46.7	(2.8)	30.1	(3.2)	38.2	(4.0)
Buried	11.7	(1.8)	13.2	(2.6)	11.3	(2.6)
Burned/ incinerated	2.9	(0.9)	3.1	(0.9)	6.0	(2.0)
Composted	10.6	(1.6)	22.6	(2.9)	7.8	(1.7)
Disposed of inlandfill/dump	8.8	(1.6)	10.4	(1.7)	16.8	(3.3)
Other	2.3	(0.9)	4.2	(1.8)	0.5	(0.3)
Total	100.0		100.0		100.0	

For operations that had any kids born, 87.9 percent had does kidding for the first time. A higher percentage of medium and large operations (93.1 and 96.2 percent, respectively) had does kidding for the first time than small operations (80.1 percent).

There were no regional differences in the percentage of operations that had does kidding for the first time.

D.4.c. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations that had any does kidding for the first time, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
80.1	(2.9)	93.1	(1.5)	96.2	(1.0)	90.1	(2.0)	86.9	(1.8)	87.9	(1.4)

For operations that had any kids born, there were no differences by primary production of operation in the percentage of operations that had does kidding for the first time.

D.4.d. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations that had any does kidding for the first time, by primary production of operation:

Percent Operations

Primary Production

Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
87.8	(1.9)	91.1	(2.5)	85.3	(3.1)

Prior to kidding, separating older does from does kidding for the first time helps ensure that the younger does have a calm birthing environment and provides the does with ample time to bond with and clean their newborns, without older does interrupting the process. Additionally, this separation process makes it easier for operators to recognize any problems that might occur during birthing, such as dystocia, and confirm that kids have stood and nursed following birth.

For operations that had any does kidding for the first time, 40.0 percent physically separated these does from older does. There were no differences by herd size or by region in the percentage of operations that physically separated older does from does kidding for the first time.

D.4.e. For operations that had any does kidding for the first time in the previous 12 months* (table D.4.c.), percentage of operations in which the majority of these does were physically separated from older does before they kidded, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
39.8	(3.6)	39.9	(2.7)	41.8	(4.5)	36.3	(3.4)	41.6	(2.5)	40.0	(2.1)

*Refers to the 75.3 percent of operations that had any does kidding for the first time in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months, (table D.1.a.), on which 87.9 percent of those operations had any does kidding for the first time (table D.4.c.).

For operations that had any does kidding for the first time, a higher percentage of dairy operations (51.6 percent) than meat operations (36.4 percent) physically separated these does from older does before they gave birth.

D.4.f. For operations that had any does giving birth for the first time in the previous 12 months* (table D.4.c.), percentage of operations in which the majority of does kidding for the first time were physically separated from older does before they gave birth, by primary production of operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
36.4	(2.9)	51.6	(3.6)	39.6	(4.4)

*Refers to the 75.3 percent of operations that had any does kidding for the first time in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months, (table D.1.a.), on which 87.9 percent of those operations had any does kidding for the first time (table D.4.c.).

Operations choose different management strategies for housing doe/kid pairs after kidding based on their goals regarding health and marketing concerns. The way doe/kid pairs are housed may differ between does kidding for the first time and older does. In general, operations separated any doe/kid pairs from all other goats after kidding; kept all doe/kid pairs housed together, but separated them from does that had not yet kidded; or kept all doe/kid pairs with the rest of the herd. Separating doe/kid pairs from all other animals can be beneficial because it allows the dam and kid to bond and affords the operator more time to make sure that the kids are healthy and nursing.

For operations that had does kidding for the first time, 35.2 percent never separated these does from the rest of the herd. There were no differences across herd sizes in the percentages of operations by usual kidding management strategy used for does giving birth for the first time.

D.4.g. For operations that had any does giving birth for the first time in the previous 12 months* (table D.4.c.), percentage of operations by usual management strategy used for these does and for doe/kid pairs after giving birth, and by herd size and by region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Kidding management strategy	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Kept separate from other goats	40.6	(3.7)	43.7	(2.7)	33.1	(4.2)	34.6	(3.4)	44.3	(2.5)	41.4	(2.0)
Kept with other doe/kid pairs	20.8	(3.1)	20.2	(2.4)	19.5	(3.9)	24.8	(3.4)	18.5	(2.1)	20.4	(1.8)
Not separated/ always with herd	36.4	(3.7)	32.8	(2.7)	42.2	(4.5)	39.5	(3.6)	33.4	(2.5)	35.2	(2.1)
Other	2.1	(1.1)	3.2	(0.6)	5.2	(1.1)	1.1	(0.4)	3.9	(0.8)	3.0	(0.6)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

*Refers to the 75.3 percent of operations that had any does kidding for the first time in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months, (table D.1.a.), on which 87.9 percent of those operations had any does kidding for the first time (table D.4.c.).

Overall, 37.6 percent of meat operations, 48.6 percent of dairy operations, and 45.4 percent of other operations separated does giving birth for the first time from other does giving birth.

D.4.h. For operations that had any does kidding for the first time in the previous 12 months* (table D.4.c.), percentage of operations by usual management strategy used for these does and for doe/kid pairs after kidding, by primary production of operation:

Percent Operations

Primary Production

	Meat		Dairy		Other	
Kidding management strategy	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Kept separate from other goats	37.6	(2.8)	48.6	(3.6)	45.4	(4.5)
Kept with other doe/kid pairs	23.4	(2.6)	14.6	(2.1)	17.4	(3.3)
Not separated/ always with herd	38.1	(2.9)	26.0	(3.5)	35.7	(4.5)
Other	1.0	(0.7)	10.7	(1.7)	1.5	(0.6)
Total	100.0		100.0		100.0	

*Refers to the 75.3 percent of operations that had any does kidding for the first time in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months, (table D.1.a.), on which 87.9 percent of those operations had any does kidding for the first time (table D.4.c.).

For operations that had any kids born, 40.1 percent kept older does (second kidding or more) and their kids with the rest of the herd after kidding. Overall, 35.5 percent of operations kept older does and their kids separate from other goats after kidding, while 21.0 percent kept older does and their kids with other doe/kid pairs after kidding.

A higher percentage of operations in the East region (38.8 percent) kept older does and their kids separate from other goats after kidding than operations in the West region (27.5 percent).

D.4.i. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by usual management strategy used for older does (second kidding or more) and their kids, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Older-doe management strategy	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Kept separate from other goats	38.6	(3.4)	35.4	(2.5)	21.7	(3.9)	27.5	(3.0)	38.8	(2.4)	35.5	(1.9)
Kept with other doe/kid pairs	19.4	(2.5)	22.6	(2.4)	20.3	(3.0)	24.4	(2.9)	19.6	(2.0)	21.0	(1.6)
Not separated/ always with herd	39.3	(3.4)	38.4	(2.7)	52.6	(4.3)	46.7	(3.4)	37.4	(2.4)	40.1	(2.0)
Other	2.7	(0.9)	3.6	(0.7)	5.4	(1.1)	1.4	(0.4)	4.2	(0.7)	3.4	(0.5)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

For operations that had any kids born, a higher percentage of dairy operations (44.0 percent) than meat operations (30.9 percent) kept older doe/kid pairs separate from other goats after kidding. A higher percentage of meat operations (45.0 percent) than dairy operations (29.0 percent) did not separate older doe/kid pairs and left them with the herd after kidding.

D.4.j. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by usual management strategy used for older does (second or more kidding) and their kids after kidding, and by primary production of operation:

Percent Operations

	Primary Production					
	Meat		Dairy		Other	
Older-doe management strategy	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Kept separate from other goats	30.9	(2.6)	44.0	(3.6)	40.9	(4.2)
Kept with other doe/kid pairs	22.4	(2.3)	17.3	(2.2)	20.4	(3.5)
Not separated/ always with herd	45.0	(2.9)	29.0	(3.3)	36.2	(4.1)
Other	1.7	(0.7)	9.7	(1.6)	2.5	(0.8)
Total	100.0		100.0		100.0	

Doe/kid pairs separated from the herd after kidding were separated for less than 7 days. There were no differences by herd size or region in the median number of days doe/kid pairs were kept separate from the herd, nor were there any differences by whether or not does were kidding for the first time or the second (or more) time.

D.4.k. For operations that usually kept doe/kid pairs separate from other goats after kidding[1,2] (tables D.4.g. and D.4.i.), median number of days that first-kidding and second-or-more kidding doe/kid pairs were separated, by herd size and by region:

Median Number of Days

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Doe	**Med.**	**Std. error**	**Med.**	**Std. error**	**Med.**	**Std. error**	**Med.**	**Std. error**	**Med.**	**Std. error**	**Med.**	**Std. error**
First kidding[1]	8.1	(1.5)	6.7	(1.1)	6.8	(2.1)	6.5	(0.9)	7.0	(1.6)	6.9	(0.8)
Second kidding or more[2]	6.8	(1.5)	6.9	(1.5)	6.0	(1.9)	6.7	(1.6)	6.8	(0.9)	6.8	(0.7)

[1]First-time kidding does refers to the 35.5 percent of operations that kept first-time kidding does and their kids separate from other goats in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months(table D.1.a.), on which 41.4 percent of those operations kept first-time kidding does and their kids separate from other goats (table D.4.g.).
[2]Older does (second or more kidding) refers to the 30.4 percent of operations that kept older does (second or more kidding) and their kids separate from other goats in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), on which 35.5 percent of those operations kept older does (second or more kidding) and their kids separate from other goats (table D.4.i.).

There were no differences by primary production of operation in the median number of days that doe/kid pairs (first- or second-or-more kidding) were kept separate from other goats after kidding.

D.4.l. For operations that usually kept doe/kid pairs separate from other goats after kidding[1,2] (tables D.4.g. and D.4.i.), median number of days that first-kidding and second-or-more kidding doe/kid pairs were separated, by primary production operation:

Median Number of Days

Primary Production of Operation

	Meat		Dairy		Other	
Doe	**Med.**	**Std. error**	**Med.**	**Std. error**	**Med.**	**Std. error**
First kidding[1]	6.9	(1.1)	6.7	(1.1)	9.2	(1.3)
Second kidding or more[2]	6.7	(0.8)	6.8	(1.1)	9.0	(1.3)

[1]First-time kidding does refers to the 35.5 percent of operations that kept first-time kidding does and their kids separate from other goats in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months(table D.1.a.), on which 41.4 percent of those operations kept first-time kidding does and their kids separate from other goats (table D.4.g.).

[2]Older does (second or more kidding) refers to the 30.4 percent of operations that kept older does (second or more kidding) and their kids separate from other goats in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), on which 35.5 percent of those operations kept older does (second or more kidding) and their kids separate from other goats (table D.4.i.).

Overall, the length of time doe/kid pairs were separated was similar for first and second or more kiddings. Over half of operations kept doe/kid pairs separated for up to a week.

D.4.m. For operations that usually kept doe/kid pairs separated from other goats after kidding[1,2] (tables D.4.g. and D.4.i.), percentage of operations by length of time that first- and second-or-more kidding doe/kid pairs were separated:

	Percent Operations			
	Doe			
	First kidding[1]		Second or more kidding[2]	
Length of time	Pct.	Std. error	Pct.	Std. error
Up to 1 week	51.3	(3.2)	53.6	(3.4)
1 to 2 weeks	24.0	(2.7)	20.6	(2.7)
2 to 3 weeks	4.7	(1.6)	5.0	(1.6)
3 weeks to 1 month	8.6	(1.7)	8.5	(1.8)
More than 1 month	11.4	(2.2)	12.4	(2.4)
Total	100.0		100.0	

[1]First-time kidding does refers to the 35.5 percent of operations that kept first-time kidding does and their kids separate from other goats in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months(table D.1.a.), on which 41.4 percent of those operations kept first-time kidding does and their kids separate from other goats(table D.4.g.).
[2]Older does (second or more kidding) refers to the 30.4 percent of operations that kept older does (second or more kidding) and their kids separate from other goats in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), on which 35.5 percent of those operations kept older does (second or more kidding) and their kids separate from other goats (table D.4.i.).

Estimates in the following tables include water and hay or other roughage that were already in the pen when kids were born. The majority of operations made water (87.9 percent) and hay or other roughage (82.9 percent) available to kids on the day they were born. These high percentages include kids that were housed with the does; therefore, water and hay or other roughages were readily available. However, kids usually do not start to consume roughages for several days after birth. Roughage should be given to kids at an early age to help develop their rumen prior to weaning. Additionally, kids should have access to fresh, clean water to help them digest dry feed in the rumen.

D.4.n. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by age of kids when first offered water and hay or other roughage:

	Percent Operations			
	First offered			
	Water		Hay/roughage	
Age	Pct.	Std. error	Pct.	Std. error
Day of birth*	87.9	(1.2)	82.9	(1.5)
2 days to 1 week	6.7	(1.0)	8.4	(1.2)
1 to 2 weeks	1.9	(0.3)	3.2	(0.6)
2 to 3 weeks	1.4	(0.4)	1.6	(0.3)
3 weeks to 1 month	1.1	(0.3)	1.3	(0.4)
More than 1 month	1.0	(0.2)	2.6	(0.7)
Total	100.0		100.0	

*Includes kids that were housed with does.

On average, operations offered water to kids when they were 2.6 days old and hay/roughage when they were 4.4 days old. A higher percentage of large operations offered water to kids at an average of 4.3 days old compared with small (2.5 days) and medium operations (2.3 days).

Operations in the East region offered water to kids at a later age (3.0 days) than operations in the West region (1.6 days).

D.4.o. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), average age of kids when first offered water and hay or other roughage, by herd size and by region:

Average Age (days)

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Offered	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
Water	2.5	(0.3)	2.3	(0.2)	4.3	(0.6)	1.6	(0.1)	3.0	(0.2)	2.6	(0.2)
Hay/roughage	4.5	(1.3)	3.9	(0.6)	6.0	(1.0)	3.7	(1.6)	4.7	(0.6)	4.4	(0.6)

On average, dairy operations first offered water to kids at an older age (7.0 days) than meat (1.4 days) and other operations (1.9 days). Kids on dairy operations were first offered hay or other roughage when aged an average of 9.6 days, compared with an average of 3.6 days for kids on meat operations and 2.0 days for kids on other operations.

D.4.p. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), average age of kids when first offered water and hay or other roughage, by primary production of operation:

Average Age (days)

	Primary Production of Operation					
	Meat		**Dairy**		**Other**	
Offered	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
Water	1.4	(0.1)	7.0	(0.7)	1.9	(0.3)
Hay/roughage	3.6	(0.9)	9.6	(1.7)	2.0	(0.3)

Overall, 70.8 percent of operations offered kids starter grain (creep feed or other concentrates). A higher percentage of operations in the East region (74.1 percent) than in the West region (63.0 percent) offered kids starter grain.

D.4.q. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations that offered kids starter grain (creep feed or other concentrates), by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
68.7	(3.3)	72.4	(2.5)	72.3	(3.2)	63.0	(3.2)	74.1	(2.3)	70.8	(1.9)

There were no differences by primary production of operation in the percentage of operations that provided kids starter grain (creep feed or other concentrates).

D.4.r. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations that offered kids starter grain (creep feed or other concentrates), by primary production of operation:

Percent Operations

Primary Production

Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
70.2	(2.6)	74.3	(3.3)	69.4	(4.0)

On average, kids were first offered starter grain (creep feed or other concentrates) when they were 10 days old. There were no differences across herd sizes and regions by average age of kids when first offered creep feed.

D.4.s. For operations that offered kids starter grain (creep feed or other concentrates) in the previous 12 months* (table D.4.q.), average age (in days) of kids when first offered starter grain, by herd size and by region:

Average Age (days)

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Avg.	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
8.2	(1.3)	10.3	(1.0)	11.3	(1.5)	7.6	(1.0)	10.2	(0.9)	9.5	(0.7)

*Refers to the 60.7 percent of operations that offered kids starter grain (creep feed or other concentrates) in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), on which 70.8 percent of those operations offered kids starter grain (creep feed or other concentrates) in the previous 12 months (table D.4.q.).

On average, kids on dairy operations were first offered starter grain (creep feed or other concentrates) at a later age (15.0 days) than kids on meat and other operations (8.9 and 6.0 days, respectively).

D.4.t. For operations that offered kids starter grain (creep feed or other concentrates) in the previous 12 months* (table D.4.q.), average age of kids (in days) when first offered starter grain, by primary production of operation:

Average Age (days)

Primary Production of Operation					
Meat		**Dairy**		**Other**	
Avg.	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
8.9	(0.9)	15.0	(2.1)	6.0	(0.8)

*Refers to the 60.7 percent of operations that offered kids starter grain (creep feed or other concentrates) in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), on which 70.8 percent of those operations offered kids starter grain (creep feed or other concentrates) in the previous 12 months (table D.4.q.).

Overall, 54.1 percent of operations offered kids starter grain (creep feed or other concentrates) the same day they were born. Nearly all operations (94.6 percent) offered kids starter grain within 1 month.

D.4.u. For the operations that offered kids starter grain (creep feed or other concentrates) in the previous 12 months* (table D.4.q.), percentage of operations by average age of kids when first offered starter grain:

Average age of kids	Percent operations	Std. error
Day of birth	54.1	(2.4)
2 days to 1 week	14.9	(1.8)
1 to 2 weeks	12.7	(1.6)
2 to 3 weeks	6.8	(1.1)
3 weeks to 1 month	6.1	(1.1)
More than 1 month	5.4	(1.0)
Total	100.0	

*Refers to the 60.7 percent of operations that offered kids starter grain (creep feed or other concentrates) in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), on which 70.8 percent of those operations offered kids starter grain (creep feed or other concentrates) in the previous 12 months (table D.4.q.).

5. Weaning

Weaning age may vary based on the size and primary production of the operation. For example, dairy operations usually wean kids earlier than meat operations, due to the amount of labor spent feeding kids on dairy operations. Kids should be eating an adequate amount of starter grain and free choice forage before weaning. Many goat breeds should weigh at least 30 pounds before weaning.

Overall, kids were weaned at an average age of 12 weeks. Small operations weaned doe and buck kids at an earlier age, on average, (11.9 and 11.8 weeks old, respectively) than large operations (14.3 and 13.8 weeks old, respectively).

Operations in the East region weaned doe and buck kids at an earlier age, on average, (12.0 and 11.8 weeks old, respectively) than operations in the West region (14.5 and 13.7 weeks old, respectively).

D.5.a. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), average age (in weeks) of doe and buck kids at weaning, by herd size and by region:

Average Age (weeks)

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Kid type	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
Doe kids	11.9	(0.4)	13.1	(0.3)	14.3	(0.5)	14.5	(0.4)	12.0	(0.2)	12.7	(0.2)
Buck kids	11.8	(0.4)	12.5	(0.3)	13.8	(0.5)	13.7	(0.4)	11.8	(0.2)	12.4	(0.2)
All kids	11.9	(0.4)	12.8	(0.3)	14.0	(0.4)	14.1	(0.4)	11.9	(0.2)	12.6	(0.2)

Doe and buck kids on dairy operations were weaned at earlier ages, on average, (11.7 and 10.9 weeks, respectively) than doe and buck kids on meat operations 13.3 and 13.0 weeks, respectively).

D.5.b. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), average age (in weeks) of doe and buck kids at weaning, by primary production of operation:

Average Age (weeks)

Primary Production of Operation

	Meat		Dairy		Other	
Kid type	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
Doe kids	13.3	(0.3)	11.7	(0.3)	12.0	(0.5)
Buck kids	13.0	(0.3)	10.9	(0.3)	11.7	(0.5)
All kids	13.2	(0.3)	11.3	(0.3)	11.9	(0.5)

Overall, kids were weaned at an average age of 8 to 15 weeks on 60.9 percent of operations. A higher percentage of large operations (40.3 percent) weaned doe kids at an average age of 16 weeks or more than small operations (23.3 percent). There were no differences by operation size in the average age of buck kids at weaning.

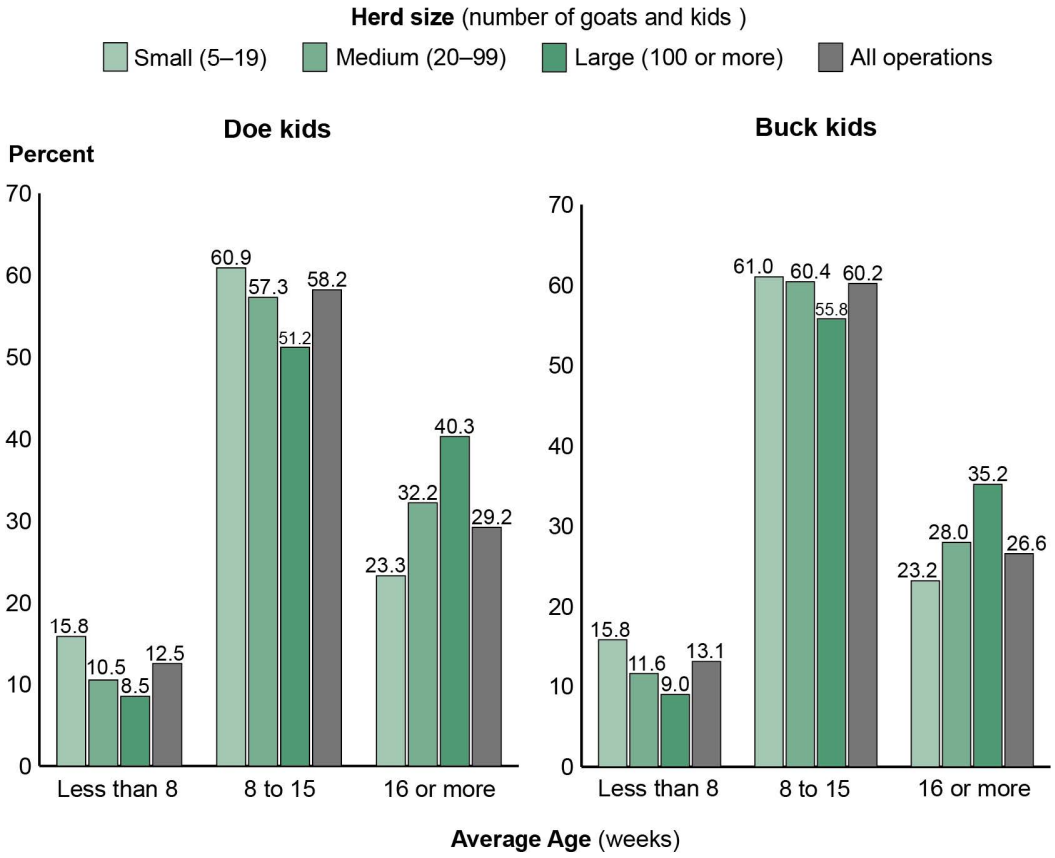
A higher percentage of operations in the West region (43.2 percent) than operations in the East region (23.4 percent) weaned doe kids at an average age of 16 or more weeks. Similarly, a higher percentage of operations in the West region (38.3 percent) than in the East region (21.7 percent) weaned buck kids at an average age of 16 or more weeks.

D.5.c. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by average age (in weeks) of doe and buck kids at weaning, by herd size and by region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Average age (weeks)	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Doe kids												
Less than 8	15.8	(2.9)	10.5	(1.9)	8.5	(1.7)	7.2	(2.1)	14.7	(2.0)	12.5	(1.6)
8 to 15	60.9	(3.6)	57.3	(2.9)	51.2	(4.6)	49.6	(3.6)	61.9	(2.6)	58.2	(2.1)
16 or more	23.3	(2.9)	32.2	(2.6)	40.3	(4.5)	43.2	(3.5)	23.4	(2.0)	29.2	(1.8)
Total	100.0		100.0		100.0		100.0		100.0		100.0	
Buck kids												
Less than 8	15.8	(2.9)	11.6	(1.9)	9.0	(1.8)	8.5	(2.2)	15.1	(2.1)	13.1	(1.6)
8 to 15	61.0	(3.6)	60.4	(2.9)	55.8	(4.4)	53.2	(3.6)	63.2	(2.6)	60.2	(2.1)
16 or more	23.2	(3.0)	28.0	(2.6)	35.2	(4.2)	38.3	(3.5)	21.7	(2.0)	26.6	(1.8)
Total	100.0		100.0		100.0		100.0		100.0		100.0	
All kids												
Less than 8	15.5	(2.9)	10.8	(1.9)	9.0	(1.7)	7.3	(2.1)	14.8	(2.0)	12.6	(1.6)
8 to 15	62.5	(3.6)	61.0	(2.9)	53.8	(4.5)	53.4	(3.6)	64.1	(2.6)	60.9	(2.1)
16 or more	22.1	(2.8)	28.2	(2.6)	37.2	(4.4)	39.2	(3.5)	21.1	(1.9)	26.5	(1.7)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

For the 85.7 percent of operations that had any kids born in the previous 12 months, percentage of operations by average age (in weeks) of doe and buck kids at weaning, and by herd size



A higher percentage of meat operations (30.1 percent) weaned buck kids at 16 or more weeks of age than dairy operations (16.5 percent).

D.5.d. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by average age (in weeks) of doe and buck kids at weaning, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Average age (weeks)	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Doe kids						
Less than 8	11.3	(2.1)	12.9	(2.7)	16.1	(3.8)
8 to 15	56.6	(2.8)	65.4	(3.5)	56.0	(4.6)
16 or more	32.1	(2.4)	21.7	(2.8)	27.9	(4.2)
Total	100.0		100.0		100.0	
Buck kids						
Less than 8	11.2	(2.0)	16.6	(3.2)	15.7	(3.8)
8 to 15	58.7	(2.8)	66.9	(3.6)	58.2	(4.7)
16 or more	30.1	(2.5)	16.5	(2.5)	26.0	(4.2)
Total	100.0		100.0		100.0	
All kids						
Less than 8	10.5	(2.0)	16.0	(3.2)	15.8	(3.8)
8 to 15	59.8	(2.8)	66.4	(3.6)	59.0	(4.7)
16 or more	29.7	(2.4)	17.6	(2.5)	25.3	(4.1)
Total	100.0		100.0		100.0	

Overall, 47.9 percent of operations kept records on the number of kids weaned, and 19.3 percent kept records on individual weaning weights. There were no substantial differences by herd size or region in the percentages of operations by weaning records kept.

D.5.e. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by type of weaning records kept, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Weaning records	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Number of kids weaned	50.6	(3.3)	45.7	(2.8)	47.4	(4.5)	50.6	(3.6)	46.8	(2.3)	47.9	(1.9)
Individual weaning weights	21.0	(2.8)	19.3	(2.2)	11.5	(2.7)	21.0	(2.8)	18.6	(1.9)	19.3	(1.6)

There were no substantial differences by primary production of operation in the percentages of operations by weaning records kept.

D.5.f. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations by type of weaning records kept, and by primary production of the operation:

Percent Operations

Primary Production

	Meat		**Dairy**		**Other**	
Weaning records	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Number of kids weaned	48.7	(2.7)	49.5	(3.5)	44.5	(4.2)
Individual weaning weights	21.0	(2.3)	15.9	(2.2)	17.5	(3.6)

For operations that had any kids born, 62.4 percent sold weaned kids. A higher percentage of medium and large operations sold weaned kids (68.4 percent and 73.5 percent, respectively) compared with small operations (53.1 percent). There were no regional differences in the percentage of operations that sold any weaned kids.

D.5.g. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations that sold any weaned kids, by herd size and region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
53.1	(3.4)	68.4	(2.6)	73.5	(3.8)	64.7	(3.5)	61.4	(2.4)	62.4	(2.0)

For operations that had any kids born, a higher percentage of meat operations (66.8 percent) than other operations (52.6 percent) sold any weaned kids.

D.5.h. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations that sold any weaned kids, by primary production of operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
66.8	(2.7)	59.6	(3.4)	52.6	(4.2)

On operations that had any kids born, weaned kids were sold at an average age of 17.6 weeks. Weaned kids on large operations were sold at an older average (20.3 weeks) than weaned kids on small operations (15.7 weeks). There were no regional differences by average age that weaned kids were sold.

D.5.i. For the operations that sold any weaned kids in the previous 12 months* (table D.5.g.), average age (in weeks) at which weaned kids were usually sold, by herd size and region:

Average Age (weeks)

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Avg.	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
15.7	(0.8)	18.3	(0.7)	20.3	(1.1)	18.4	(0.7)	17.2	(0.6)	17.6	(0.5)

*Refers to the 53.5 percent of operations that sold any weaned kids in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), of which 62.4 percent of those operations sold any weaned kids in the previous 12 months (table D.5.g.).

On operations that had any kids born, weaned kids on meat operations were older on average at the time of sale (19.9 weeks) than weaned kids on dairy and other operations (13.5 weeks and 13.3 weeks, respectively).

D.5.j. [D19] For the operations that sold any weaned kids in the previous 12 months* (table D.5.g.), average age (in weeks) at which weaned kids were usually sold, by primary production of operation:

Average Age (weeks)

Primary Production of Operation					
Meat		**Dairy**		**Other**	
Avg.	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
19.9	(0.7)	13.5	(0.6)	13.3	(0.7)

*Refers to the 53.5 percent of operations that sold any weaned kids in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), of which 62.4 percent of those operations sold any weaned kids in the previous 12 months (table D.5.g.).

Overall, there were no differences in the percentages of operations by the average age of weaned kids when sold. A higher percentage of small and medium operations sold weaned kids at an average age of less than 12 weeks (27.5 and 20.2 percent, respectively) than large operations (8.0 percent).

A higher percentage of operations in the East region sold weaned kids at an average age of less than 12 weeks (25.1 percent) than operations in the West (12.9 percent).

D.5.k. For the operations that sold any weaned kids in the previous 12 months* (table D.5.g.), percentage of operations by average age (in weeks) at which weaned kids were usually sold, by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Age (weeks)	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than 12	27.5	(4.3)	20.2	(2.5)	8.0	(1.6)	12.9	(2.6)	25.1	(2.7)	21.5	(2.0)
12 to 15	31.7	(4.5)	24.6	(3.0)	29.8	(5.7)	29.8	(4.1)	26.9	(2.8)	27.7	(2.3)
16 to 23	23.1	(3.6)	28.4	(3.2)	26.9	(4.5)	30.1	(4.0)	24.7	(2.7)	26.3	(2.2)
24 or more	17.7	(3.9)	26.7	(3.1)	35.3	(4.8)	27.2	(4.0)	23.3	(2.8)	24.4	(2.3)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

*Refers to the 53.5 percent of operations that sold any weaned kids in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), of which 62.4 percent of those operations sold any weaned kids in the previous 12 months (table D.5.g.).

The recommended market weight for meat goats ranges from 60 to 100 pounds; dairy goats and goats for other primary uses do not have an at-market weight or size recommendation. In order to get their goats to market weight, meat operations may choose to sell weaned kids at older ages than dairy and other operations. A higher percentage of dairy and other operations sold kids less than 12 weeks old (38.7 percent and 40.6 percent) than meat operations (11.4 percent). Conversely, a higher percentage of meat operations sold weaned kids more than 24 weeks old (31.3 percent) than dairy or other operations (13.1 and 11.1 percent, respectively).

D.5.l. For the operations that sold any weaned kids in the previous 12 months* (table D.5.g.), percentage of operations by average age (in weeks) at which weaned kids were usually sold, and by primary production of operation:

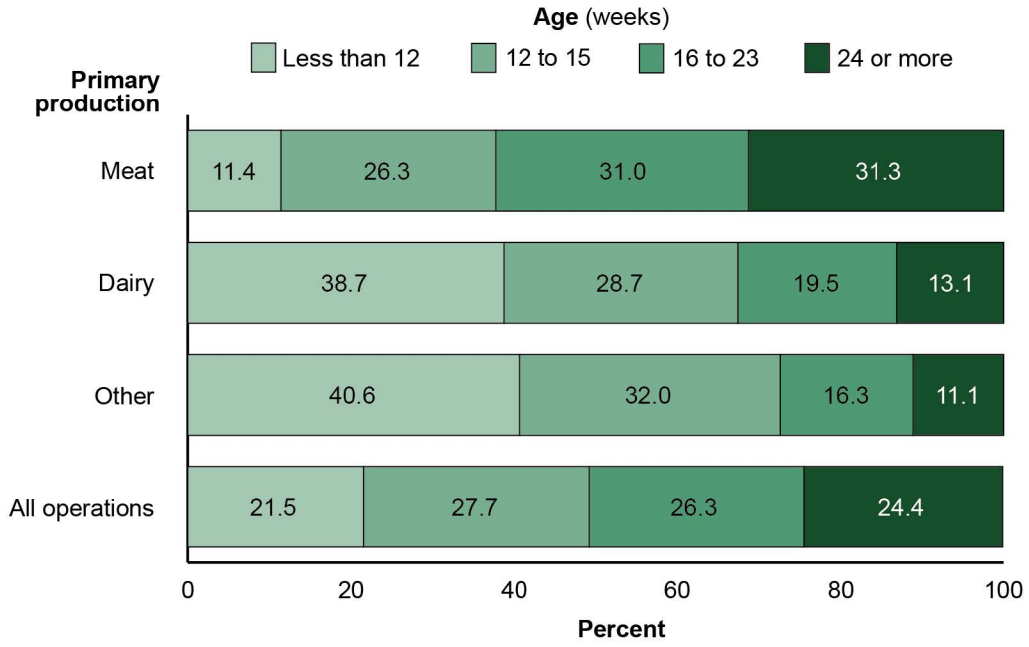
Percent Operations

Primary Production

	Meat		**Dairy**		**Other**	
Age (weeks)	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than 12	11.4	(2.1)	38.7	(4.9)	40.6	(5.9)
12 to 15	26.3	(3.0)	28.7	(3.9)	32.0	(5.8)
16 to 23	31.0	(3.1)	19.5	(3.5)	16.3	(4.6)
24 or more	31.3	(3.3)	13.1	(2.9)	11.1	(3.0)
Total	100.0		100.0		100.0	

*Refers to the 53.5 percent of operations that sold any weaned kids in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), of which 62.4 percent of those operations sold any weaned kids in the previous 12 months (table D.5.g.).

For the operations that sold any weaned kids in the previous 12 months*, percentage of operations by average age (in weeks) at which weaned kids were usually sold, and by primary production of operation



*Refers to the 53.5 percent of operations that sold any weaned kids in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a), of which 62.4 percent of those operations sold any weaned kids in the previous 12 months (table D.5.g).

Producers might weigh kids with a scale on the operation, at the sale barn, or estimate the average weight of their kids. Knowing the weight of kids at sale can be useful to calculate profit margins. Overall, weaned kids averaged 47.7 pounds at sale. The average sale weight of weaned kids increased as herd size increased; weaned kids on small operations weighed an average of 40.4 pounds at sale, on medium operations 50.1 pounds, and on large operations 57.6 pounds.

Weaned kids in the West region were slightly heavier at sale (52.6 pounds) than weaned kids in the East region (45.4 pounds).

D.5.m. For the operations that sold any weaned kids in the previous 12 months* (table D.5.g.), average weight (in pounds) at which weaned kids were usually sold, by herd size and by region:

Average Weight (pounds)

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Avg.	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
40.4	(2.3)	50.1	(1.8)	57.6	(1.8)	52.6	(1.3)	45.4	(1.7)	47.7	(1.3)

*Refers to the 53.5 percent of operations that sold any weaned kids in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), of which 62.4 percent of those operations sold any weaned kids in the previous 12 months (table D.5.g.).

Weaned kids on meat operations averaged 51.9 pounds at sale, while weaned kids on dairy and other operations averaged 39.9 and 36.2 pounds at sale, respectively.

D.5.n. For the operations that sold any weaned kids in the previous 12 months* (table D.5.g.), average weight (in pounds) at which weaned kids were usually sold, by primary production of operation:

Average Weight (pounds)

Primary Production of Operation					
Meat		**Dairy**		**Other**	
Avg.	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
51.9	(1.6)	39.9	(2.3)	36.2	(2.4)

*Refers to the 53.5 percent of operations that sold any weaned kids in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), of which 62.4 percent of those operations sold any weaned kids in the previous 12 months (table D.5.g.).

Overall, 25.6 percent of operations sold weaned kids that averaged less than 35 pounds at sale, and 30.9 percent sold weaned kids that averaged 60 pounds or more at sale. A lower percentage of large operations (8.6 percent) sold weaned kids that averaged less than 35 pounds at sale than small or medium operations (37.4 and 21.9 percent, respectively).

A higher percentage of operations in the East region (32.1 percent) sold kids that weighed less than 35 pounds at sale than operations in the West region (11.8 percent).

D.5.o. For the operations that sold any weaned kids in the previous 12 months* (table D.5.g.), percentage of operations by average weight at which weaned kids were usually sold, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Average weight (pounds)	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than 35	37.4	(4.9)	21.9	(3.1)	8.6	(1.8)	11.8	(2.2)	32.1	(3.2)	25.6	(2.3)
35 to 49	25.3	(4.6)	16.0	(2.6)	11.5	(2.4)	19.2	(3.6)	18.4	(2.7)	18.6	(2.2)
50 to 59	21.4	(4.4)	25.6	(3.2)	31.2	(6.0)	30.8	(4.6)	22.1	(2.7)	24.9	(2.4)
60 or more	15.9	(3.9)	36.5	(3.7)	48.7	(5.4)	38.3	(4.5)	27.4	(3.0)	30.9	(2.5)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

*Refers to the 53.5 percent of operations that sold any weaned kids in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), of which 62.4 percent of those operations sold any weaned kids in the previous 12 months (table D.5.g.).

A higher percentage of dairy and other operations (35.7 percent and 50.7 percent, respectively) sold kids that averaged less than 35 pounds at sale than meat operations (17.8 percent). A higher percentage of meat operations (29.6 percent) sold kids that averaged 50 to 59 pounds at sale than dairy or other operations (15.7 and 12.5 percent, respectively). In addition, a higher percentage of meat operations (36.9 percent) sold kids that averaged 60 or more pounds at sale than dairy (19.0 percent) or other (15.4 percent) operations.

D.5.p. For the operations that sold any weaned kids in the previous 12 months* (table D.5.g.), percentage of operations by average weight at which weaned kids were usually sold, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Average weight (pounds)	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than 35	17.8	(2.8)	35.7	(5.6)	50.7	(6.9)
35 to 49	15.7	(2.5)	29.7	(5.5)	21.3	(6.2)
50 to 59	29.6	(3.1)	15.7	(2.8)	12.5	(4.5)
60 or more	36.9	(3.3)	19.0	(3.4)	15.4	(3.8)
Total	100.0		100.0		100.0	

*Refers to the 53.5 percent of operations that sold any weaned kids in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), of which 62.4 percent of those operations sold any weaned kids in the previous 12 months (table D.5.g.).

6. Disbudding

Most goat breeds develop horns, which are beneficial for protection and heat dissipation. Horned goats, however, can injure handlers and other goats, which is why many operations disbud their kid goats. Disbudding should be done within the first couple of weeks of life, especially for faster-maturing breeds. If kids are not disbudded early in life, they might develop scurs, which are spindly horns that grow despite disbudding.

For operations that had any kids born, 87.9 percent of those operations had kids that developed or were expected to develop horns, and 85.3 percent of kids on those operations developed or were expected to develop horns. There were no differences by herd size or region in the percentage of operations that had kids that developed or were expected to develop horns or the percentage of kids that developed or were expected to develop horns.

D.6.a. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations that had any kids that developed or were expected to develop horns, and percentage of kids born alive* (table D.3.c.) that developed or were expected to develop horns, by herd size and by region:

Percent

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Percent	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Operations	87.3	(2.5)	88.1	(2.0)	89.4	(3.7)	84.5	(2.8)	89.3	(1.7)	87.9	(1.4)
Kids*	82.3	(3.1)	81.0	(2.3)	89.0	(2.2)	84.4	(2.6)	86.1	(1.8)	85.3	(1.5)

*Percentage calculated from the 94.6 percent of kids born alive in the previous 12 months (table D.3.c.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).

There were no differences by primary production of operation in the percentage of operations that had any kids that developed or were expected to develop horns. A higher percentage of kids on dairy operations (91.4 percent) developed or were expected to develop horns than kids on meat operations (82.9 percent).

D.6.b. For the 85.7 percent of operations that had any kids born on the operation from in the previous 12 months (table D.1.a.), percentage of operations that had any kids that developed or were expected to develop horns, and percentage of kids born alive* (table D.3.c.) that developed or were expected to develop horns, by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Percent	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Operations	87.5	(2.0)	92.4	(2.2)	84.8	(3.6)
Kids*	82.9	(2.2)	91.4	(1.8)	85.3	(3.1)

*Percentage calculated from the 94.6 percent of kids born alive in the previous 12 months (table D.3.c.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).

For operations that had any kids born, 29.2 percent disbudded or planned to disbud any kids, and 25.3 percent of all kids were or were expected to be disbudded. There were no differences by herd size or by region in the percentage of operations that had or were expected to disbud kids or the percentage of kids that were or were expected to be disbudded.

A higher percentage of kids in the East region (34.1 percent) than in the West region (14.9 percent) were or were expected to be disbudded.

D.6.c. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations that had any kids that were or were expected to be disbudded, and percentage of kids born alive[2] (table D.3.c.) that were or were expected to be disbudded, by herd size and by region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Percent	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Operations[1]	26.4	(2.4)	30.8	(2.3)	33.2	(4.2)	27.0	(2.8)	30.0	(1.8)	29.2	(1.5)
Kids[2]	20.0	(2.2)	22.3	(2.0)	28.5	(5.3)	14.9	(1.9)	34.1	(4.7)	25.3	(3.0)

[1]Includes operations that did not have kids that had horns or were expected to have horns.

[2]Percentage calculated from the 94.6 percent of kids born alive in the previous 12 months (table D.3.c.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).

A higher percentage of dairy operations (64.4 percent) disbudded or planned to disbud any kids compared with meat operations (16.5 percent) or other operations (33.0 percent). A lower percentage of kids on meat operations (9.1 percent) were or were expected to be disbudded compared with kids on dairy operations (67.3 percent) or other operations (22.8 percent).

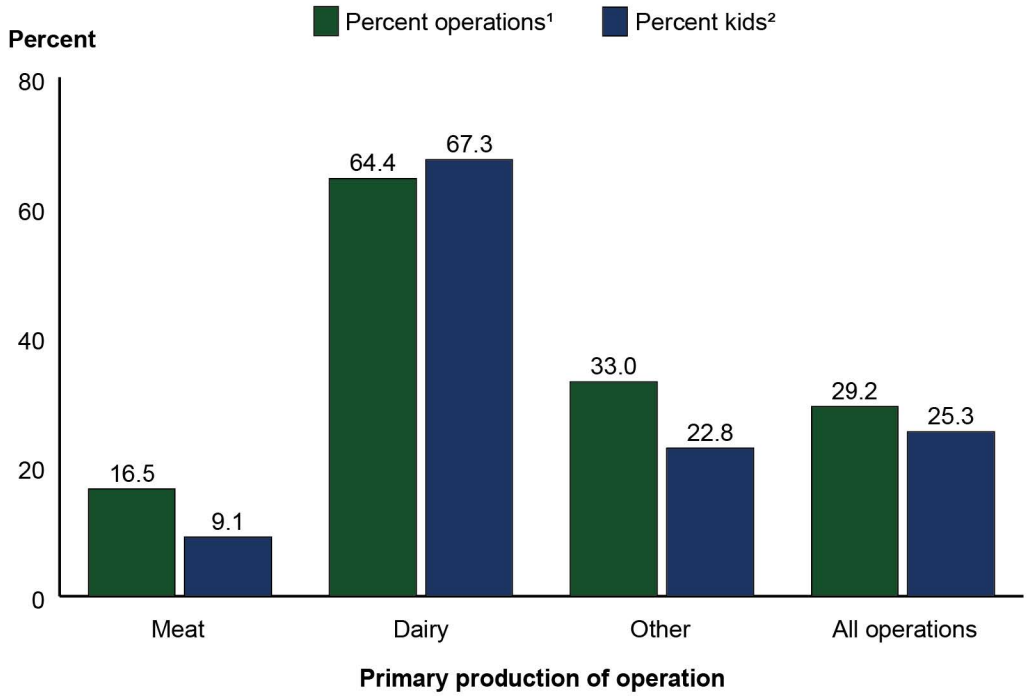
D.6.d. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations that had any kids that were or were expected to be disbudded, and percentage of kids born alive[2] (table D.3.c.) that were or were expected to be disbudded, by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Percent	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Operations[1]	16.5	(1.9)	64.4	(3.8)	33.0	(3.8)
Kids[2]	9.1	(1.4)	67.3	(5.6)	22.8	(4.1)

[1]Includes operations that did not have kids that had horns or were expected to have horns.

[2]Percentage calculated from the 94.6 percent of kids born alive in the previous 12 months (table D.3.c.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).

For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months, percentage of operations that had any kids that were or were expected to be disbudded, and percentage of kids born alive that were or were expected to be disbudded, by primary production of operation



[1]Includes operations that did not have any kids that had or were expected to have horns.
[2]Percentage calculated from the 94.6 percent of kids born alive in the previous 12 months (table D.3.c) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a).

In general, kids should be disbudded within 4 to 14 days of age. Additionally, disbudding kids at this age using proper techniques will decrease the number of goats that develop scurs or other injuries associated with disbudding, such as infection and brain trauma.

Overall, kids were an average of 16.3 days old when disbudded. There were no regional or herd size differences by age of kids at disbudding.

D.6.e. For operations that disbudded kids* (table D.6.c.), average age of kids (in days) when disbudded, by herd size and by region:

Average Age (days)

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Avg.	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
17.4	(1.3)	15.6	(1.9)	16.1	(1.3)	21.8	(3.0)	14.3	(1.0)	16.3	(1.1)

*Refers to the 25.3 percent of kids born alive that were or were expected to be disbudded (table D.6.c.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).

There were no differences by primary production of operation in the average age of kids at disbudding.

D.6.f. For operations that disbudded kids* (table D.6.c.), average age of kids (in days) when disbudded, by primary production of operation:

Average Age (days)

Primary Production of Operation					
Meat		**Dairy**		**Other**	
Avg.	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
20.2	(2.8)	14.6	(1.1)	13.9	(1.2)

*Refers to the 25.3 percent of kids born alive that were or were expected to be disbudded (table D.6.c.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).

About one-half of all operations (50.3 percent) disbudded kids before they were an average of 14 days old, and one-fourth of operations (28.3 percent) disbudded kids at 21 days of age or older; however, at 21 days of age or older, the process is actually considered dehorning, not disbudding.

There were no differences by herd size or region in the percentages of operations by average age of kids when disbudded.

D.6.g. For operations that disbudded kids* (table D.6.c.), percentage of operations by average age (in days) when kids were disbudded, by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Average age (days)	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than 7	11.0	(2.5)	17.2	(3.2)	14.0	(6.6)	12.6	(3.0)	15.2	(2.6)	14.5	(2.3)
7 to 13	30.6	(4.4)	40.2	(4.6)	33.0	(7.0)	27.6	(4.9)	38.8	(3.6)	35.8	(2.2)
14 to 20	25.8	(4.9)	19.2	(3.3)	16.3	(3.4)	21.0	(4.6)	21.6	(3.1)	21.4	(2.4)
21 or more	32.6	(5.4)	23.4	(4.0)	36.8	(9.1)	38.7	(6.1)	24.5	(3.4)	28.3	(2.5)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

*Refers to the 25.3 percent of kids born alive that were or were expected to be disbudded (table D.6.c.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).

There were no differences by primary production of operation in the percentage of operations by average age of kids when disbudded.

D.6.h. For operations that disbudded kids* (table D.6.c.), percentage of operations by average age (in days) when kids were disbudded, by primary production of the operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Average age (days)	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than 7	9.6	(2.9)	12.8	(2.2)	24.3	(6.1)
7 to 13	30.0	(5.7)	41.9	(3.6)	33.0	(6.9)
14 to 20	20.4	(5.4)	24.4	(3.0)	17.7	(4.8)
21 or more	40.0	(6.8)	20.9	(3.8)	25.0	(5.0)
Total	100.0		100.0		100.0	

*Refers to the 25.3 percent of kids born alive that were or were expected to be disbudded (table D.6.c.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).

An electric dehorner/debudder was the primary disbudding method used on almost all operations (95.7 percent). There were no differences by herd size in the percentages of operations by primary method used for disbudding.

A higher percentage of operations in the West region (7.6 percent) than in the East region (0.5 percent) used primary methods other than electric dehorner/debudder and caustic paste for disbudding, including disbudding by a veterinarian, rubber bands, and shears.

D.6.i. For operations that disbudded kids[1] (table D.6.c.), percentage of operations by primary method used for disbudding, by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Primary method	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Electric dehorner/ debudder, hot iron	96.4	(2.1)	94.7	(2.7)	98.2	(0.5)	91.5	(4.8)	97.3	(1.3)	95.7	(1.6)
Caustic paste	0.9	(0.9)	2.8	(1.7)	0.5	(0.2)	0.9	(0.8)	2.2	(1.2)	1.8	(0.9)
Other[2]	2.7	(1.9)	2.5	(2.2)	1.4	(0.4)	7.6	(4.7)	0.5	(0.3)	2.4	(1.3)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

[1]Refers to the 25.3 percent of kids born alive that were or were expected to be disbudded (table D.6.c.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).
[2]Substantial others included veterinarian's choice, rubber bands, and shears.

An electric dehorner/debudder or hot iron was the primary method used for disbudding kids on 93.3 percent of meat operations, 95.8 percent of dairy operations, and 99.0 percent of other operations.

D.6.j. For operations that disbudded kids[1] (table D.6.c.), percentage of operations by primary method used for disbudding, by primary production of operation:

Percent Operations

	Primary Production					
	Meat		Dairy		Other	
Primary method	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Electric dehorner/ debudder, hot iron	93.3	(3.9)	95.8	(1.9)	99.0	(0.7)
Caustic paste	3.2	(2.4)	1.2	(0.8)	1.0	(0.7)
Other[2]	3.5	(3.2)	3.0	(1.8)	0.0	(—)
Total	100.0		100.0		100.0	

[1]Refers to the 25.3 percent of kids born alive that were or were expected to be disbudded (table D.6.c.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).
[2]Substantial others included veterinarian's choice, rubber bands, and shears.

Analgesics or anesthetics reduce pain during the disbudding procedure and were used routinely on 30.4 percent of operations when disbudding kids. There were no differences across herd sizes or regions in the percentage of operations that routinely used analgesics or anesthetics when disbudding kids.

D.6.k. For operations that disbudded kids* (table D.6.c.), percentage of operations that routinely used analgesics or anesthetics when disbudding, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						Region					
Small (5–19)		Medium (20–99)		Large (100 or More)		West		East		All operations	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
34.8	(5.3)	29.4	(4.3)	19.1	(6.4)	31.3	(5.9)	30.0	(3.6)	30.4	(3.1)

*Refers to the 25.3 percent of kids born alive that were or were expected to be disbudded (table D.6.c.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).

There were no differences by primary production of operation in the percentage of operations that routinely used analgesics or anesthetics when disbudding kids.

D.6.l. For operations that disbudded kids* (table D.6.c.), percentage of operations that routinely used analgesics or anesthetics when disbudding, by primary production of operation:

Percent Operations					
Primary Production					
Meat		Dairy		Other	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
34.7	(6.7)	28.4	(3.4)	27.8	(5.9)

*Refers to the 25.3 percent of kids born alive that were or were expected to be disbudded (table D.6.c.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).

The operator typically performed disbudding procedures on 75.0 percent of all operations. A veterinarian performed disbudding procedures on 16.5 percent of operations. The operator disbudded kids on a higher percentage of large operations (89.8 percent) than on small and medium operations (71.0 percent and 74.8 percent, respectively).

There were no differences by region in the percentages of operations by person who typically performed disbudding procedures.

D.6.m. For operations that disbudded kids[1] (table D.6.c.), percentage of operations by person who typically performed disbudding procedures, by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Person	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Owner	71.0	(4.7)	74.8	(4.3)	89.8	(2.3)	80.1	(4.4)	73.1	(3.5)	75.0	(2.9)
Herd manager	0.5	(0.4)	1.4	(0.4)	5.0	(1.4)	2.3	(0.6)	1.1	(0.3)	1.4	(0.3)
Veterinarian	18.5	(4.4)	18.2	(4.1)	1.7	(0.6)	11.3	(4.2)	18.4	(3.3)	16.5	(2.7)
Other[2]	10.1	(2.2)	5.7	(2.2)	3.4	(1.3)	6.3	(1.5)	7.4	(1.8)	7.1	(1.4)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

[1]Refers to the 25.3 percent of kids born alive that were or were expected to be disbudded (table D.6.c.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).
[2]Substantial others included friend, relative, another herd owner, or neighbor.

There were no differences by primary production of operation in the percentages of operations by person who typically performed disbudding procedures.

D.6.n. For operations that disbudded kids[1] (table D.6.c.), percentage of operations by person who typically performed disbudding procedures, by primary production of operation:

Percent Operations

	Primary Production					
	Meat		Dairy		Other	
Personnel	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Owner	72.7	(6.6)	77.8	(2.9)	73.2	(5.2)
Herd manager	0.6	(0.3)	2.3	(0.6)	1.1	(0.5)
Veterinarian	21.3	(6.5)	13.6	(2.7)	14.8	(4.1)
Other[2]	5.4	(2.6)	6.3	(1.2)	11.0	(3.8)
Total	100.0		100.0		100.0	

[1]Refers to the 25.3 percent of kids born alive that were or were expected to be disbudded (table D.6.c.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).
[2]Substantial others included friend, relative, another herd owner, or neighbor.

Almost all operations (94.6 percent) checked kids for horn buds before disbudding. There were no differences by herd size or region in the percentage of operations that checked kids for horn buds before disbudding.

D.6.o. For operations that disbudded kids* (table D.6.c.), percentage of operations that checked kids for horn buds before disbudding, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						Region					
Small (5–19)		Medium (20–99)		Large (100 or More)		West		East		All operations	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
94.2	(3.5)	94.8	(2.1)	94.6	(1.6)	98.1	(0.7)	93.3	(2.3)	94.6	(1.7)

*Refers to the 25.3 percent of kids born alive that were or were expected to be disbudded (table D.6.c.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).

There was no difference by primary production of operation in the percentage of operations that checked kids for horn buds before disbudding.

D.6.p. For operations that disbudded kids* (table D.6.c.), percentage of operations that checked kids for horn buds before disbudding, by primary production of the operation:

Percent Operations					
Primary Production					
Meat		Dairy		Other	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
91.5	(3.3)	94.9	(2.9)	98.5	(0.9)

*Refers to the 25.3 percent of kids born alive that were or were expected to be disbudded (table D.6.c.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).

7. Castration

Operations might choose to castrate young bucks to prevent them from breeding with does, minimize behaviors seen in intact bucks, or due to marketing requests. Common methods used for castration include banding, crushing the testicular cords with a clamp/ burdizzo, or surgically removing the testicles with a blade. In general, bucks should be castrated at a young age to decrease stress and the potential for complications.

Overall, 45.7 percent of operations had any buck kids that had been or were expected to be castrated, and 37.5 percent of buck kids were or were expected to be castrated. There were no differences by herd size in the percentage of operations that had any buck kids that had been or were expected to be castrated, nor were there any differences in the percentage of buck kids that had been or were expected to be castrated.

A higher percentage of buck kids in the West region (45.1 percent) than in the East region (31.0 percent) had been or were expected to be castrated.

D.7.a. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations that had any buck kids that had been or were expected to be castrated, and percentage of buck kids that had been or were expected to be castrated, by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Percent	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Operations	44.2	(3.2)	46.8	(2.8)	47.0	(4.4)	49.6	(3.5)	44.1	(2.3)	45.7	(1.9)
Kids*	35.2	(3.4)	37.8	(2.8)	37.8	(4.5)	45.1	(4.1)	31.0	(3.0)	37.5	(2.6)

*Percentage calculated assuming 50.0 percent of the 94.6 percent of kids born alive in the previous 12 months were bucks (table D.3.c.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).

There were no differences by primary production of operation in the percentage of operations that had or were expected to castrate buck kids. A higher percentage of buck kids on meat operations and other operations (41.5 percent and 45.5 percent) had been or were expected to be castrated than buck kids on dairy operations (22.7 percent).

D.7.b. For the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), percentage of operations that had any buck kids that had been or were expected to be castrated, and percentage of buck kids that had been or were expected to be castrated, by primary production of operation:

Percent Operations

Primary Production

	Meat		Dairy		Other	
Percent	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Operations	42.0	(2.6)	47.3	(3.5)	54.7	(4.2)
Kids*	41.5	(3.3)	22.7	(4.3)	45.5	(5.2)

*Percentage calculated assuming 50.0 percent of the 94.6 percent of kids born alive in the previous 12 months were bucks (table D.3.c.) on the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.).

Buck kids were castrated at an average of 58.5 days of age on all operations. There were no differences by herd size or region in the average age of buck kids when castrated.

D.7.c. For operations that castrated any buck kids* (table D.7.a.), average age of bucks (in days) when castrated, by herd size and by region:

Average Age (days)

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Avg.	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
55.1	(4.5)	62.8	(3.8)	50.8	(4.6)	57.7	(4.8)	58.9	(3.3)	58.5	(2.7)

*Refers to the 39.2 percent of operations that castrated any buck kids born on the operation in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), of which 45.7 percent of those operations castrated any buck kids that were born on the operation in the previous 12 months (table D.7.a.).

There were no differences by primary production of operation in the percentage of operations by average age of buck kids when castrated.

D.7.d. For operations that castrated any buck kids* (table D.7.a.), average age of bucks (in days) when castrated, by primary production of the operation:

Average Age (days)

Primary Production of Operation

Meat		Dairy		Other	
Avg.	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
55.9	(3.3)	56.7	(6.0)	65.7	(6.4)

*Refers to the 39.2 percent of operations that castrated any buck kids born on the operation in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), of which 45.7 percent of those operations castrated any buck kids that were born on the operation in the previous 12 months (table D.7.a.).

Overall, 29.6 percent of operations castrated buck kids at an average age of less than 30 days, while 23.6 percent of operations castrated buck kids at an average age of 90 or more days. There were no differences by herd size or regions in the percentage of operations by average age of buck kids when castrated.

D.7.e. For operations that castrated any buck kids* (table D.7.a.), percentage of operations by average age of buck kids (in days) when castrated, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Average age (days)	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than 30	36.9	(4.5)	22.7	(2.9)	34.2	(7.0)	27.0	(4.4)	30.9	(3.1)	29.6	(2.5)
30 to 59	25.4	(4.3)	33.2	(3.8)	37.7	(6.4)	36.8	(4.7)	27.3	(3.3)	30.4	(2.7)
60 to 89	14.9	(3.2)	18.6	(2.9)	11.7	(2.4)	12.2	(2.2)	18.4	(2.8)	16.4	(2.0)
90 or more	22.8	(4.3)	25.6	(3.4)	16.4	(3.2)	24.0	(4.1)	23.4	(3.1)	23.6	(2.5)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

*Refers to the 39.2 percent of operations that castrated any buck kids born on the operation in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), of which 45.7 percent of those operations castrated any buck kids that were born on the operation in the previous 12 months (table D.7.a.).

There were no differences by primary production of operation in the percentage of operations by average age of buck kids when castrated.

D.7.f. For operations that castrated any buck kids* (table D.7.a.), percentage of operations by average age (in days) when buck kids were castrated, and by primary production of the operation:

Percent Operations

	Primary Production					
	Meat		Dairy		Other	
Average age (days)	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than 30	27.8	(3.5)	39.1	(5.0)	26.3	(4.9)
30 to 59	30.5	(3.8)	28.2	(4.6)	31.9	(5.6)
60 to 89	19.0	(3.2)	12.2	(2.4)	14.1	(3.2)
90 or more	22.8	(3.6)	20.6	(3.8)	27.7	(5.1)
Total	100.0		100.0		100.0	

*Refers to the 39.2 percent of operations that castrated any buck kids born on the operation in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), of which 45.7 percent of those operations castrated any buck kids that were born on the operation in the previous 12 months (table D.7.a.).

Overall, 85.9 percent of operations used a rubber band to castrate buck kids, and 9.4 percent used a blade. There were no differences by herd size or region in the percentages of operations by castration method used.

D.7.g. For operations that castrated buck kids* (table D.7.a.), percentage of operations by primary method used for castration, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Primary method	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Remove testicles with a blade	10.1	(2.5)	7.6	(2.1)	15.9	(3.1)	7.9	(1.8)	10.2	(2.0)	9.4	(1.5)
Clamp/burdizzo (e.g., crush cords)	1.7	(0.9)	5.2	(2.1)	11.4	(4.7)	4.3	(1.8)	4.4	(1.6)	4.4	(1.2)
Rubber band (elastrator band)	87.6	(2.7)	87.1	(2.8)	72.7	(5.3)	87.0	(2.5)	85.4	(2.5)	85.9	(1.9)
Other	0.5	(0.5)	0.0	(0.0)	0.0	(—)	0.7	(0.6)	0.0	(—)	0.2	(0.2)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

*Refers to the 39.2 percent of operations that castrated any buck kids born on the operation in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), of which 45.7 percent of those operations castrated any buck kids that were born on the operation in the previous 12 months (table D.7.a.).

There were no differences by primary production of operation in the percentage by primary method used for castration.

D.7.h. For operations that castrated buck kids* (table D.7.a.), percentage of operations by primary method of castration, and by primary production of the operation:

Percent Operations

	Primary Production					
	Meat		Dairy		Other	
Primary method	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Remove testicles with a blade	7.9	(1.8)	7.9	(2.3)	14.0	(3.7)
Clamp/burdizzo (e.g., crush cords)	5.7	(2.1)	3.7	(1.3)	2.2	(0.9)
Rubber band (elastrator band)	86.5	(2.7)	87.2	(2.8)	83.8	(3.8)
Other	0.0	(—)	1.2	(1.1)	0.0	(—)
Total	100.0		100.0		100.0	

*Refers to the 39.2 percent of operations that castrated any buck kids born on the operation in the previous 12 months. This estimate comes from the 85.7 percent of operations that had any kids born on the operation in the previous 12 months (table D.1.a.), of which 45.7 percent of those operations castrated any buck kids that were born on the operation in the previous 12 months (table D.7.a.).

E. Health Management

Managing goat diseases such as sore mouth, tuberculosis, and brucellosis is very important, as these diseases are zoonotic and can be spread to humans through direct or indirect contact with the goats or goat products. Additionally, managing prevention methods against these diseases on the operation will decrease costs and result in healthier goats. Working with a veterinarian to develop a herd health management plan can help maintain healthy goats and protect humans on the operation. Throughout this section the term “in the previous 12 months” refers to the period from July 1, 2018, to June 30, 2019.

1. Sore mouth (contagious ecthyma, orf)

Scabs around the mouth, feet, or udder may be a sign of poxvirus infection, a cause of contagious ecthyma, also known as orf or sore mouth. Sore mouth is a zoonotic disease, meaning it is capable of infecting people as well as goats. People, therefore, should take precautions such as wearing gloves, washing their hands, and covering cuts and scrapes when handling goats with scabs. More information on sore mouth in humans is available at: www.cdc.gov/az/s.html

Overall, 10.2 percent of all operations had any goats with signs of sore mouth. A higher percentage of large operations (21.5 percent) had any goats with signs of sore mouth than small operations (7.3 percent). There were no regional differences in the percentage of operations that had any goats with signs of sore mouth.

E.1.a. Percentage of operations that had any goats with signs of sore mouth in the previous 12 months, by herd size and region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
7.3	(1.6)	11.3	(1.7)	21.5	(3.8)	12.2	(2.2)	9.4	(1.3)	10.2	(1.1)

There were no differences by primary production of operation in the percentage of operations that had any goats with signs of sore mouth.

E.1.b. Percentage of operations that had any goats with signs of sore mouth in the previous 12 months, by primary production of operation:

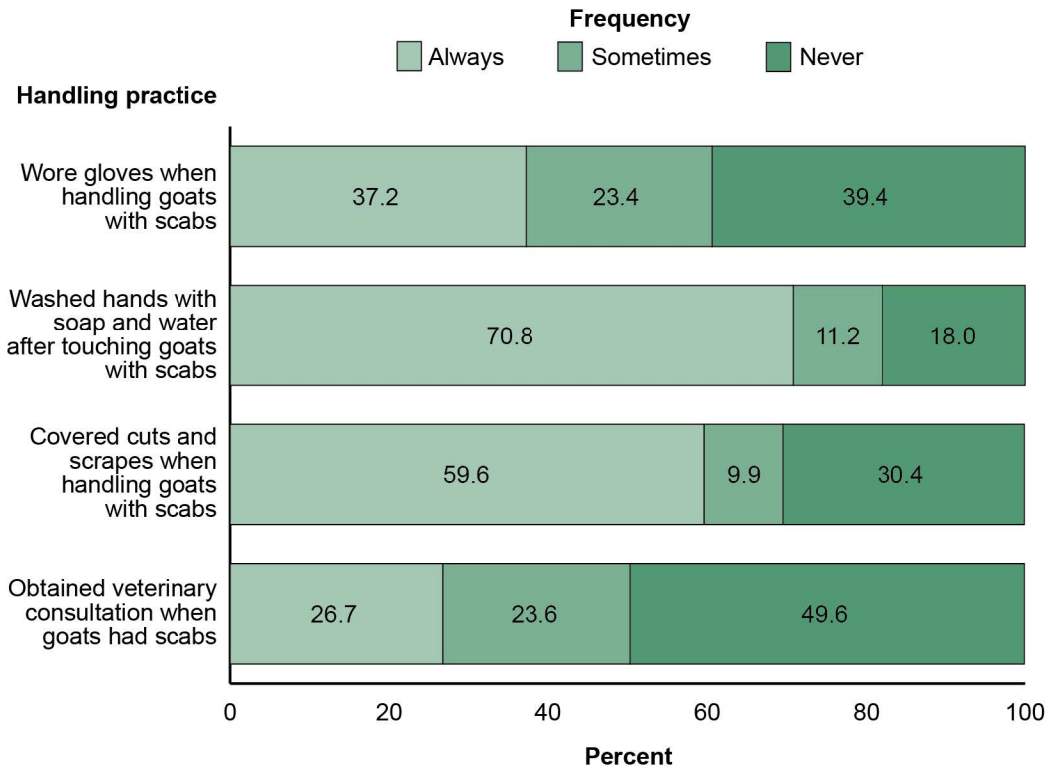
Percent Operations					
Primary Production					
Meat		Dairy		Other	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
10.5	(1.6)	7.7	(1.6)	11.4	(2.6)

For operations that had any goats with signs of sore mouth, 70.8 percent always required that people washed their hands with soap and water after touching goats with scabs, and 59.6 percent required that people always cover their cuts and scrapes when handling goats with scabs. However, 39.4 percent of operations never required that people wear gloves when handling goats with scabs, and 49.6 percent never consulted a veterinarian when they had goats with scabs.

E.1.c. For the 10.2 percent of operations that had any goats with signs of sore mouth (table E.1.a.), percentage of operations by handling practice used to handle goats with scabs, and by frequency that handling practices were implemented:

Percent Operations						
Frequency						
	Always		Sometimes		Never	
Handling practice	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
Wore gloves when handling goats with scabs	37.2	(5.9)	23.4	(4.8)	39.4	(5.9)	100.0
Washed hands with soap and water after touching goats with scabs	70.8	(5.3)	11.2	(3.4)	18.0	(4.6)	100.0
Covered cuts and scrapes when handling goats with scabs	59.6	(5.6)	9.9	(2.8)	30.4	(5.3)	100.0
Obtained veterinary consultation when goats had scabs	26.7	(5.6)	23.6	(5.3)	49.6	(5.9)	100.0

For the 10.2 percent of operations that had any goats with signs of sore mouth, percentage of operations by handling practice used to handle goats with scabs, and by frequency that handling practices were implemented



2. Brucellosis

Brucellosis is caused by a zoonotic bacterium that can spread to humans through the ingestion of unpasteurized dairy products, the consumption of undercooked meat, inhalation of airborne agents, or direct exposure of skin wounds or mucous membranes. *Brucella melitensis* is one of the most common pathogens of brucellosis in sheep and goats worldwide and can cause abortion, retained placenta, and testicular swelling. *B. melitensis* is not found in the United States and would be considered a foreign animal disease if discovered. The last *Brucella melitensis* case in the United States was reported in 1999 in Texas. In humans, brucellosis causes symptoms similar to the flu, including fever, joint pain, and fatigue. Antibiotics are used to treat human brucellosis infections.

Overall, 7.5 percent of all operations tested any goats for brucellosis during the previous 3 years. The percentage of operations that had goats tested for brucellosis did not differ by herd size or region.

E.2.a. Percentage of operations that had any goats tested for brucellosis during the previous 3 years, by herd size and region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
5.5	(1.3)	9.2	(1.4)	9.9	(2.2)	7.0	(1.3)	7.6	(1.1)	7.5	(0.9)

A higher percentage of dairy operations (14.9 percent) than meat operations (5.0 percent) had tested any goats for brucellosis during the previous 3 years.

E.2.b.Percentage of operations that had any goats tested for brucellosis during the previous 3 years, by primary production of the operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
5.0	(1.2)	14.9	(2.4)	7.4	(1.7)

About one-fourth of operations tested goats for brucellosis for the following reasons: a concern for milk safety (26.5 percent), movement requirement (26.1 percent), veterinarian recommendation (23.4 percent), and show or exhibition requirement (21.4 percent). There were no differences in the percentages of operations by reason for testing goats for brucellosis.

E.2.c. For the 7.5 percent of operations that tested any goats for brucellosis during the previous 3 years (table E.2.a.), percentage of operations by reason(s) for testing:

Reason for testing	Percent operations	Std. error
Movement requirement	26.1	(4.6)
Show or exhibition requirement	21.4	(5.8)
Veterinarian (nonregulatory, private practitioner) recommendation	23.4	(5.4)
State requirement	11.7	(3.3)
Concern for milk safety	26.5	(5.1)
Other*	16.7	(5.2)

*Substantial others included personal interest/precaution, for a sale.

Brucellosis can be diagnosed by testing blood, tissue, or milk. Blood tests identify antibodies in animals that have previously been exposed to brucellosis and are more accurate than tissue and milk testing, which attempt to isolate the bacterial organism. For operations that tested for brucellosis during the previous 3 years, 91.5 percent used only a blood test for brucellosis testing.

E.2.d. For the 7.5 percent of operations that tested any goats for brucellosis during the previous 3 years (table E.2.a.), percentage of operations by type of test used:

Brucellosis test type	Percent operations	Std. error
Blood test (only)*	91.5	(4.2)
Other test (only)*	4.8	(4.1)
Both blood test and another test	0.5	(0.4)
Don’t know	3.2	(1.4)
Total	100.0	

*Includes operations that indicated they had performed the respective test but did not know whether the other test type was performed.

For the 7.5 percent of operations that tested for brucellosis during the previous 3 years, 46.8 percent were certified as brucellosis-free. A certified brucellosis-free herd is a cooperative State/Federal certification program. With the success of brucellosis eradication nationwide (except in the Greater Yellowstone Area), States have a free status, and few require testing for interstate movement, regardless of individual herd status. Herds are more likely to obtain a certified brucellosis-free status for animal and product marketing purposes.

E.2.e. For the 7.5 percent of operations that tested for brucellosis during the previous 3 years (table E.2.a.), percentage of operations certified as brucellosis-free:

Percent operations	Std. error
46.8	(6.1)

3. Tuberculosis (TB)

Tuberculosis (TB) is a chronic disease most often caused in goats by the bacterium *Mycobacterium bovis (M. bovis)*. Signs of TB infection in goats include coughing and weight loss. TB caused by *M. bovis* can be transmitted to humans and is known as zoonotic TB. Humans can be infected by zoonotic TB through ingestion of unpasteurized dairy products, consumption of undercooked meat, inhalation of airborne agents, or direct exposure of skin wounds or mucous membranes.

Less than 5 percent of all operations had tested any goats for TB during the previous 3 years. There were no differences by herd sizes or region in the percentage of operations that tested any goats for TB during the previous 3 years.

E.3.a. Percentage of operations that had tested any goats for TB during the previous 3 years, by herd size and region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
3.1	(0.8)	6.6	(1.1)	7.0	(1.3)	5.5	(1.2)	4.7	(0.8)	4.9	(0.6)

A higher percentage of dairy operations (10.0 percent) than meat operations (2.9 percent) tested any goats for TB in the previous 3 years.

E.3.b. Percentage of operations that had tested any goats for TB during the previous 3 years, by primary production of operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
2.9	(0.8)	10.0	(1.6)	5.7	(1.6)

About one-third of operations that tested any goats for TB (32.3 percent) tested the goats because of a movement requirement or because of a show or exhibition requirement (26.9 percent). For operations that had tested any goats for TB during the previous 3 years, there were no differences in the percentages of operations by reason for testing.

E.3.c. For the 4.9 percent of operations that tested any goats for TB during the previous 3 years (table E.3.a.), percentage of operations by reason(s) for testing for TB:

Reason for testing	Percent operations	Std. error
Movement requirement	32.3	(5.7)
Show or exhibition requirement	26.9	(6.6)
Veterinarian (nonregulatory, private practitioner) recommendation	22.1	(6.0)
State requirement	21.8	(5.6)
Other*	18.5	(4.6)

*Substantial others included safety and sales.

Of the 4.9 percent of operations that tested any goats for TB during the previous 3 years, 59.4 percent were accredited as TB-free. TB-free Accreditation is a State/ Federal program that allows for easier movement of animals between States with TB requirements. Additionally, operations may choose to be accredited as TB-free for animal and product marketing purposes.

E.3.d. For the 4.9 percent of operations that tested for TB during the previous 3 years (table E.3.a.), percentage of operations accredited as TB-free:

Percent operations	Std. error
59.4	(6.1)

4. Use of a veterinarian

A veterinarian knowledgeable about goat production can be a great resource for improving goat health and management. Overall, operators on 49.8 percent of operations had consulted a veterinarian for any reason related to goat health, productivity, or management. Operators on a higher percentage of large operations (59.5 percent) than small operations (45.0 percent) had consulted a veterinarian.

E.4.a. Percentage of operations in which the operator had consulted a veterinarian for any reason related to goat health, productivity, or management in the previous 12 months, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
45.0	(3.0)	53.3	(2.7)	59.5	(4.2)	43.5	(3.3)	52.3	(2.2)	49.8	(1.9)

Operators on a higher percentage of dairy operations (61.8 percent) than meat (47.1 percent) and other (46.8 percent) operations had consulted a veterinarian.

E.4.b.Percentage of operations in which the operator had consulted a veterinarian for any reason related to goat health, productivity, or management in the previous 12 months, by primary production of operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
47.1	(2.7)	61.8	(3.5)	46.8	(3.7)

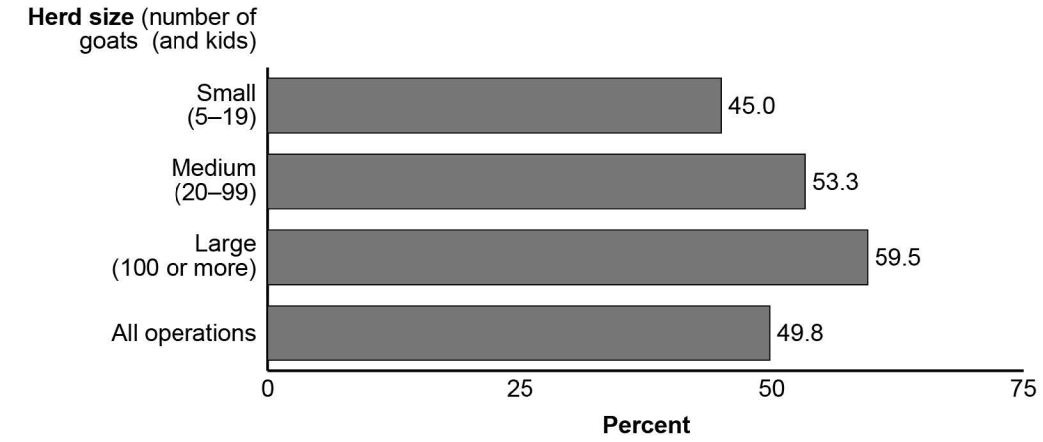
Overall, operators on 60.6 percent of the 49.8 percent of operations in which the operator consulted a veterinarian consulted the veterinarian by phone (including text) or email. Operators on a higher percentage of operations consulted a veterinarian for emergency visits (57.9 percent) than regular or routine visits (46.8 percent). Operators on a higher percentage of medium operations (67.3 percent) than small operations (51.2 percent) consulted a veterinarian by phone (including text) or email.

E.4.c. For the 49.8 percent of operations in which the operator consulted a veterinarian for any reason related to goat health, productivity, or management in the previous 12 months (table E.4.a.), percentage of operations by reason(s) for and method(s) of consultation, by herd size and region:

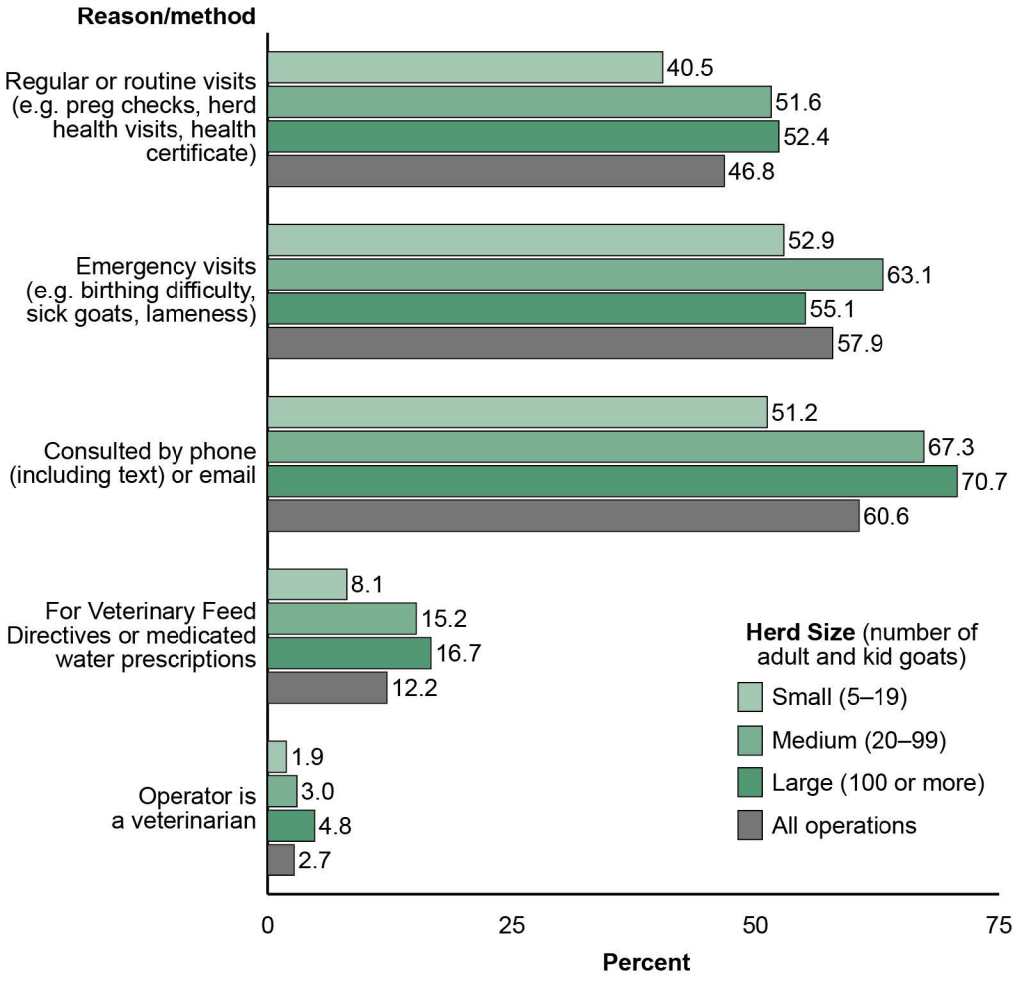
Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Reason/method	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Regular or routine visits (e.g., pregnancy checks, herd health visits, health certificate)	40.5	(3.9)	51.6	(3.5)	52.4	(5.9)	37.0	(4.6)	50.0	(3.0)	46.8	(2.5)
Emergency visits (e.g., birthing difficulty, sick goats, lameness)	52.9	(4.4)	63.1	(3.4)	55.1	(6.0)	64.4	(4.6)	55.7	(3.1)	57.9	(2.6)
Consultation by phone (including text) or email	51.2	(4.4)	67.3	(3.4)	70.7	(5.2)	65.7	(4.8)	58.9	(3.0)	60.6	(2.5)
For Veterinary Feed Directives or medicated water prescriptions	8.1	(2.3)	15.2	(2.3)	16.7	(3.3)	11.0	(2.2)	12.6	(1.9)	12.2	(1.5)
Operator is a veterinarian	1.9	(0.6)	3.0	(1.2)	4.8	(2.1)	2.3	(0.7)	2.8	(0.9)	2.7	(0.7)

Percentage of operations in which the operator had consulted a veterinarian for any reason related to goat health, productivity, or management from July 1, 2018, through June 30, 2019, by herd size



For the 49.8 percent of operations in which the operator consulted a veterinarian, percentage of operations by reason(s) for and method(s) of consultation, and by herd size



Operators on a higher percentage of other operations (58.0 percent) than on meat operations (39.4 percent) consulted a veterinarian for regular or routine visits.

E.4.d. For the 49.8 percent of operations in which the operator consulted a veterinarian for any reason related to goat health, productivity, or management in the previous 12 months (table E.4.a.), percentage of operations by reason(s) for and method(s) of consultation, by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Reason/method	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Regular or routine visits (e.g., pregnancy checks, herd health visits, health certificate)	39.4	(3.9)	52.4	(3.8)	58.0	(5.1)
Emergency visits (e.g., birthing difficulty, sick goats, lameness)	59.8	(3.9)	55.0	(3.8)	56.3	(5.2)
Consultation by phone (including text) or email	57.0	(3.8)	65.6	(3.8)	63.8	(5.0)
For Veterinary Feed Directives or medicated water prescriptions	13.8	(2.3)	13.6	(3.0)	7.5	(2.0)
Operator is a veterinarian	2.1	(0.9)	3.2	(1.1)	3.4	(1.5)

Of the 50.2 percent of operations in which the operator did not consult a veterinarian, operators on 82.2 percent indicated that the primary reason for not doing so was that a veterinarian was not needed on the operation. Operators on less than 10 percent of operations indicated that they did not consult a veterinarian because none were available in the local area (1.6 percent), or that a veterinarian was available, but he or she was not knowledgeable about goats (6.0 percent).

E.4.e. For the 50.2 percent of operations that did not consult a veterinarian for any reason related to goat health, productivity, or management in the previous 12 months* (table E.4.a.), percentage of operations by primary reason for not consulting a veterinarian, by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Reason	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Veterinarian available in the local area but not knowledgeable about goats	7.0	(2.4)	4.8	(1.5)	5.9	(2.8)	2.5	(1.0)	7.7	(2.0)	6.0	(1.4)
No veterinarian available in the local area	0.7	(0.5)	2.4	(1.3)	3.3	(1.5)	2.8	(1.4)	1.0	(0.6)	1.6	(0.6)
Too expensive	5.7	(1.6)	11.4	(2.5)	7.9	(2.0)	3.5	(0.8)	10.4	(1.9)	8.2	(1.3)
No veterinarian needed on this operation	84.4	(2.9)	79.3	(3.2)	82.9	(3.7)	88.7	(2.2)	79.1	(2.8)	82.2	(2.0)
Other	2.2	(0.9)	2.2	(1.1)	0.1	(0.1)	2.5	(1.3)	1.8	(0.7)	2.1	(0.6)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

*Calculated as 100.0 minus 49.8 percent (from table E.4.a.) = 50.2 percent of operators that did not consult a veterinarian for any reason related to goat health, productivity, or management in the previous 12 months.

Of the 50.2 percent of operations in which the operator did not consult a veterinarian, operators on 91.3 percent of other operations, 79.0 percent of meat operations, and 78.2 percent of dairy operations indicated that they did not consult a veterinarian because one was not needed on the operation.

E.4.f. For the 50.2 percent of operations that did not consult a veterinarian for any reason related to goat health, productivity, or management in the previous 12 months* (table E.4.a.), percentage of operations by primary reason for not consulting a veterinarian, by primary production of operation:

Percent Operations

Primary Production

	Meat		Dairy		Other	
Reason	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Veterinarian available in the local area but not knowledgeable about goats	7.4	(2.2)	8.9	(3.7)	1.4	(0.9)
No veterinarian available in the local area	1.7	(0.8)	1.1	(1.1)	1.4	(1.0)
Too expensive	10.2	(2.0)	8.1	(2.8)	3.6	(1.5)
No veterinarian needed on this operation	79.0	(3.0)	78.2	(4.7)	91.3	(2.2)
Other	1.6	(0.9)	3.7	(1.3)	2.2	(1.0)
Total	100.0		100.0		100.0	

*Calculated as 100.0 minus 49.8 percent (from table E.4.a.) = 50.2 percent of operators that did not consult a veterinarian for any reason related to goat health, productivity, or management in the previous 12 months.

A veterinarian-client-patient relationship (VCPR) plays an important role in animal health, and in many States having one is required by law so that a veterinarian can diagnose and treat animals and prescribe medications. See the section “Terms Used in This Report” for the definition of a VCPR.

Overall, 45.4 percent of operations had never heard of a VCPR. Operators on a higher percentage of large operations (58.9 percent) had at least a basic understanding of the meaning of a VCPR than operators on small operations (43.2 percent).

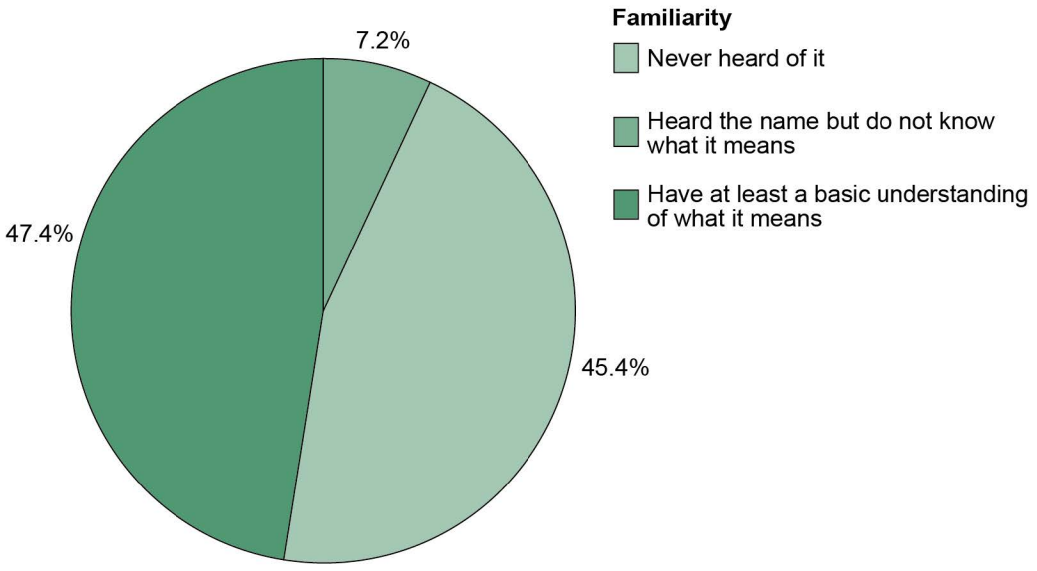
There were no regional differences in the percentages of operations by operator’s familiarity with a VCPR.

E.4.g. Percentage of operations by operator’s familiarity with the meaning of a veterinarian-client-patient relationship (VCPR), by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
VCPR familiarity	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Never heard of it	50.8	(3.0)	40.7	(2.7)	38.1	(4.3)	49.7	(3.4)	43.7	(2.3)	45.4	(1.9)
Heard the name but do not know what it means	6.0	(1.2)	9.4	(1.8)	2.9	(0.6)	4.5	(1.2)	8.3	(1.3)	7.2	(1.0)
Have at least a basic understanding of what it means	43.2	(3.0)	49.9	(2.7)	58.9	(4.3)	45.8	(3.4)	48.1	(2.3)	47.4	(1.9)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

Percentage of operations by operator's familiarity with the meaning of a veterinarian-client-patient relationship (VCPR)



There were no differences by primary production of operation in the percentages of operations by operator's familiarity with the meaning of a VCPR.

E.4.h. Percentage of operations by operator's familiarity with the meaning of a veterinarian-client-patient relationship (VCPR), by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
VCPR familiarity	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Never heard of it	47.5	(2.8)	43.0	(3.6)	42.4	(3.7)
Heard the name but do not know what it means	7.6	(1.4)	9.9	(2.1)	4.4	(1.8)
Have at least a basic understanding of what it means	44.9	(2.7)	47.1	(3.4)	53.2	(3.8)
Total	100.0		100.0		100.0	

Operators on 22.2 percent of all operations described their VCPR as a formal agreement with their veterinarian, meaning it was a written document or a verbal agreement. Operators on 45.2 percent of operations either did not have a VCPR for their goats or they did not use a veterinarian.

E.4.i. Percentage of operations by operator's description of their veterinarian-client-patient relationship (VCPR) for their goats, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Description	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
A written document signed by veterinarian and operator	0.6	(0.3)	2.2	(0.6)	2.6	(0.5)	0.9	(0.2)	1.7	(0.4)	1.5	(0.3)
A verbal agreement between veterinarian and operator	18.4	(2.3)	23.2	(2.2)	21.2	(3.7)	19.4	(2.5)	21.2	(1.9)	20.7	(1.5)
Veterinarian has not formally mentioned a VCPR, but the operator considers having one based on the veterinarian's relationship with the operation	31.7	(2.6)	33.9	(2.6)	30.7	(3.8)	35.5	(3.3)	31.4	(2.1)	32.6	(1.8)
No VCPR for goats or no veterinarian for goats	49.2	(2.9)	40.7	(2.7)	45.5	(4.5)	44.2	(3.4)	45.7	(2.3)	45.2	(1.9)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

There were no differences by primary production of operation in the percentage of operations by operator's description of their VCPR relationship:

E.4.j. Percentage of operations by operator's description of their veterinarian-client-patient relationship (VCPR) for their goats, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Description	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
A written document signed by veterinarian and operator	1.2	(0.4)	2.9	(0.7)	0.9	(0.3)
A verbal agreement between veterinarian and operator	20.4	(2.2)	20.0	(2.4)	21.8	(3.0)
Veterinarian has not formally mentioned a VCPR, but the operator considers having one based on the veterinarian's relationship with the operation	28.6	(2.5)	37.3	(3.0)	38.0	(3.7)
No VCPR for goats or no veterinarian for goats	49.7	(2.8)	39.8	(3.6)	39.2	(3.8)
Total	100.0		100.0		100.0	

5. Contacts for neurologic signs of scrapie

Neurologic signs in goats such as circling, tremors, lip smacking, loss of coordination, and rubbing against fences can be indicative of scrapie. Scrapie is an infectious degenerative disease affecting the central nervous system of sheep and goats and is believed to always be fatal. The United States is currently working to eradicate scrapie, as the presence of this disease affects both the goat and sheep industries economically through production losses, lost exports, and increased production and disposal costs. To learn more about the National Scrapie Eradication Program please visit: https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/sheep-and-goat-health/national-scrapie-eradication-program

When asked who they would contact if adult goats on their operation showed neurologic signs of scrapie, 82.5 percent indicated that they would contact a private or university veterinarian. Operators on 4.9 percent of operations would contact their State veterinary office, and only 1.6 percent would contact their USDA veterinary office. There were no differences by herd size or region in the percentages of operations by who the operator would contact if an adult goat had neurologic signs of scrapie.

E.5.a. Percentage of operations by who the operator would contact if they had any adult goats with neurologic signs of scrapie, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Contact	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Private or university veterinarian	84.2	(2.2)	82.3	(2.1)	74.5	(4.4)	79.5	(2.7)	83.7	(1.8)	82.5	(1.5)
State veterinary office	5.4	(1.6)	4.6	(1.1)	3.3	(2.2)	3.0	(1.2)	5.6	(1.2)	4.9	(0.9)
USDA veterinary office	2.0	(1.0)	0.9	(0.3)	2.4	(2.2)	0.8	(0.3)	1.9	(0.7)	1.6	(0.5)
Other goat operators	17.4	(2.2)	21.3	(2.2)	22.0	(3.8)	17.5	(2.2)	20.2	(1.9)	19.5	(1.5)
Other*	4.3	(1.1)	7.2	(1.3)	6.0	(1.9)	5.0	(1.1)	6.0	(1.0)	5.7	(0.8)
Any private or university veterinarian, State or USDA veterinary office	86.0	(2.2)	83.7	(2.0)	74.9	(4.4)	79.9	(2.7)	85.7	(1.7)	84.1	(1.4)
Any State or USDA veterinary office	5.5	(1.6)	5.0	(1.1)	3.3	(2.2)	3.3	(1.2)	5.8	(1.2)	5.1	(0.9)

*Substantial others included operator would take care of it themselves or would use the Internet.

There were no differences by primary production of operation in the percentages of operations by whom the operator would contact if an adult goat on the operation had neurologic signs of scrapie.

E.5.b. Percentage of operations by who the operator would contact if they had any adult goats with neurologic signs of scrapie, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Contact	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Private or university veterinarian	79.5	(2.2)	85.9	(2.8)	86.9	(2.6)
State veterinary office	4.7	(1.3)	4.2	(2.0)	5.7	(1.8)
USDA veterinary office	1.3	(0.7)	0.9	(0.5)	2.6	(1.5)
Other goat operators	20.2	(2.1)	20.7	(2.9)	17.0	(2.6)
Other*	6.2	(1.2)	6.0	(1.7)	4.4	(1.1)
Any private or university veterinarian, State or USDA veterinary office	81.1	(2.1)	88.6	(2.3)	87.5	(2.6)
Any State or USDA veterinary office	5.0	(1.3)	4.4	(2.0)	5.9	(1.8)

*Substantial others included operator would take care of it themselves or would use the Internet.

6. Health records

Maintaining records on animal health, including vaccination status, laboratory results, and antibiotic information, is necessary to communicate the overall health status of a herd to a veterinarian and to prospective buyers. Additionally, keeping records on antibiotic use and treatment dates allows for the evaluation of the antibiotics' efficacy and helps to ensure adherence to appropriate withdrawal periods.

Overall, 55.1 percent of operations that treated any goats always kept individual animal health records. For operations that used antibiotics, 61.8 percent always recorded the names of antibiotics, 59.1 percent always recorded the dates of antibiotic treatments, and 41.7 percent always recorded the antibiotics' withdrawal time. More than half of operations (58.7 percent) that had laboratory tests conducted never recorded test results.

E.6.a. Percentage of operations by health records kept in the previous 12 months, by frequency that records were kept:

	Percent Operations						
	Frequency						
	Always		Sometimes		Never		
Health records	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Total
Individual animal health and treatment (e.g., vaccination, deworming practices)[1]	55.1	(1.9)	17.0	(1.5)	27.9	(1.7)	100.0
Laboratory test results[2]	30.3	(1.9)	11.0	(1.4)	58.7	(2.1)	100.0
Names of antibiotics used[3]	61.8	(2.2)	16.2	(1.7)	22.0	(1.9)	100.0
Dates of antibiotic treatments[3]	59.1	(2.3)	15.7	(1.6)	25.3	(2.1)	100.0
Antibiotic withdrawal time[3]	41.7	(2.2)	11.3	(1.3)	47.0	(2.2)	100.0

[1]Excludes operations with no treatments.

[2]Excludes operations with no laboratory tests.

[3]Excludes operations that did not use any antibiotics.

A higher percentage of small and medium operations (56.6 percent and 56.6 percent, respectively) always kept individual animal health and treatment records than large operations (38.9 percent). A higher percentage of medium operations always kept the names of antibiotics used (65.6 percent) and the dates of antibiotic treatments (63.6 percent) than large operations (46.2 percent and 42.0 percent, respectively).

There were no regional differences in the percentages of operations that always kept health records.

E.6.b. Percentage of operations that always recorded the listed health-related information in the previous 12 months, by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Health records	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Individual animal health and treatment (e.g., vaccination, deworming practices)[1]	56.6	(2.9)	56.6	(2.8)	38.9	(3.9)	53.8	(3.3)	55.6	(2.3)	55.1	(1.9)
Laboratory test results[2]	26.6	(3.0)	35.2	(2.9)	23.5	(3.4)	32.3	(3.4)	29.5	(2.3)	30.3	(1.9)
Names of antibiotics used[3]	60.3	(3.9)	65.6	(3.0)	46.2	(5.1)	67.3	(3.9)	59.7	(2.7)	61.8	(2.2)
Dates of antibiotic treatments[3]	57.0	(4.0)	63.6	(3.1)	42.0	(4.7)	62.4	(4.1)	57.8	(2.7)	59.1	(2.3)
Antibiotic withdrawal time[3]	34.3	(3.6)	47.0	(3.2)	43.8	(4.9)	50.9	(4.1)	38.2	(2.6)	41.7	(2.2)

[1]Excludes operations with no treatments.

[2]Excludes operations with no laboratory tests.

[3]Excludes operations that did not use any antibiotics.

Operators on a higher percentage of dairy operations 46.3 percent always recorded laboratory test results than operators on meat and other operations (26.0 percent and 28.1 percent, respectively).

E.6.c. Percentage of operations that always recorded the listed health-related information in the previous 12 months, by primary production of the operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Health records	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Individual animal health and treatment (e.g., vaccination, deworming practices)[1]	55.0	(2.7)	62.5	(3.3)	49.8	(3.9)
Laboratory test results[2]	26.0	(2.8)	46.3	(3.9)	28.1	(3.7)
Names of antibiotics used[3]	63.3	(3.2)	60.8	(3.9)	59.0	(4.9)
Dates of antibiotic treatments[3]	62.1	(3.2)	57.9	(3.9)	52.6	(4.9)
Antibiotic withdrawal time[3]	42.6	(3.2)	45.9	(3.7)	35.6	(4.7)

[1]Excludes operations with no treatments.

[2]Excludes operations with no laboratory tests.

[3]Excludes operations that did not use any antibiotics.

7. Antibiotic withdrawal period

Drug withdrawal periods are established by the FDA to avoid violative drug residues at slaughter or in milk production. Many antibiotics are not labeled for use in goats and, therefore, do not have an established withdrawal period for goats. Some of these antibiotics are used off-label under the guidance of a veterinarian. Veterinarians that prescribe off-label antibiotics should consult the Food Animal Residue Avoidance Databank (FARAD) for appropriate withdrawal times for the prescribed antibiotics.

Overall, 38.7 percent of operations did not use any antibiotics in the previous 12 months. Overall, 10.5 percent of operations usually used a veterinarian to determine antibiotic withdrawal periods but note that only 49.8 percent of operations had consulted a veterinarian in the past year (table E.4.a.). Antibiotic withdrawal periods were never considered on 9.0 percent of operations. A higher percentage of small operations (49.6 percent) never used antibiotics than medium or large operations (27.4 and 33.8 percent, respectively).

E.7.a. Percentage of operations by usual way of determining withdrawal periods for given antibiotics in the previous 12 months, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Withdrawal period determination	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
No antibiotics used	49.6	(2.9)	27.4	(2.4)	33.8	(4.1)	40.3	(3.3)	38.1	(2.2)	38.7	(1.9)
No withdrawal period considered	8.9	(1.6)	9.6	(1.8)	5.9	(3.2)	9.1	(2.0)	8.9	(1.4)	9.0	(1.1)
Withdrawal period determined by a veterinarian	8.0	(1.5)	13.2	(1.8)	11.3	(2.5)	9.7	(2.1)	10.9	(1.3)	10.5	(1.1)
Based on the antibiotic label directions	27.8	(2.6)	42.2	(2.6)	43.8	(4.3)	35.2	(3.3)	35.4	(2.1)	35.4	(1.8)
Other operators	0.2	(0.2)	0.0	(—)	0.1	(0.0)	0.0	(0.0)	0.1	(0.1)	0.1	(0.1)
Internet search	0.8	(0.6)	1.7	(0.6)	0.1	(0.0)	0.2	(0.1)	1.5	(0.6)	1.1	(0.4)
Other	4.6	(1.2)	6.0	(1.2)	5.1	(0.1)	5.5	(1.2)	5.1	(0.9)	5.2	(0.7)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

There were no substantial differences by primary production of operation in the percentages of operations by usual way of determining a given antibiotic's withdrawal time.

E.7.b. Percentage of operations by usual way of determining the withdrawal periods for given antibiotics in the previous 12 months, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Withdrawal period determination	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
No antibiotic used	38.7	(2.7)	30.8	(3.5)	44.6	(3.8)
No withdrawal period considered	8.1	(1.6)	8.6	(2.0)	11.2	(2.3)
Withdrawal period determined by a veterinarian	9.1	(1.5)	14.2	(1.9)	11.0	(2.4)
Based on the antibiotic label directions	38.1	(2.6)	39.3	(3.3)	26.4	(3.3)
Other operators	0.2	(0.1)	0.0	(—)	0.0	(—)
Internet search	1.5	(0.7)	1.0	(0.4)	0.4	(0.2)
Other	4.4	(1.0)	6.2	(1.1)	6.4	(1.9)
Total	100.0		100.0		100.0	

F. Biosecurity

Good biosecurity is an excellent way to prevent and manage diseases on goat operations. A biosecurity plan will reduce the likelihood of introducing disease to a herd and help manage disease spread among animals within the herd, should a disease event occur. Biosecurity plans should be developed with the help of a veterinarian.

Knowing who visits an operation and minimizing visitor contact with goats and their housing areas is an important aspect of a strong biosecurity plan. Furthermore, requiring visitors to follow protocols, such as scrubbing shoes or wearing disposable or clean boots and freshly washed clothes, will help minimize the potential for introducing disease. Throughout this section the term “in the previous 12 months” refers to the period from July 1, 2018, to June 30, 2019.

1. Visitors

Almost all operations (92.6 percent) had visitors, most of which were family, friends, and/or neighbors (87.3 percent). Other common visitors included customers and private or company veterinarians (40.9 and 34.1 percent of operations, respectively).

A higher percentage of medium and large operations (39.7 percent and 42.1 percent, respectively) had a private or company veterinarian visit than small operations (27.7 percent). A higher percentage of large operations (13.5 percent) had visits from a nutritionist or feed company than small or medium operations (1.4 percent and 4.9 percent, respectively).

A higher percentage of operations in the East region (37.9 percent) than in the West region (24.5 percent) had visits from a private or company veterinarian. Similarly, a higher percentage of operations in the East region than in the West region had visits from customers (45.2 and 29.8 percent, respectively).

A higher percentage of dairy operations had visits from a private or company veterinarian (45.6 percent) than meat operations (30.2 percent). In addition, a higher percentage of dairy operations had visits from a nutritionist or feed company consultant than meat or other operations.

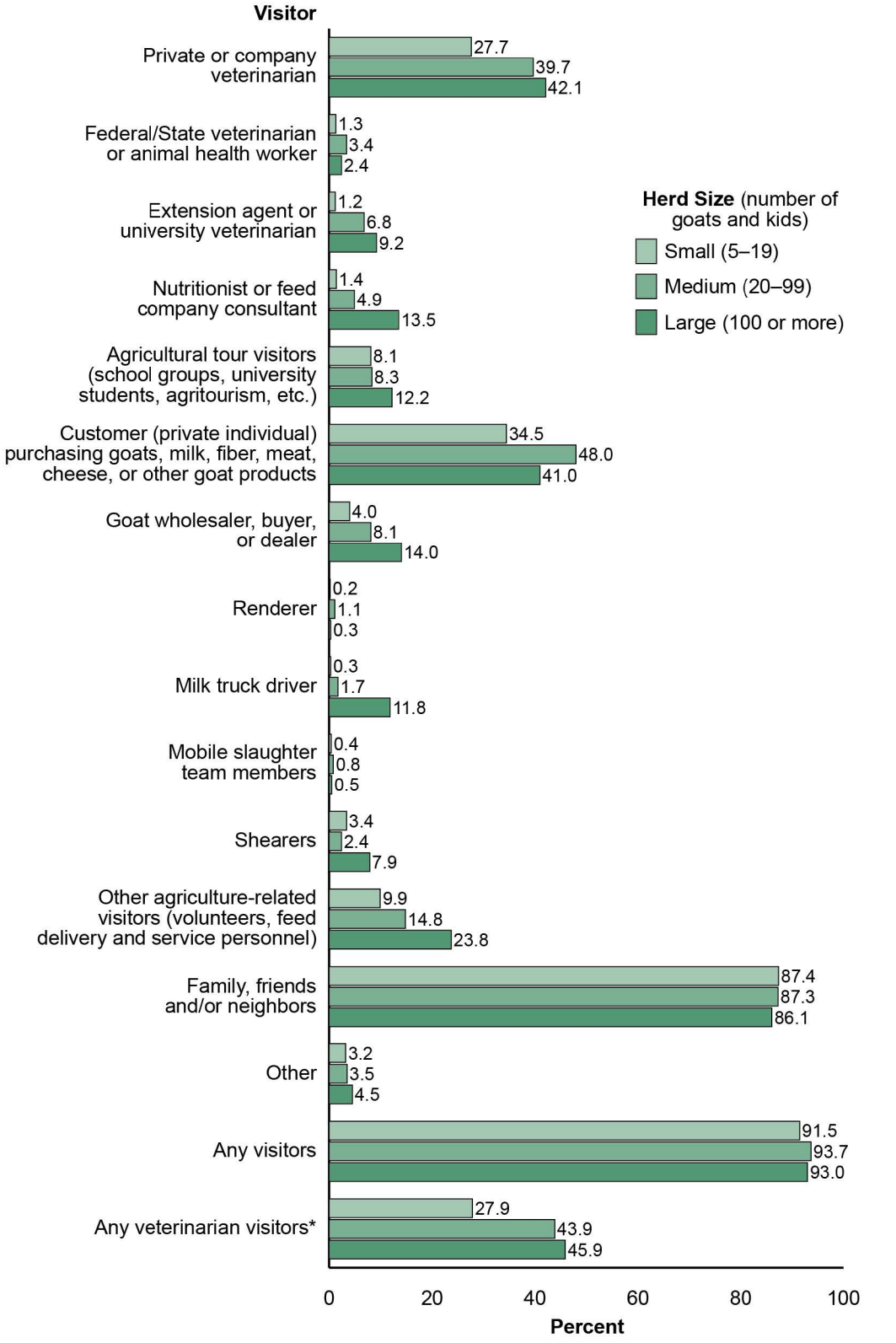
F.1.a. Percentage of operations by type of visitor(s) to the operation in the previous 12 months, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Visitor	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Private or company veterinarian	27.7	(2.5)	39.7	(2.6)	42.1	(4.2)	24.5	(2.7)	37.9	(2.1)	34.1	(1.7)
Federal/State veterinarian or animal health worker	1.3	(0.5)	3.4	(1.0)	2.4	(0.5)	1.2	(0.4)	2.7	(0.7)	2.3	(0.5)
Extension agent or university veterinarian	1.2	(0.4)	6.8	(1.3)	9.2	(3.1)	2.0	(0.7)	5.2	(0.9)	4.3	(0.7)
Nutritionist or feed company consultant	1.4	(0.7)	4.9	(1.1)	13.5	(2.5)	1.8	(1.0)	4.7	(0.7)	3.9	(0.6)
Agricultural tour visitors (school groups, university students, agritourism, etc.)	8.1	(1.3)	8.3	(1.3)	12.2	(2.5)	5.2	(0.9)	9.8	(1.2)	8.5	(0.9)
Customer (private individual) purchasing goats, milk, fiber, meat, cheese, or other goat products	34.5	(2.7)	48.0	(2.7)	41.0	(4.3)	29.8	(2.7)	45.2	(2.2)	40.9	(1.8)
Goat wholesaler, buyer, or dealer	4.0	(1.1)	8.1	(1.2)	14.0	(2.6)	4.2	(1.2)	7.6	(1.0)	6.6	(0.8)
Renderer	0.2	(0.1)	1.1	(0.4)	0.3	(0.2)	0.4	(0.2)	0.7	(0.3)	0.6	(0.2)
Milk truck driver	0.3	(0.2)	1.7	(0.5)	11.8	(1.9)	0.4	(0.1)	2.4	(0.4)	1.8	(0.3)
Mobile slaughter team members	0.4	(0.2)	0.8	(0.2)	0.5	(0.1)	1.7	(0.4)	0.2	(0.1)	0.6	(0.1)
Shearers	3.4	(1.1)	2.4	(0.7)	7.9	(2.4)	3.7	(0.8)	3.2	(0.9)	3.3	(0.7)
Other agriculture-related visitors (volunteers, feed delivery and service personnel)	9.9	(1.6)	14.8	(1.7)	23.8	(3.3)	13.1	(2.1)	13.2	(1.3)	13.2	(1.1)
Family, friends and / or neighbors	87.4	(2.0)	87.3	(1.8)	86.1	(1.9)	84.4	(2.3)	88.4	(1.5)	87.3	(1.3)
Other	3.2	(1.0)	3.5	(1.0)	4.5	(1.0)	5.0	(1.5)	2.8	(0.7)	3.5	(0.7)
Any visitors	91.5	(1.8)	93.7	(1.3)	93.0	(1.3)	88.9	(2.3)	94.1	(1.2)	92.6	(1.1)
Any veterinarian visitors*	27.9	(2.5)	43.9	(2.7)	45.9	(4.3)	26.0	(2.7)	40.4	(2.1)	36.3	(1.7)

*Includes any private or company veterinarian, Federal/State veterinarian or animal health worker, or extension agent or university veterinarian.

Percentage of operations by type of visitor(s) to the operation in the previous 12 months, and by herd size



*Includes any private or company veterinarian, Federal/State veterinarian or animal health worker, or extension agent or university veterinarian.

F.1.b. Percentage of operations by type(s) of visitors to the operation in the previous 12 months, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Visitor	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Private or company veterinarian	30.2	(2.4)	45.6	(3.2)	34.3	(3.4)
Federal/State veterinarian or animal health worker	1.7	(0.7)	4.7	(1.2)	1.8	(1.1)
Extension agent or university veterinarian	4.2	(0.9)	5.7	(1.3)	3.5	(1.4)
Nutritionist or feed company consultant	3.1	(0.9)	8.9	(1.3)	2.0	(0.9)
Agricultural tour visitors (school groups, university students, agritourism, etc.)	5.7	(1.1)	14.5	(2.0)	10.2	(2.1)
Customer (private individual) purchasing goats, milk, fiber, meat, cheese, or other goat products	37.7	(2.4)	57.0	(3.4)	35.8	(3.4)
Goat wholesaler, buyer, or dealer	6.0	(1.1)	12.3	(1.9)	3.8	(1.3)
Renderer	0.7	(0.3)	1.0	(0.3)	0.1	(0.1)
Milk truck driver	0.2	(0.2)	8.0	(1.0)	0.8	(0.7)
Mobile slaughter team members	0.4	(0.1)	1.3	(0.3)	0.5	(0.2)
Shearers	0.9	(0.3)	5.8	(2.1)	6.8	(1.9)
Other agriculture-related visitors (volunteers, feed delivery and service personnel)	10.8	(1.5)	20.5	(2.3)	13.0	(2.4)
Family, friends and / or neighbors	88.1	(1.6)	88.6	(2.4)	84.4	(2.9)
Other	3.7	(1.0)	3.2	(0.7)	3.2	(1.2)
Any visitors	92.3	(1.4)	94.9	(2.1)	91.5	(2.3)
Any veterinarian visitors*	33.0	(2.5)	47.7	(3.3)	35.2	(3.4)

*Includes any private or company veterinarian, Federal/State veterinarian or animal health worker, or extension agent or university veterinarian.

Of the 92.6 percent of operations that had any visitors, 89.0 percent had visitors that typically touched goats or walked through goat areas. Any veterinarians, including private or company veterinarians, Federal/State veterinarians or animal health workers, or extension agent or university veterinarians, typically touched goats or walked through goat areas on 88.9 percent of the 92.6 percent of operations that had visitors.

F.1.c. For operations that had any visitors listed in the following table in the previous 12 months, (table F.1.a.), percentage of operations in which the visitor(s) typically touched goats or walked through areas where goats were kept:

Visitor	Percent operations	Std. error
Private or company veterinarian	90.4	(1.8)
Federal/State veterinarian or animal health worker	55.2	(12.0)
Extension agent or university veterinarian	79.8	(5.8)
Nutritionist or feed company consultant	38.8	(7.4)
Agricultural tour visitors (school groups, university students, agritourism, etc.)	89.8	(2.8)
Customer (private individual) purchasing goats, milk, fiber, meat, cheese, or other goat products	82.6	(1.8)
Goat wholesaler, buyer, or dealer	77.6	(4.7)
Renderer	50.0	(16.6)
Milk truck driver	19.2	(8.1)
Mobile slaughter team members	51.5	(9.8)
Shearers	73.0	(9.3)
Other agriculture-related visitors (volunteers, feed delivery and service personnel)	49.9	(4.6)
Family, friends and / or neighbors	84.9	(1.5)
Other	54.5	(9.3)
Any visitors	89.0	(1.3)
Any veterinarian visitors*	88.9	(1.9)

*Includes any private or company veterinarian, Federal/State veterinarian or animal health worker, or extension agent or university veterinarian.

Overall, 72.1 percent of operations that had any visitors allowed the visitors access to areas or facilities that housed or contained animals, feed, manure, or farm equipment. The percentage of operations that allowed visitors access to areas or facilities that housed or contained animals, feed, manure, or farm equipment did not differ by herd size or by region.

F.1.d. For the 92.6 percent of operations that had any visitors in the previous 12 months (table F.1.a.), percentage of operations that allowed visitors access to areas or facilities that housed or contained animals, feed, manure, or farm equipment, by herd size and region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
74.1	(2.7)	69.9	(2.7)	71.8	(3.9)	72.3	(3.3)	72.0	(2.1)	72.1	(1.8)

A higher percentage of dairy operations (81.9 percent) than meat operations (68.3 percent) had any visitors who were allowed access to areas or facilities that housed or contained animals, feed, manure, or farm equipment.

F.1.e. For the 92.6 percent of operations with any visitors in the previous 12 months (table F.1.a.), percentage of operations that allowed visitors access to areas or facilities that housed or contained animals, feed, manure, or farm equipment, by primary production of operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
68.3	(2.6)	81.9	(2.3)	72.9	(3.5)

Just 2.1 percent of operations always required that visitors change into clean clothes or coveralls before accessing animal areas or facilities. In addition, only 1.4 percent of operations always required that visitors use a footbath before entry, and just 3.9 percent always required visitors to scrub shoes before or immediately after visiting goat production areas. Overall, 72.4 percent of operations never required visitors to wash their hands before handling goats.

F.1.f. For operations that allowed any visitors access to areas or facilities that housed or contained animals, feed, manure, or farm equipment* (table F.1.d.), percentage of operations by biosecurity practice(s) required for visitors, and by frequency that practices were implemented:

Percent Operations

	Frequency						
	Always		Sometimes		Never		
Biosecurity practice	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Total**
Change into clean clothes or coveralls	2.1	(0.6)	4.8	(0.9)	93.2	(1.1)	100.0
Use a footbath before entry	1.4	(0.5)	3.5	(0.8)	95.1	(0.9)	100.0
Change into clean boots or use shoe covers	7.1	(1.2)	7.3	(1.0)	85.6	(1.5)	100.0
Scrub shoes before or immediately after entry into goat production area	3.9	(0.9)	5.1	(0.8)	91.0	(1.2)	100.0
Wash hands before handling goats	19.5	(1.8)	8.2	(1.2)	72.4	(1.9)	100.0
No contact with other livestock for at least 24 hours before visiting your goats	5.3	(1.0)	6.0	(1.1)	88.6	(1.5)	100.0
Park away from goat area	35.1	(2.2)	6.0	(1.2)	58.8	(2.2)	100.0

*Refers to the 66.8 percent of operations that allowed any visitors access to areas or facilities that housed or contained animals, feed, manure, or farm equipment in the previous 12 months. This estimate comes from the 92.6 percent of operations that had any visitors in the previous 12 months (table F.1.a.), of which 72.1 percent allowed any of those visitors access to areas or facilities that housed or contained animals, feed, manure, or farm equipment (table F.1.d.).

Of operations that had visitors with access to areas or facilities that housed or contained animals, feed, manure, or farm equipment, a higher percentage of medium operations (22.2 percent) required visitors to wash hands before handling goats than large operations (11.7 percent).

F.1.g. For operations that allowed any visitors access to areas or facilities that housed or contained animals, feed, manure, or farm equipment* (table F.1.d.), percentage of operations by biosecurity practice(s) always required for visitors, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Biosecurity practice	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Change into clean clothes or coveralls	1.8	(1.0)	2.3	(0.9)	2.6	(0.6)	2.3	(1.5)	2.0	(0.6)	2.1	(0.6)
Use a footbath before entry	0.9	(0.4)	1.9	(1.0)	1.3	(0.4)	0.8	(0.2)	1.6	(0.6)	1.4	(0.5)
Change into clean boots or use shoe covers	4.2	(1.3)	10.8	(2.2)	5.9	(1.0)	4.5	(1.7)	8.2	(1.5)	7.1	(1.2)
Scrub shoes before or immediately after entry into goat production area	1.8	(0.8)	6.7	(1.9)	2.4	(0.6)	1.3	(0.5)	4.9	(1.3)	3.9	(0.9)
Wash hands before handling goats	18.4	(2.8)	22.2	(2.6)	11.7	(1.9)	18.4	(3.0)	19.9	(2.2)	19.5	(1.8)
No contact with other livestock for at least 24 hours before visiting your goats	6.4	(1.7)	3.9	(1.2)	5.9	(3.3)	2.4	(0.9)	6.4	(1.4)	5.3	(1.0)
Park away from goat area	37.6	(3.4)	35.0	(3.0)	21.2	(3.9)	33.0	(3.6)	36.0	(2.7)	35.1	(2.2)

*Refers to the 66.8 percent of operations that allowed any visitors access to areas or facilities that housed or contained animals, feed, manure, or farm equipment in the previous 12 months. This estimate comes from the 92.6 percent of operations that had any visitors in the previous 12 months (table F.1.a.), of which 72.1 percent allowed any of those visitors access to areas or facilities that housed or contained animals, feed, manure, or farm equipment (table F.1.d.).

There were no differences by primary production of operation in the percentage of operations by biosecurity practices always required for visitors who had access to areas or facilities that housed or contained animals, feed, manure, or farm equipment.

F.1.h. For operations that allowed any visitors access to areas or facilities that housed or contained animals, feed, manure, or farm equipment* (table F.1.d.), percentage of operations by biosecurity practice(s) always required for visitors, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Biosecurity practice	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Change into clean clothes or coveralls	1.7	(0.9)	2.0	(0.6)	2.9	(1.5)
Use a footbath before entry	0.4	(0.3)	2.6	(0.8)	2.4	(1.5)
Change into clean boots or use shoe covers	7.2	(1.8)	6.8	(1.4)	7.3	(2.4)
Scrub shoes before or immediately after entry into goat production area	3.4	(1.3)	6.3	(2.1)	3.1	(1.7)
Wash hands before handling goats	16.8	(2.4)	28.2	(3.6)	17.5	(3.4)
No contact with other livestock for at least 24 hours before visiting your goats	4.6	(1.5)	6.6	(1.9)	5.7	(2.0)
Park away from goat area	30.9	(3.1)	39.9	(3.8)	39.8	(4.4)

*Refers to the 66.8 percent of operations that allowed any visitors access to areas or facilities that housed or contained animals, feed, manure, or farm equipment in the previous 12 months. This estimate comes from the 92.6 percent of operations that had any visitors in the previous 12 months (table F.1.a.), of which 72.1 percent allowed any of those visitors access to areas or facilities that housed or contained animals, feed, manure, or farm equipment (table F.1.d.).

2. Animals

Overall, 6.9 percent of operations had any paid or unpaid workers who kept goats or other livestock at their home (off the operation). There were no differences by herd size or region in the percentage of operations that had any paid or unpaid workers who kept goats or other livestock at their home.

F.2.a. Percentage of operations that had any paid or unpaid workers who kept goats or other livestock at their home in the previous 12 months, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
5.2	(1.2)	7.8	(1.3)	11.9	(2.5)	7.1	(1.4)	6.8	(1.0)	6.9	(0.8)

There were no differences by primary production of operation in the percentage of operations that had any paid or unpaid workers who kept goats or other livestock at their home (off the operation).

F.2.b. Percentage of operations that had any paid or unpaid workers who kept any goats or other livestock at their home in the previous 12 months, by primary production of operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
5.9	(1.1)	11.8	(2.3)	5.4	(1.7)

Overall, 93.0 percent of operations had domesticated animals other than goats on the operation at any time in the previous 12 months. Cattle, horses/donkeys, poultry, and dogs were present on 36.8, 44.5, 47.7, and 81.9 percent of operations, respectively, and 17.6 percent operations had domesticated sheep.

A higher percentage of large operations (28.2 percent) than medium operations (15.6 percent) had domesticated sheep on the operation, and a higher percentage of large operations (63.2 percent) had cattle than small and medium operations (31.5 percent and 37.8 percent, respectively).

There were no regional differences in the percentages of operations by type of domesticated animal on the operation.

F.2.c. Percentage of operations by type(s) of domesticated animals on the operation at any time in the previous 12 months, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Domesticated animal	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Sheep	17.6	(2.2)	15.6	(2.0)	28.2	(3.8)	20.7	(2.4)	16.4	(1.7)	17.6	(1.4)
Cattle	31.5	(2.7)	37.8	(2.6)	63.2	(3.9)	39.1	(3.2)	35.9	(2.1)	36.8	(1.8)
Horses, donkeys	45.0	(2.9)	43.7	(2.6)	45.9	(4.3)	46.5	(3.3)	43.7	(2.2)	44.5	(1.8)
Llamas, alpacas	6.6	(1.4)	7.8	(1.4)	7.6	(2.4)	9.1	(1.7)	6.5	(1.1)	7.2	(0.9)
Pigs	9.7	(1.3)	11.5	(1.6)	9.9	(2.0)	8.3	(1.3)	11.4	(1.2)	10.5	(0.9)
Poultry (chickens, turkeys, etc.)	48.8	(2.9)	48.5	(2.7)	37.1	(4.2)	43.3	(3.3)	49.4	(2.2)	47.7	(1.8)
Bison	0.8	(0.6)	0.3	(0.3)	0.4	(0.3)	0.8	(0.6)	0.5	(0.3)	0.6	(0.3)
Captive deer, elk, or other exotic hoof stock	2.8	(0.9)	2.8	(0.9)	4.9	(2.3)	2.8	(1.0)	3.1	(0.7)	3.0	(0.6)
Dogs	78.6	(2.4)	85.1	(1.8)	84.5	(3.8)	86.9	(2.2)	79.9	(1.8)	81.9	(1.4)
Any of the above	91.6	(1.7)	94.1	(1.2)	95.3	(1.2)	95.4	(1.5)	92.0	(1.2)	93.0	(1.0)

A higher percentage of dairy and other operations (65.5 percent and 52.6 percent, respectively) had domesticated poultry on the operation than meat operations (39.5 percent). A higher percentage of dairy operations (17.4 percent) had pigs on the operation than meat operations (6.9 percent).

F.2.d. Percentage of operations by type(s) of domesticated animals on the operation at any time in the previous 12 months, and by primary production of operation:

Percent Operations

Primary Production

	Meat		Dairy		Other	
Domesticated animal	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Sheep	18.4	(2.0)	19.5	(2.6)	14.4	(2.4)
Cattle	38.5	(2.6)	37.3	(3.3)	32.8	(3.4)
Horses, donkeys	42.0	(2.6)	47.3	(3.4)	48.1	(3.8)
Llamas, alpacas	5.5	(1.1)	7.6	(2.0)	10.7	(2.3)
Pigs	6.9	(1.1)	17.4	(2.2)	13.3	(2.3)
Poultry (chickens, turkeys, etc.)	39.5	(2.6)	65.5	(3.4)	52.6	(3.7)
Bison	0.4	(0.3)	0.7	(0.6)	0.9	(0.8)
Captive deer, elk, or other exotic hoof stock	3.9	(0.9)	1.1	(0.5)	2.5	(1.1)
Dogs	84.2	(1.8)	82.2	(2.8)	76.6	(3.2)
Any of the above	93.6	(1.3)	95.4	(1.1)	89.8	(2.4)

Overall, 65.6 percent of operations reported that domesticated animals were on adjacent properties and could have had fence-line contact with the operation’s animals. Goats and sheep were observed on adjacent properties on 9.3 percent and 7.2 percent of operations, respectively. Cattle, horses/donkeys, and dogs were observed on adjacent properties on 34.5 percent, 20.3 percent, and 48.7 percent of operations, respectively.

Overall, 81.9 percent of large operations observed any domesticated animals on adjacent properties that could have had fence-line contact with the operation’s animals, compared with 64.0 percent of small operations and 64.3 percent of medium operations. A higher percentage of large operations observed goats on adjacent properties (23.9 percent) than small and medium operations (8.4 and 7.4 percent, respectively).

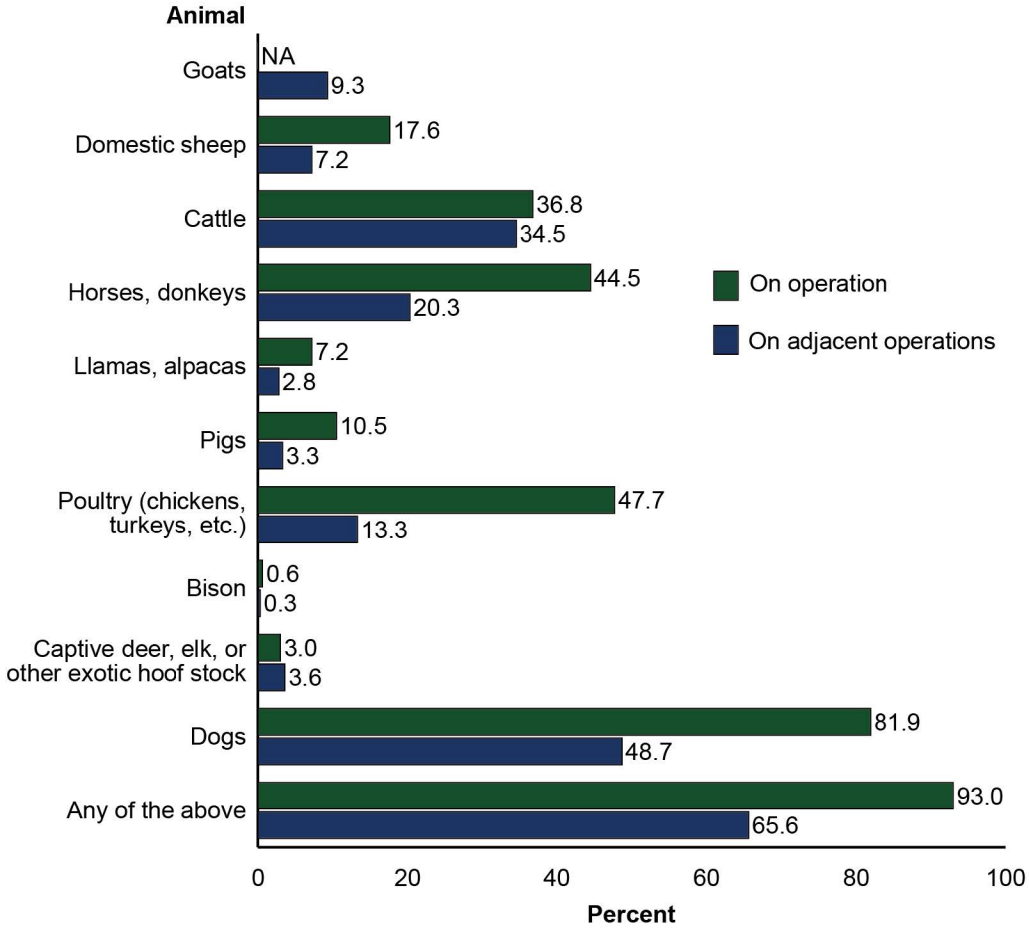
A higher percentage of operations in the West region (77.8 percent) than in the East region (60.8 percent) observed any domesticated animals on adjacent properties that could have had fence-line contact with the operation's animals.

F.2.e. Percentage of operations by type(s) of domesticated animals observed on adjacent properties that could have had fence-line contact with the operation's animals at any time in the previous 12 months, and by herd size and by region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Domesticated animal	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Goats	8.4	(1.8)	7.4	(1.3)	23.9	(3.1)	17.2	(2.2)	6.1	(1.2)	9.3	(1.1)
Sheep	5.9	(1.4)	7.1	(1.4)	15.4	(2.0)	14.1	(2.0)	4.5	(1.0)	7.2	(0.9)
Cattle	32.8	(2.9)	31.6	(2.6)	59.6	(4.1)	48.7	(3.4)	28.9	(2.2)	34.5	(1.8)
Horses, donkeys	18.6	(2.3)	19.9	(2.1)	31.5	(4.3)	26.4	(2.9)	17.8	(1.7)	20.3	(1.5)
Llamas, alpacas	3.7	(1.2)	1.1	(0.4)	6.0	(2.4)	4.0	(1.4)	2.3	(0.7)	2.8	(0.7)
Pigs	2.9	(1.1)	3.8	(0.9)	3.4	(0.8)	3.1	(0.6)	3.4	(0.9)	3.3	(0.6)
Poultry (chickens, turkeys, etc.)	14.4	(2.1)	13.3	(1.9)	6.4	(1.1)	13.8	(2.4)	13.1	(1.5)	13.3	(1.3)
Bison	0.0	(0.0)	0.6	(0.4)	0.4	(0.3)	0.2	(0.1)	0.3	(0.2)	0.3	(0.2)
Captive deer, elk, or other exotic hoof stock	3.4	(1.2)	3.5	(0.9)	5.1	(2.3)	3.3	(1.2)	3.7	(0.9)	3.6	(0.7)
Dogs	47.5	(2.9)	49.2	(2.8)	52.3	(4.5)	53.8	(3.4)	46.7	(2.1)	48.7	(1.8)
Any of the above	64.0	(2.8)	64.3	(2.6)	81.9	(2.1)	77.8	(2.8)	60.8	(2.2)	65.6	(1.8)

Percentage of operations by type(s) of domesticated animals on the operation that could have had fenceline contact, and percentage of operations by type(s) of domesticated animals on adjacent operations that could have had fenceline contact with the operation's animals at any time in the previous 12 months



A higher percentage of meat operations (69.6 percent) than dairy operations (57.7 percent) observed any domesticated animals on adjacent properties that could have had fence-line contact with their animals in the previous 12 months. A higher percentage of meat operations (38.9 percent) than dairy (23.4 percent) observed any cattle on adjacent properties. Only 4.4 percent of meat operations and 1.0 percent of dairy operations observed captive deer, elk, or other exotic hoof stock on adjacent properties that could have had fence-line contact with their animals.

F.2.f. Percentage of operations by type(s) of domesticated animals observed on adjacent properties that could have had fence-line contact with the operation's animals at any time in the previous 12 months, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Domesticated animal	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Goats	11.4	(1.6)	5.8	(1.4)	6.9	(1.9)
Domestic sheep	7.7	(1.3)	7.4	(1.9)	5.9	(1.7)
Cattle	38.9	(2.7)	23.4	(2.6)	32.8	(3.6)
Horses, donkeys	19.4	(2.1)	18.5	(2.3)	23.4	(3.3)
Llamas, alpacas	1.7	(0.6)	2.0	(0.9)	5.7	(2.1)
Pigs	2.2	(0.6)	4.3	(1.3)	5.0	(1.9)
Poultry (chickens, turkeys, etc.)	11.9	(1.7)	15.8	(2.5)	14.4	(2.7)
Bison	0.3	(0.2)	0.7	(0.6)	0.0	(0.0)
Captive deer, elk, or other exotic hoof stock	4.4	(1.1)	1.0	(0.4)	3.8	(1.7)
Dogs	51.6	(2.6)	44.5	(3.4)	45.3	(3.7)
Any of the above	69.6	(2.5)	57.7	(3.4)	62.4	(3.6)

Overall, 91.4 percent of operations observed any wild animals and/or their signs (scat, tracks, etc.) on the operation: 87.6 percent observed raccoons, skunks, opossums, or their signs; 75.2 percent observed wild deer, elk, or other hoof stock or their signs; and 73.1 percent of observed predators or their signs.

A higher percentage of large operations (31.0 percent) than small and medium operations (12.9 and 13.6 percent, respectively) observed feral pigs or their signs on the operation.

A higher percentage of operations in the West region (31.7 percent) observed feral pigs or their signs on the operation than operations in the East region (8.0 percent).

F.2.g. Percentage of operations by type(s) of wild animals and/or signs of wild animals (scat, tracks, etc.) observed on the operation at any time in the previous 12 months, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Wild animal	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Wild goats	0.4	(0.4)	0.1	(0.0)	0.3	(0.3)	0.8	(0.6)	0.0	(0.0)	0.2	(0.2)
Bighorn sheep	0.6	(0.6)	0.1	(0.0)	0.4	(0.3)	1.1	(1.0)	0.0	(0.0)	0.3	(0.3)
Feral pigs	12.9	(1.9)	13.6	(2.0)	31.0	(4.0)	31.7	(3.2)	8.0	(1.2)	14.7	(1.2)
Deer, elk, or other hoof stock	72.4	(2.7)	76.6	(2.2)	83.7	(2.8)	72.4	(2.9)	76.3	(1.9)	75.2	(1.6)
Raccoons, skunks, opossums	86.8	(2.0)	87.7	(1.8)	92.3	(1.2)	88.3	(1.9)	87.4	(1.5)	87.6	(1.2)
Predators (e.g. coyotes, bears, mountain lions, wolves)	70.0	(2.7)	75.2	(2.3)	80.7	(3.3)	79.3	(2.6)	70.7	(2.0)	73.1	(1.6)
Any of the above	90.0	(1.8)	92.1	(1.5)	96.1	(0.8)	93.3	(1.6)	90.7	(1.3)	91.4	(1.1)

A higher percentage of meat operations (20.0 percent) observed feral pigs or their signs on the operation than dairy and other operations (4.3 percent and 10.6 percent).

F.2.h. Percentage of operations by type(s) of wild animals and/or signs of wild animals (scat, tracks, etc.) observed on the operation at any time in the previous 12 months, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Wild animal	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Wild goats	0.0	(—)	0.0	(0.0)	1.0	(0.7)
Bighorn sheep	0.5	(0.5)	0.0	(—)	0.2	(0.1)
Feral pigs	20.0	(2.1)	4.3	(1.3)	10.6	(2.2)
Deer, elk, or other hoof stock	77.7	(2.2)	74.1	(3.0)	70.3	(3.4)
Raccoons, skunks, opossums	87.8	(1.8)	88.1	(2.1)	87.0	(2.3)
Predators (e.g. coyotes, bears, mountain lions, wolves)	75.7	(2.3)	70.8	(3.2)	69.0	(3.3)
Any of the above	91.9	(1.5)	92.0	(2.0)	90.1	(2.2)

The majority of operations (91.0 percent) observed any wild animals and/or their signs on adjacent properties in which fence-line contact was possible. At least three-fourths of operations observed raccoons, skunks, opossums (86.7 percent); predators (78.4 percent); or deer, elk, or other hoof stock (78.0 percent) on adjacent properties.

A higher percentage of operations in the West region (39.1 percent) observed feral pigs or their signs on the adjacent properties than operations in the East region (9.8 percent).

F.2.i. Percentage of operations by type(s) of wild animals and/or signs of wild animals (scat, tracks, etc.) observed on adjacent properties that could have had fence-line contact with the operation's animals at any time in the previous 12 months, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Wild animal	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Wild goats	0.4	(0.4)	0.1	(0.1)	3.7	(3.3)	1.8	(1.2)	0.1	(0.1)	0.5	(0.3)
Bighorn sheep	0.3	(0.3)	0.4	(0.4)	0.1	(0.1)	0.7	(0.6)	0.2	(0.2)	0.3	(0.2)
Feral pigs	14.6	(2.0)	18.1	(2.1)	38.7	(4.3)	39.1	(3.2)	9.8	(1.2)	18.1	(1.3)
Deer, elk, or other hoof stock	75.9	(2.6)	79.2	(2.1)	83.7	(2.9)	75.3	(2.9)	79.1	(1.8)	78.0	(1.5)
Raccoons, skunks, opossums	85.8	(2.0)	87.0	(1.8)	90.9	(1.3)	86.6	(1.9)	86.8	(1.5)	86.7	(1.2)
Predators (e.g. coyotes, bears, mountain lions, wolves)	76.1	(2.4)	79.4	(2.1)	86.6	(2.5)	83.0	(2.4)	76.6	(1.9)	78.4	(1.5)
Any of the above	90.4	(1.6)	90.9	(1.6)	94.6	(0.9)	92.1	(1.8)	90.5	(1.2)	91.0	(1.0)

A higher percentage of meat operations (24.3 percent) than dairy and other operations (8.8 and 11.2 percent, respectively) had observed feral pigs or their signs on adjacent properties.

F.2.j. Percentage of operations by type(s) of wild animals and/or signs of wild animals (scat, tracks, etc.) observed on adjacent properties that could have had fence-line contact with the operation's animals at any time in the previous 12 months, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Wild animal	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Wild goats	0.8	(0.6)	0.2	(0.2)	0.2	(0.1)
Bighorn sheep	0.6	(0.4)	0.0	(—)	0.1	(0.1)
Feral pigs	24.3	(2.1)	8.8	(2.2)	11.2	(2.3)
Deer, elk, or other hoof stock	79.0	(2.1)	79.9	(2.8)	74.4	(3.3)
Raccoons, skunks, opossums	87.0	(1.8)	87.8	(2.3)	85.3	(2.4)
Predators (e.g. coyotes, bears, mountain lions, wolves)	79.5	(2.2)	79.4	(3.0)	75.2	(2.9)
Any of the above	91.5	(1.5)	92.1	(2.0)	88.9	(2.1)

Overall, 83.9 percent of operations had observed any cats, including wild or exotic, present on the operation, and 24.4 percent had litters of kittens. A higher percentage of large operations (36.0 percent) had observed wild or exotic cats than small operations (20.9 percent). A higher percentage of large operations had observed any types of cats (93.2 percent) than small or medium operations (81.5 percent and 84.7 percent).

A higher percentage of operations in the West region (35.4 percent) had observed wild or exotic cats than operations in the East region (20.8 percent).

F.2.k. Percentage of operations by type(s) of cats observed on the operation in the previous 12 months, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Type of cat	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Outdoor or indoor/outdoor domesticated cats	68.1	(2.7)	68.0	(2.5)	72.2	(4.1)	64.9	(3.2)	69.8	(2.1)	68.4	(1.7)
Litters of kittens	23.7	(2.5)	22.9	(2.1)	36.9	(4.4)	19.8	(2.6)	26.2	(1.9)	24.4	(1.6)
Feral or stray cats	44.1	(2.9)	46.1	(2.6)	46.3	(4.4)	45.4	(3.2)	45.0	(2.2)	45.1	(1.8)
Wild or exotic cats (e.g., bobcats)	20.9	(2.4)	27.3	(2.5)	36.0	(4.2)	35.4	(3.1)	20.8	(1.9)	24.9	(1.6)
Any outdoor or indoor/outdoor domestic cats or litters of kittens	70.7	(2.6)	69.8	(2.5)	79.7	(2.9)	70.3	(2.9)	71.3	(2.0)	71.0	(1.7)
Any of the above	81.5	(2.4)	84.7	(2.0)	93.2	(1.2)	86.9	(2.1)	82.6	(1.8)	83.9	(1.4)

A higher percentage of dairy operations (77.5 percent) had outdoor or indoor/outdoor domesticated cats than meat operations (65.4 percent), and a higher percentage of dairy operations (35.0 percent) had litters of kittens than meat and other operations (23.8 percent and 17.9 percent, respectively).

F.2.l. Percentage of operations by type(s) of cats observed on the operation in the previous 12 months, and by primary production of operation:

Percent Operations

Primary Production

	Meat		Dairy		Other	
Type of cat	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Outdoor or indoor/ outdoor domesticated cats	65.4	(2.5)	77.5	(3.3)	68.3	(3.5)
Litters of kittens	23.8	(2.3)	35.0	(3.3)	17.9	(2.8)
Feral or stray cats	45.4	(2.6)	47.9	(3.4)	42.4	(3.6)
Wild or exotic cats (e.g., bobcats)	28.0	(2.4)	19.6	(2.7)	22.0	(3.0)
Any outdoor or indoor/ outdoor domestic cats or litters of kittens	69.0	(2.4)	78.2	(3.3)	70.3	(3.5)
Any of the above	82.8	(2.0)	85.9	(2.9)	84.7	(2.9)

Cats commonly carry *Toxoplasma gondii*, a parasite which can be spread through their feces. Goats can become infected with this parasite and develop toxoplasmosis, which can result in abortions if goats are exposed for the first time while pregnant. To minimize the risk of an abortion storm due to toxoplasmosis, operators might intentionally discard cat litter into goat-raising areas prior to breeding periods as a preventive measure, thereby exposing the goats to the parasite before they become pregnant for the first time. However, it is important to note that toxoplasmosis is zoonotic and can cause serious complications in pregnant women and people with weakened immune systems.

Of operations that had indoor/outdoor domesticated cats and their litter boxes on the operation, only 2.8 percent reported intentionally discarding the litter boxes into goat-raising areas. There were no differences by herd size or region in the percentage of operations that intentionally discarded cat litter into goat-raising areas.

F.2.m. For the 71.0 percent of operations that had outdoor or indoor/outdoor domestic cats or litters of kittens on the operation (table F.2.k.) in the previous 12 months, percentage of operations in which litter boxes were discarded into goat-raising areas, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
2.6	(1.0)	3.0	(1.0)	3.0	(0.8)	2.6	(0.9)	2.9	(0.8)	2.8	(0.6)

There were no differences by primary production of operation in the percentage of operations in which litter boxes were discarded in goat-raising areas.

F.2.n. For the 71.0 percent of operations that had outdoor or indoor/outdoor domestic cats or litters of kittens on the operation in the previous 12 months (table F.2.k), percentage of operations in which litter boxes were discarded into goat-raising areas, by primary production of operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
2.9	(0.9)	2.5	(0.8)	2.8	(1.5)

Rodents often consume grains on an operation and can spread disease through their feces, which makes controlling them important to good biosecurity. Overall, 85.7 percent of operations used any of the methods listed in the following table to control rodents. Dogs and cats were used to control rodents on 67.4 percent of operations, and traps, baits, and/or poison were used on 51.5 percent. A higher percentage of large operations (80.1 percent) used dogs or cats to control rodents than small and medium operations (65.8 and 66.8 percent, respectively).

F.2.o. Percentage of operations by method(s) used to control rodents in the previous 12 months, by herd size and by region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Rodent control method	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Traps, baits, and/or poison	51.6	(3.0)	50.9	(2.7)	54.4	(4.4)	45.7	(3.3)	53.8	(2.3)	51.5	(1.9)
Professional exterminator	1.0	(0.3)	2.5	(0.9)	1.7	(0.5)	2.1	(0.5)	1.5	(0.5)	1.7	(0.4)
Dogs or cats	65.8	(2.7)	66.8	(2.6)	80.1	(2.8)	72.4	(2.9)	65.4	(2.1)	67.4	(1.7)
Other	3.7	(1.2)	2.2	(0.6)	0.4	(0.2)	3.2	(1.3)	2.6	(0.7)	2.8	(0.6)
Any of the above	86.1	(2.2)	84.4	(2.1)	90.4	(2.4)	85.3	(2.5)	85.8	(1.7)	85.7	(1.4)

A higher percentage of dairy operations (95.8 percent) used any of the methods listed in the following table to control rodents than meat (84.0 percent) and other operations (81.9 percent).

F.2.p. Percentage of operations by method(s) used to control rodents in the previous 12 months, by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Rodent control method	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Traps, baits, and/or poison	50.6	(2.7)	57.8	(3.3)	48.9	(3.8)
Professional exterminator	1.9	(0.7)	1.8	(0.7)	1.1	(0.4)
Dogs or cats	65.7	(2.4)	74.7	(3.2)	65.8	(3.6)
Other	1.7	(0.7)	4.2	(1.8)	4.2	(1.5)
Any of the above	84.0	(2.0)	95.8	(1.0)	81.9	(3.1)

G. Movement and Marketing

Information regarding the movement of goats can help researchers and government agencies prepare for potential disease outbreaks and better understand how diseases spread across the United States. To gain this type of information, operators were asked about the type of goats added to the operation, the sources of new additions, and the biosecurity practices used for new additions. In addition, operators were asked about goats permanently removed from the operation and the primary reasons for removing (culling) them. Throughout this section the term “in the previous 12 months” refers to the period from July 1, 2018, to June 30, 2019.

1. Herd additions

Overall, 21.8 percent of operations added any adult goats in the previous 12 months, and 29.9 percent added any adult or kid goats. A higher percentage of medium and large operations (34.3 percent and 39.5 percent, respectively) added any adult goats or kids than small operations (24.3 percent). A higher percentage of medium and large operations added pregnant does (5.1 percent and 7.1 percent, respectively), than small operations (1.8 percent).

There were no regional differences in the percentages of operations that added kids, does, or bucks/wethers.

G.1.a Percentage of operations by type(s) of goats and kids added to the operation in the previous 12 months (excluding kids born on the operation) and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Type of goat	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Kids	12.2	(1.9)	18.2	(1.9)	16.7	(2.8)	14.6	(2.3)	15.4	(1.5)	15.2	(1.3)
Unweaned	2.2	(0.6)	7.1	(1.2)	4.5	(1.1)	3.5	(0.8)	4.9	(0.8)	4.5	(0.6)
Weaned	10.3	(1.9)	13.4	(1.7)	13.3	(2.7)	11.5	(2.1)	12.1	(1.4)	11.9	(1.2)
Does	11.5	(1.9)	18.8	(1.9)	15.8	(2.9)	12.2	(1.8)	16.1	(1.5)	15.0	(1.2)
Pregnant	1.8	(0.6)	5.1	(1.0)	7.1	(1.8)	3.0	(0.9)	3.9	(0.7)	3.6	(0.5)
Not pregnant	10.3	(1.8)	17.7	(1.8)	13.2	(2.8)	10.9	(1.8)	14.9	(1.5)	13.8	(1.2)
Wethers or bucks	9.4	(1.8)	16.3	(1.9)	22.1	(3.9)	13.9	(2.3)	13.2	(1.4)	13.4	(1.2)
Wethers	1.3	(0.7)	1.0	(0.5)	0.9	(0.4)	0.6	(0.2)	1.3	(0.6)	1.1	(0.4)
Bucks	8.6	(1.7)	16.1	(1.9)	21.6	(3.9)	13.5	(2.3)	12.7	(1.4)	12.9	(1.2)
Any adult goat*	16.1	(2.2)	26.6	(2.1)	29.9	(4.2)	20.8	(2.6)	22.1	(1.7)	21.8	(1.4)
Any adult or kid	24.3	(2.6)	34.3	(2.4)	39.5	(4.2)	28.0	(2.9)	30.7	(2.0)	29.9	(1.6)

*Includes does, wethers, or bucks.

A higher percentage of dairy operations (7.9 percent) than meat operations (3.1 percent) added unweaned kids.

G.1.b Percentage of operations by type(s) of goats and kids added to the operation in the previous 12 months (excluding kids born on the operation) and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Type of goat	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Kids	13.1	(1.7)	20.6	(2.5)	15.9	(2.6)
Unweaned	3.1	(0.7)	7.9	(1.5)	5.0	(1.3)
Weaned	11.1	(1.6)	14.0	(2.2)	12.0	(2.4)
Does	13.3	(1.7)	20.1	(2.7)	14.9	(2.3)
Pregnant	2.7	(0.7)	6.5	(1.5)	3.6	(1.0)
Not pregnant	12.6	(1.6)	17.3	(2.6)	13.8	(2.3)
Wethers or bucks	13.5	(1.8)	16.0	(2.5)	11.1	(2.1)
Wethers	1.1	(0.7)	1.4	(0.9)	1.0	(0.5)
Bucks	12.9	(1.8)	16.0	(2.5)	10.6	(2.1)
Any adult goats*	20.5	(2.1)	27.1	(3.0)	20.6	(2.7)
Any goats or kids	27.6	(2.4)	38.7	(3.3)	28.4	(3.2)

*Includes does, wethers, or bucks.

For operations that did not add any goats or kids in the previous 12 months, the last time any goats or kids were added was, on average, 4.8 years ago. There were no differences by herd size or by region in the average number of years since goats were last added.

G.1.c. For the 70.1 percent of operations that did not add any goats or kids in the previous 12 months (closed herd), average number of years since goats or kids were last added, by herd size and by region:

Average (years)

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Avg.	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
4.6	(0.3)	4.9	(0.4)	5.4	(0.6)	4.7	(0.4)	4.8	(0.3)	4.8	(0.2)

For operations that did not add any goats or kids in the previous 12 months, there were no differences by primary production of operation in the average number of years since goats were last added.

G.1.d. For the 70.1 percent of operations that did not add any goats or kids in the previous 12 months (closed herd), average number of years since goats or kids were last added, by primary production of operation:

Average (years)

Primary Production of Operation					
Meat		**Dairy**		**Other**	
Avg.	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
4.8	(0.3)	4.3	(0.4)	5.1	(0.4)

Overall, 22.7 percent of operations that did not add goats or kids in the previous 12 months, had last added goats or kids 6 or more years ago, and 35.8 percent had last added any goats or kids 3 to 5 years ago. There were no differences by herd size or region in the percentages of operations by number of years since adding goats or kids.

G.1.e. For the 70.1 percent of operations that did not add any goats or kids in the previous 12 months (closed herd), percentage of operations by number of years since goats or kids were last added, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Number of years	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than 3	40.5	(3.6)	43.5	(3.8)	38.1	(5.6)	46.8	(4.3)	39.4	(2.9)	41.6	(2.4)
3 to 5	36.8	(3.8)	34.1	(3.7)	37.9	(5.8)	32.4	(4.1)	37.2	(3.2)	35.8	(2.5)
6 or more	22.7	(3.3)	22.4	(3.2)	24.0	(5.4)	20.9	(3.4)	23.4	(2.7)	22.7	(2.1)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

For operations that did not add any goats or kids, there were no differences by primary production of operation in the percentage of operations by number of years since goats or kids were last added.

G.1.f. For the 70.1 percent of operations that did not add any goats or kids in the previous 12 months (closed herd), percentage of operations by number of years since goats or kids were last added, and by primary production of the operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Number of years	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Less than 3	44.1	(3.4)	42.9	(5.0)	35.2	(4.3)
3 to 5	35.5	(3.4)	34.0	(5.0)	37.6	(5.0)
6 or more	20.5	(2.8)	23.1	(5.1)	27.2	(4.5)
Total	100.0		100.0		100.0	

For operations that added any goats or kids in the previous 12 months, 85.0 percent required inspections or treatments for new arrivals, either before arriving on the operation or after arriving but before commingling with other goats in the herd; 55.9 percent of operations required inspections and treatments for new arrivals both before arriving on the operation and before commingling with other goats. Overall, 52.6 percent of operations required any vaccinations for new arrivals before or after they arrived and before commingling with other goats; 64.1 percent required internal parasite treatments; and 67.0 percent required that goats be inspected for abscesses and/or scars from previous abscesses.

G.1.g. For the 29.9 percent of operations that added any adult goats or kids to the operation in the previous 12 months (table G.1.a.), percentage of operations by procedure(s) always required for new arrivals, and by timing of procedure:

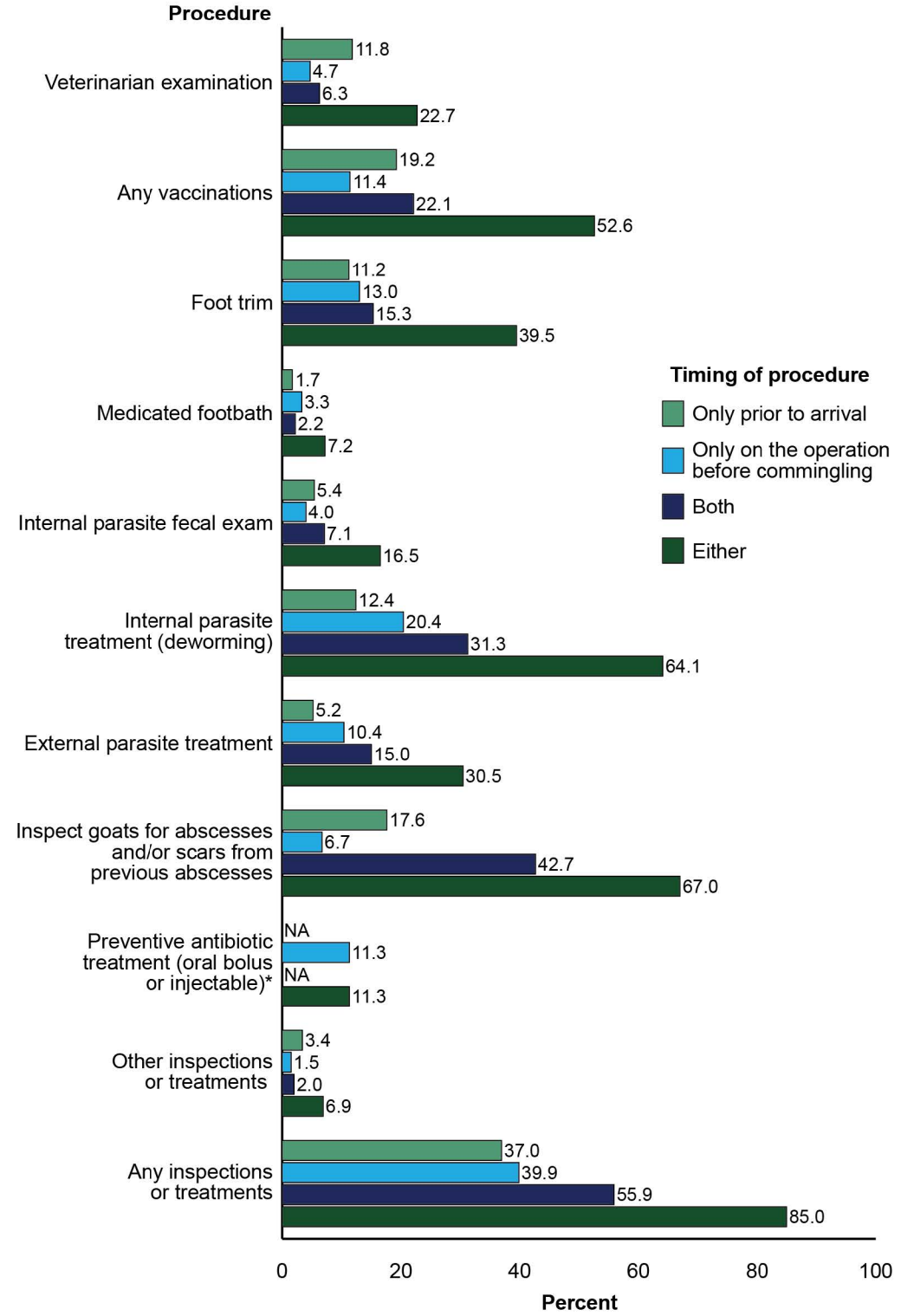
Percent Operations

Timing of Procedure

Procedure for new arrivals	Before arrival		After arrival, but before commingling		Both before arrival and commingling		Either before arrival or before commingling	
	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Veterinarian examination	11.8	(1.9)	4.7	(1.6)	6.3	(1.5)	22.7	(2.8)
Any vaccinations	19.2	(2.4)	11.4	(2.1)	22.1	(2.6)	52.6	(3.4)
Foot trim	11.2	(2.0)	13.0	(2.1)	15.3	(2.3)	39.5	(3.2)
Medicated footbath	1.7	(0.6)	3.3	(1.3)	2.2	(1.1)	7.2	(1.7)
Internal parasite fecal exam	5.4	(1.5)	4.0	(0.9)	7.1	(1.6)	16.5	(2.3)
Internal parasite treatment (deworming)	12.4	(2.1)	20.4	(2.7)	31.3	(3.0)	64.1	(3.1)
External parasite treatment	5.2	(1.4)	10.4	(1.9)	15.0	(2.3)	30.5	(2.9)
Inspect goats for abscesses and/or scars from previous abscesses	17.6	(2.5)	6.7	(1.6)	42.7	(3.3)	67.0	(3.3)
Preventive antibiotic treatment (oral bolus or injectable)*			11.3	(2.0)			11.3	(2.0)
Other inspections or treatments	3.4	(0.9)	1.5	(0.7)	2.0	(0.5)	6.9	(1.2)
Any inspections or treatments	37.0	(3.1)	39.9	(3.3)	55.9	(3.2)	85.0	(2.4)

*Preventive antibiotic treatments were considered only when performed on the operation before commingling.

For the 29.9 percent of operations that added any goats or kids to the operation in the previous 12 months, percentage of operations by procedure(s) always required for new arrivals, and by timing of procedure.



*Preventative antibiotic treatments only considered when performed on the operation before commingling.

A lower percentage of large operations (45.9 percent) than medium operations (69.2 percent) always required that new arrivals be treated for internal parasites either before arrival or before commingling them with goats in the herd.

There were no differences by region in the percentages of operations by procedures always required for new arrivals either before arrival or before commingling.

G.1.h. For the 29.9 percent of operations that added any adult or kid goats in the previous 12 months (table G.1.a.), percentage of operations by procedure(s) always required for new arrivals either before arrival or before commingling with other goats in the herd (table G.1.g.), and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Procedure for new arrivals	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Veterinarian examination	20.2	(4.9)	23.6	(3.7)	27.6	(6.1)	19.4	(4.1)	23.9	(3.5)	22.7	(2.8)
Any vaccinations	51.9	(6.0)	54.7	(4.4)	46.1	(7.1)	51.0	(5.9)	53.3	(4.0)	52.6	(3.4)
Foot trim	35.7	(5.9)	42.3	(4.2)	41.3	(7.0)	32.5	(5.4)	42.1	(3.9)	39.5	(3.2)
Medicated footbath	8.9	(3.2)	6.8	(2.4)	2.9	(0.9)	3.9	(1.5)	8.4	(2.3)	7.2	(1.7)
Internal parasite fecal exam	14.1	(4.0)	18.6	(3.2)	15.9	(3.5)	18.8	(4.3)	15.6	(2.7)	16.5	(2.3)
Internal parasite treatment (deworming)	63.0	(5.6)	69.2	(3.7)	45.9	(7.1)	73.9	(4.7)	60.6	(3.8)	64.1	(3.1)
External parasite treatment	22.8	(4.5)	37.4	(4.4)	27.3	(5.9)	38.2	(5.0)	27.6	(3.6)	30.5	(2.9)
Inspect goats for abscesses and/or scars from previous abscesses	62.3	(6.1)	72.7	(4.0)	58.6	(7.7)	64.2	(6.2)	68.0	(3.8)	67.0	(3.3)
Preventive antibiotic treatment (oral bolus or injectable)[1]	6.4	(2.6)	15.0	(3.2)	13.0	(5.5)	15.2	(4.5)	9.9	(2.2)	11.3	(2.0)
Other inspections or treatments [2]	3.2	(1.5)	9.5	(2.1)	8.5	(2.1)	8.5	(2.0)	6.3	(1.5)	6.9	(1.2)
Any inspections or treatments	85.0	(4.1)	88.4	(2.9)	69.9	(8.3)	90.4	(3.9)	83.1	(3.0)	85.0	(2.4)

[1]Preventive antibiotic treatments were considered only when performed on the operation before commingling.

[2]Substantial others included disease testing and visual inspection.

There were no differences by primary production of operation in the percentage of operations by procedures always required for new arrivals either before arrival or before commingling.

G.1.i. For the 29.9 percent of operations that added any adult or kid goats in the previous 12 months (table G.1.a.), percentage of operations by procedure(s) always required for new arrivals either before arrival or before commingling with other goats in the herd, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Procedure for new arrivals	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Veterinarian examination	22.6	(4.4)	24.2	(4.1)	21.4	(5.3)
Any vaccinations	48.5	(5.0)	56.3	(5.0)	57.7	(6.6)
Foot trim	36.6	(4.8)	42.5	(5.0)	42.9	(6.5)
Medicated footbath	3.9	(2.1)	14.6	(3.9)	6.8	(3.8)
Internal parasite fecal exam	15.8	(3.4)	17.6	(3.6)	16.9	(4.8)
Internal parasite treatment (deworming)	68.0	(4.7)	60.1	(4.8)	60.1	(6.3)
External parasite treatment	30.2	(4.4)	28.2	(4.7)	33.4	(6.4)
Inspect goats for abscesses and/or scars from previous abscesses	68.8	(4.9)	68.7	(5.1)	61.5	(6.7)
Preventive antibiotic treatment (oral bolus or injectable)[1]	12.1	(3.1)	9.5	(2.5)	11.4	(4.5)
Other inspections or treatments	6.2	(1.9)	9.2	(2.2)	6.1	(2.3)
Any inspections or treatments[2]	87.7	(3.5)	85.4	(3.6)	78.9	(5.5)

[1]Preventive antibiotic treatments were considered only when performed on the operation before commingling.
[2]Substantial others included disease testing and visual inspection.

It is recommended that all new additions be quarantined for 30 days or until any blood or fecal tests come back negative. Quarantining new additions can help prevent introducing disease to a herd. Overall, 57.7 percent of operations that added any goats or kids quarantined these animals.

There were no differences by herd size or region in the percentage of operations that quarantined new additions.

G.1.j. For the 29.9 percent of operations that added any goats or kids in the previous 12 months (table G.1.a.), percentage of operations that quarantined any new arrivals, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
54.6	(5.9)	63.1	(3.9)	44.6	(7.1)	45.2	(6.0)	62.2	(3.6)	57.7	(3.1)

There were no differences by primary production in the percentage of operations that quarantined any new arrivals.

G.1.k. For the 29.9 percent of operations that added any goats or kids in the previous 12 months (table G.1.a.), percentage of operations that quarantined any new arrivals, by primary production of operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
57.0	(4.8)	63.5	(4.7)	53.4	(6.6)

On operations that quarantined any new arrivals, pregnant does were quarantined an average of 28.7 days, and nonpregnant goats were quarantined for an average of 32.2 days. There were no differences by herd size or region in the average number of days nonpregnant goats, including kids, bucks/wethers, and nonpregnant does, were quarantined.

G.1.l. For operations that quarantined any new arrivals in the previous 12 months[1] (table G.1.j.), average number of days pregnant does and nonpregnant goats were quarantined, by herd size and by region:

Average Number of Days

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Goats	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
Pregnant[2]	(D)[4]	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	28.7	(5.2)
Nonpregnant[3]	38.1	(9.1)	28.7	(2.3)	28.1	(2.9)	40.1	(6.7)	30.1	(4.1)	32.2	(3.6)

[1]Refers to the 17.3 percent of operations that quarantined any new arrivals. This estimate comes from the 29.9 percent of operations that permanently added any goats or kids to the operation (excluding kids born on the operation) in the previous 12 months (G.1.a), of which 57.7 percent quarantined any new arrivals, or 17.3 percent of all operations (G.1.j).
[2]For operations that added pregnant does.
[3]For operations that added nonpregnant goats.
[4]Values of (D) denote too few to report.

There were no differences by primary production of operation in the average number of days nonpregnant goats were quarantined.

G.1.m. For operations that quarantined any new arrivals in the previous 12 months[1] (table G.1.j.), average number of days pregnant does and nonpregnant goats were quarantined, by primary production of operation:

Average Number of Days

Primary Production of Operation

	Meat		Dairy		Other	
Goats	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Pregnant[2]	(D)[4]	(D)	(D)	(D)	(D)	(D)
Nonpregnant[3]	33.5	(6.1)	26.4	(2.5)	35.9	(7.2)

[1]Refers to the 17.3 percent of operations that quarantined any new arrivals. This estimate comes from the 29.9 percent of operations that permanently added any goats or kids to the operation (excluding kids born on the operation) in the previous 12 months (G.1.a), of which 57.7 percent quarantined any new arrivals, or 17.3 percent of all operations (G.1.j).
[2]For operations that added pregnant does.
[3]For operations that added nonpregnant goats.
[4]Values of (D) denote too few to report.

Overall, 47.4 percent of operations that quarantined any new arrivals quarantined them for 14 to 20 days, and 21.4 percent quarantined them for 31 or more days. The majority of operations (82.6 percent) quarantined newly added nonpregnant goats for less than 31 days.

A higher percentage of small operations (37.5 percent) quarantined newly added nonpregnant goats for less than 14 days than medium operations (13.0 percent). Conversely, a higher percentage of medium operations (35.9 percent) isolated newly added nonpregnant goats for 14 to 20 days than small operations (12.4 percent).

There were no differences by region in the percentages of operations by number of days nonpregnant goats were quarantined.

G.1.n. For operations that quarantined any new arrivals in the previous 12 months[1] (table G.1.j.), percentage of operations by number of days pregnant does and nonpregnant goats were quarantined, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Number of days	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Pregnant does[2]												
Less than 14	(D)[4]	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	16.6	(7.2)
14 to 20	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	47.4	(10.3)
21 to 30	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	14.6	(5.1)
31 or more	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	21.4	(8.7)
Total	100.0		100.0		100.0		100.0		100.0		100.0	
Nonpregnant goats[3]												
Less than 14	37.5	(7.5)	13.0	(3.6)	16.7	(4.6)	18.3	(5.0)	23.4	(4.3)	22.3	(3.6)
14 to 20	12.4	(4.9)	35.9	(4.8)	33.4	(9.9)	17.0	(4.6)	29.7	(4.1)	27.0	(3.4)
21 to 30	32.1	(7.6)	34.0	(4.7)	34.0	(8.1)	41.2	(7.9)	31.2	(4.3)	33.3	(3.8)
31 or more	17.9	(5.3)	17.1	(4.3)	15.8	(4.1)	23.6	(7.2)	15.7	(3.4)	17.3	(3.1)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

[1]Refers to the 17.3 percent of operations that quarantined any new arrivals. This estimate comes from the 29.9 percent of operations that permanently added any goats or kids to the operation (excluding kids born on the operation) in the previous 12 months (G.1.a), of which 57.7 percent quarantined any new arrivals, or 17.3 percent of all operations (G.1.j).
[2]For operations that added pregnant does.
[3]For operations that added nonpregnant goats.
[4]Values of (D) denote too few to report.

There were no differences by primary production in the percentages of operations by the number of days nonpregnant goats were quarantined.

G.1.o. For operations that quarantined any new arrivals in the previous 12 months[1] (table G.1.j.), percentage of operations by number of days pregnant does and nonpregnant goats were quarantined, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Number of days	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Pregnant does[2]						
Less than 14	(D)[4]	(D)	(D)	(D)	(D)	(D)
14 to 20	(D)	(D)	(D)	(D)	(D)	(D)
21 to 30	(D)	(D)	(D)	(D)	(D)	(D)
31 or more	(D)	(D)	(D)	(D)	(D)	(D)
Total	100.0		100.0		100.0	
Nonpregnant goats[3]						
Less than 14	20.1	(5.0)	22.2	(7.1)	27.7	(7.8)
14 to 20	28.4	(5.1)	25.7	(6.0)	25.5	(8.5)
21 to 30	34.6	(6.1)	36.4	(6.1)	26.7	(6.7)
31 or more	17.0	(4.8)	15.6	(3.5)	20.2	(7.3)
Total	100.0		100.0		100.0	

[1]Refers to the 17.3 percent of operations that quarantined any new arrivals. This estimate comes from the 29.9 percent of operations that permanently added any goats or kids to the operation (excluding kids born on the operation) in the previous 12 months (G.1.a), of which 57.7 percent quarantined any new arrivals, or 17.3 percent of all operations (G.1.j).
[2]For operations that added pregnant does.
[3]For operations that added nonpregnant goats.
[4]Values of (D) denote too few to report.

2. Kid additions

Operations that added any kids not reared on the operation tended to source them directly from other goat operations. For example, 33.4 percent of operations sourced kids directly from a dairy operation, and 37.6 percent sourced them directly from a meat operation. Less than 10 percent of operations sourced new kids online.

There were no substantial differences by herd size or by region in the percentages of operations by source of new kids.

G.2.a. For the 15.2 percent of operations that added any kids in the previous 12 months, (table G.1.a.), percentage of operations by source of kids, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Source of kids	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Goat wholesaler or dealer	3.1	(1.8)	6.5	(3.0)	5.3	(1.9)	7.0	(3.9)	4.3	(1.8)	5.0	(1.7)
Directly from a dairy operation	35.3	(7.7)	30.2	(4.3)	43.8	(8.3)	25.1	(5.5)	36.6	(4.8)	33.4	(3.8)
Directly from meat or other operation	36.2	(8.8)	38.3	(5.5)	39.7	(9.6)	30.4	(7.7)	40.3	(5.5)	37.6	(4.5)
Livestock market or auction (not online)	16.2	(6.4)	13.2	(3.7)	16.8	(6.2)	13.7	(6.7)	15.0	(3.6)	14.7	(3.2)
Online (Craigslist, Facebook Marketplace, eBay, online auctions, etc.)	4.9	(3.9)	11.7	(4.1)	1.7	(0.7)	12.0	(6.6)	6.6	(2.6)	8.1	(2.6)
Farm store or feed store	(D)[1]	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	((D)
Flea market, farmer’s market, or swap meet	0.0	(—)	0.0	(—)	0.0	(—)	0.0	(—)	0.0	(—)	0.0	(—)
Fair or show	1.5	(1.5)	0.7	(0.4)	1.4	(1.0)	3.4	(2.3)	0.2	(0.1)	1.1	(0.6)
Other	2.5	(1.4)	11.9	(3.7)	3.9	(2.1)	13.9	(5.5)	5.1	(1.9)	7.5	(2.1)

[1]Values of (D) denote too few to report.

Overall, 76.3 percent of dairy operations sourced new kids directly from other dairy operations, while 16.8 percent of meat operations and 21.4 percent of other operations also sourced their kids directly from dairy operations. Overall, 46.9 percent of meat operations sourced new kids directly from another meat operations, and 50.3 percent of other operations sourced new kids directly from another similar operation.

G.2.b. For the 15.2 percent of operations that added kids in the previous 12 months (table G.1.a.), percentage of operations by source of new kids, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Source of kids	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Goat wholesaler or dealer	7.8	(3.3)	2.8	(1.4)	2.2	(2.0)
Directly from a dairy operation	16.8	(5.3)	76.3	(6.1)	21.4	(5.6)
Directly from meat or other operation	46.9	(7.2)	7.5	(2.1)	50.3	(8.8)
Livestock market or auction (not online)	19.6	(5.4)	12.1	(6.1)	8.2	(3.8)
Online (Craigslist, Facebook Marketplace, eBay, online auctions, etc.)	10.7	(4.6)	2.7	(1.6)	8.8	(5.2)
Farm store or feed store	(D) [1]	(D)	(D)	(D)	(D)	(D)
Flea market, farmer's market, or swap meet	0.0	(—)	0.0	(—)	0.0	(—)
Fair or show	0.3	(0.2)	0.4	(0.2)	3.1	(2.4)
Other	6.7	(3.6)	3.0	(1.2)	13.3	(4.5)

[1]Values of (D) denote too few to report.

For this report, a shipment is a group of animals moved from one location all at once, regardless of the number of animals in the shipment or the number of vehicles used to ship them. For operations that added any new kids, 14.7 percent sourced kids from a livestock market or auction, and 58.9 percent of all kids added were sourced from a livestock market or auction. These percentages represented 22.8 percent of all kid shipments.

Overall, 34.3 percent of kids were sourced directly from another operation (including dairy, meat, or other operations), and 61.1 percent of all kid shipments were sourced directly from another operation.

G.2.c. For the 15.2 percent of operations that added any kids in the previous 12 months, (table G.1.a.), percentage of kids by source, and percentage of shipments made by source:

Percent

	Kids[1]		Shipments[2]	
Source of kids	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Goat wholesaler or dealer	3.5	(1.9)	3.3	(1.1)
Directly from a dairy operation	18.9	(8.8)	34.1	(5.1)
Directly from meat or other operation	15.4	(7.3)	27.0	(4.7)
Livestock market or auction (not online)	58.9	(17.9)	22.8	(6.2)
Online (Craigslist, Facebook Marketplace, eBay, online auctions, etc.)	1.7	(1.0)	5.7	(2.1)
Farm store or feed store	(D)[3]	(D)	(D)	(D)
Flea market, farmer's market, or swap meet	0.0	(—)	0.0	(—)
Fair or show	0.1	(0.1)	0.6	(0.4)
Other	1.4	(0.7)	5.7	(1.6)
Total	100.0		100.0	

[1]Excludes any kids born on the operation.
[2]Percent shipments calculated from the number of shipments of kids added to the operation in the previous 12 months.
[3]Values of (D) denote too few to report.

Overall, 18.2 percent of kids added to operations were unweaned. A higher percentage of unweaned kids were added to medium operations (39.8 percent) than small operations (10.0 percent).

A higher percentage of unweaned kids were added to operations in the East region (41.4 percent) than operations in the West region (5.9 percent), likely because of the higher percentage of dairy operations in the East region.

G.2.d. For the 15.2 percent of operations that added any kids in the previous 12 months (table G.1.a.), percentage of kids that were unweaned when added, by herd size and by region:

Percent Kids*

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
10.0	(3.6)	39.8	(9.6)	9.9	(7.6)	5.9	(4.8)	41.4	(7.6)	18.2	(8.6)

*Excludes any kids born on the operation.

There were no differences by primary production in the percentage of kids that were unweaned when added to the operation.

G.2.e. For the 15.2 percent of operations that added kids in the previous 12 months (table G.1.a.), percentage of kids added that were unweaned when added, by primary production of operation:

Percent Kids*

Primary Production of Operation

Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
15.3	(9.6)	37.5	(9.3)	15.1	(4.3)

*Excludes any kids born on the operation.

3. Doe additions

Overall, 73.4 percent of operations added does directly from another operation with goats: 28.4 percent added does directly from a dairy operation, and 45.0 percent added them directly from a meat operation. A higher percentage of large operations (7.3 percent) added does from a goat wholesaler or dealer than medium operations (0.8 percent).

G.3.a. For the 15.0 percent of operations that added any does in the previous 12 months (table G.1.a.), percentage of operations by source of does, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Source of does	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Goat wholesaler or dealer	4.4	(3.0)	0.8	(0.4)	7.3	(2.1)	2.2	(0.7)	2.8	(1.5)	2.7	(1.1)
Directly from a dairy operation	29.9	(6.6)	27.9	(4.6)	25.6	(6.9)	36.8	(7.1)	25.9	(3.9)	28.4	(3.5)
Directly from meat or other operation	47.1	(8.5)	41.6	(5.4)	57.5	(8.9)	33.1	(7.0)	48.6	(5.3)	45.0	(4.5)
Livestock market or auction (not online)	10.6	(4.2)	23.8	(4.7)	14.9	(6.5)	20.5	(6.2)	17.5	(3.6)	18.2	(3.1)
Online (Craigslist, Facebook Marketplace, eBay, online auctions, etc.)	6.2	(4.3)	14.9	(4.4)	17.2	(11.9)	13.4	(7.4)	11.4	(3.3)	11.8	(3.1)
Farm store or feed store	0.0	(—)	0.0	(—)	0.0	(—)	0.0	(—)	0.0	(—)	0.0	(—)
Flea market, farmer’s market, or swap meet	0.0	(—)	0.0	(—)	0.0	(—)	0.0	(—)	0.0	(—)	0.0	(—)
Fair or show	1.1	(1.1)	1.2	(1.2)	0.0	(—)	0.0	(—)	1.4	(1.0)	1.1	(0.8)
Other	1.0	(0.8)	6.2	(2.4)	3.4	(2.0)	6.0	(2.3)	3.4	(1.7)	4.0	(1.4)

A higher percentage of dairy and other operations (61.6 percent and 32.2 percent) sourced does directly from a dairy operation compared with meat operations (9.8 percent). Overall, 60.4 percent of meat operations sourced does from another meat operation. A higher percentage of meat and other operations (14.6 and 17.6 percent, respectively) sourced does online compared with dairy operations (0.6 percent).

G.3.b. For the 15.0 percent of operations that added any does in the previous 12 months (table G.1.a.), percentage of operations by source of does, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Source of does	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Goat wholesaler or dealer	1.5	(0.5)	7.0	(4.3)	0.7	(0.4)
Directly from a dairy operation	9.8	(3.3)	61.6	(7.9)	32.2	(8.0)
Directly from meat or other operation	60.4	(6.5)	21.5	(7.8)	37.9	(8.5)
Livestock market or auction (not online)	23.6	(5.4)	9.8	(3.8)	15.7	(5.5)
Online (Craigslist, Facebook Marketplace, eBay, online auctions, etc.)	14.6	(4.9)	0.6	(0.3)	17.6	(7.0)
Farm store or feed store	0.0	(—)	0.0	(—)	0.0	(—)
Flea market, farmer’s market, or swap meet	0.0	(—)	0.0	(—)	0.0	(—)
Fair or show	0.0	(—)	1.6	(1.6)	2.7	(2.6)
Other	3.2	(2.1)	1.3	(0.7)	8.5	(3.5)

Although only 18.2 percent of all operations sourced does from a livestock market or auction (table G.3.a), 47.2 percent of all added does came from a livestock market or auction, and these does represented 23.9 percent of all doe shipments.

Overall, 39.6 percent of all does were sourced directly from another operation with goats (including dairy, meat, or other operations). Does sourced directly from another operation accounted for 61.4 percent of all doe shipments.

G.3.c. For the 15.0 percent of operations that added any does in the previous 12 months (table G.1.a.), percentage of does by source and percentage of shipments made by source:

	Percent			
	Does[1]		Shipments[2]	
Source of does	Pct.	Std. error	Pct.	Std. error
Goat wholesaler or dealer	3.4	(1.3)	1.9	(0.8)
Directly from a dairy operation	15.4	(3.9)	22.2	(3.2)
Directly from meat or other operation	24.2	(6.1)	39.2	(5.1)
Livestock market or auction (not online)	47.2	(11.6)	23.9	(5.3)
Online (Craigslist, Facebook Marketplace, eBay, online auctions, etc.)	7.5	(3.0)	8.8	(2.4)
Farm store or feed store	0.0	(—)	0.0	(—)
Flea market, farmer's market, or swap meet	0.0	(—)	0.0	(—)
Fair or show	0.2	(0.1)	0.7	(0.5)
Other	2.1	(0.8)	3.3	(1.2)
Total	100.0		100.0	

[1]Percent does calculated from the number of does added to the operation in the previous 12 months.
[2]Percent shipments calculated from the number of doe shipments added to the operation in the previous 12 months.

Overall, 14.6 percent of does added were pregnant. A higher percentage of large operations (29.3 percent) added pregnant does than small operations (4.0 percent).

G.3.d. For the 15.0 percent of operations that added any does in the previous 12 months (table G.1.a.), percentage of does that were pregnant when added, by herd size and by region:

Percent Pregnant Does*

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
4.0	(2.8)	9.9	(2.1)	29.3	(9.0)	10.8	(3.7)	16.8	(6.1)	14.6	(4.0)

[1]Percent does calculated from the number of does added to the operation in the previous 12 months.

Dairy operations added a higher percentage of pregnant does (29.2 percent) than meat operations (8.2 percent).

G.3.e. For the 15.0 percent of operations that added any does in the previous 12 months (table G.1.a.), percentage of does that were pregnant when added, by primary production of operation:

Percent Pregnant Does*

Primary Production of Operation

Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
8.2	(3.4)	29.2	(5.5)	20.8	(9.1)

*Percent does calculated from the number of does added to the operation in the previous 12 months.

4. Buck and wether additions

The majority of operations that added bucks or wethers added them directly from another operation with goats: 24.2 percent of operations added bucks or wethers from dairy operations and 45.2 percent from meat operations. There were no differences by herd size or by region in the percentages of operations by source of bucks or wethers.

G.4.a. For the 13.4 percent of operations that added any adult bucks or wethers in the previous 12 months (table G.1.a.), percentage of operations by source(s) of bucks or wethers, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Source of bucks or wethers	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Goat wholesaler or dealer	0.6	(0.6)	7.0	(3.2)	3.5	(1.3)	3.7	(1.7)	4.7	(2.4)	4.4	(1.7)
Directly from a dairy operation	29.8	(8.3)	20.8	(5.0)	23.1	(6.5)	15.7	(4.8)	27.7	(5.1)	24.2	(3.9)
Directly from meat or other operation	30.1	(9.8)	52.7	(6.8)	53.9	(10.0)	43.8	(8.9)	45.7	(6.3)	45.2	(5.2)
Livestock market or auction (not online)	22.1	(8.5)	4.7	(2.6)	21.4	(8.3)	22.2	(8.6)	9.0	(3.2)	12.9	(3.5)
Online (Craigslist, Facebook Marketplace, eBay, online auctions, etc.)	6.4	(3.8)	11.5	(4.5)	1.5	(1.5)	4.1	(3.0)	10.2	(3.6)	8.4	(2.7)
Farm store or feed store	(D)*	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Flea market, farmer’s market, or swap meet	0.0	(—)	0.0	(—)	0.0	(—)	0.0	(—)	0.0	(—)	0.0	(—)
Fair or show	8.6	(6.7)	0.0	(—)	1.4	(1.4)	1.2	(0.8)	3.9	(3.3)	3.1	(2.3)
Other	3.6	(1.9)	8.7	(4.1)	2.1	(1.4)	9.9	(4.9)	4.5	(2.4)	6.1	(2.3)

*Values of (D) denote too few to report.

A higher percentage of dairy operations (74.3 percent) added bucks or wethers directly from another dairy operation than meat and other operations (7.6 percent and 15.4 percent). A higher percentage of meat and other operations (60.7 percent and 42.1 percent) added bucks or wethers directly from meat operations than dairy operations (9.0 percent).

G.4.b. For the 13.4 percent of operations that added any adult bucks or wethers in the previous 12 months (table G.1.a.), percentage of operations by source of bucks or wethers, and by primary production of operation:

Percent Operations

	Primary Production					
	Meat		**Dairy**		**Other**	
Source of bucks or wethers	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Goat wholesaler or dealer	5.5	(2.9)	4.4	(1.9)	1.4	(1.0)
Directly from a dairy operation	7.6	(4.3)	74.3	(6.6)	15.4	(5.8)
Directly from meat or other operation	60.7	(7.3)	9.0	(3.5)	42.1	(10.2)
Livestock market or auction (not online)	11.9	(4.8)	9.0	(5.2)	19.6	(8.6)
Online (Craigslist, Facebook Marketplace, eBay, online auctions, etc.)	9.0	(3.9)	2.3	(2.0)	13.5	(6.4)
Farm store or feed store	(D)*	(D)	(D)	(D)	(D)	(D)
Flea market, farmer's market, or swap meet	0.0	(—)	0.0	(—)	0.0	(—)
Fair or show	4.1	(4.0)	2.0	(2.0)	1.6	(1.1)
Other	6.5	(3.5)	1.0	(0.6)	10.2	(4.5)

*Values of (D) denote too few to report.

In total, 57.7 percent of all bucks and wethers added were sourced through livestock markets/auctions, and bucks or wethers added from these sources accounted for 21.1 percent of shipments made. Of bucks or wethers added, 31.9 percent were sourced directly from another operation with goats: 11.5 percent of bucks or wethers added were sourced from a dairy operation, and 20.4 percent were sourced from a meat or other operation. Bucks and wethers added directly from another operation represented 59.6 percent of all shipments made.

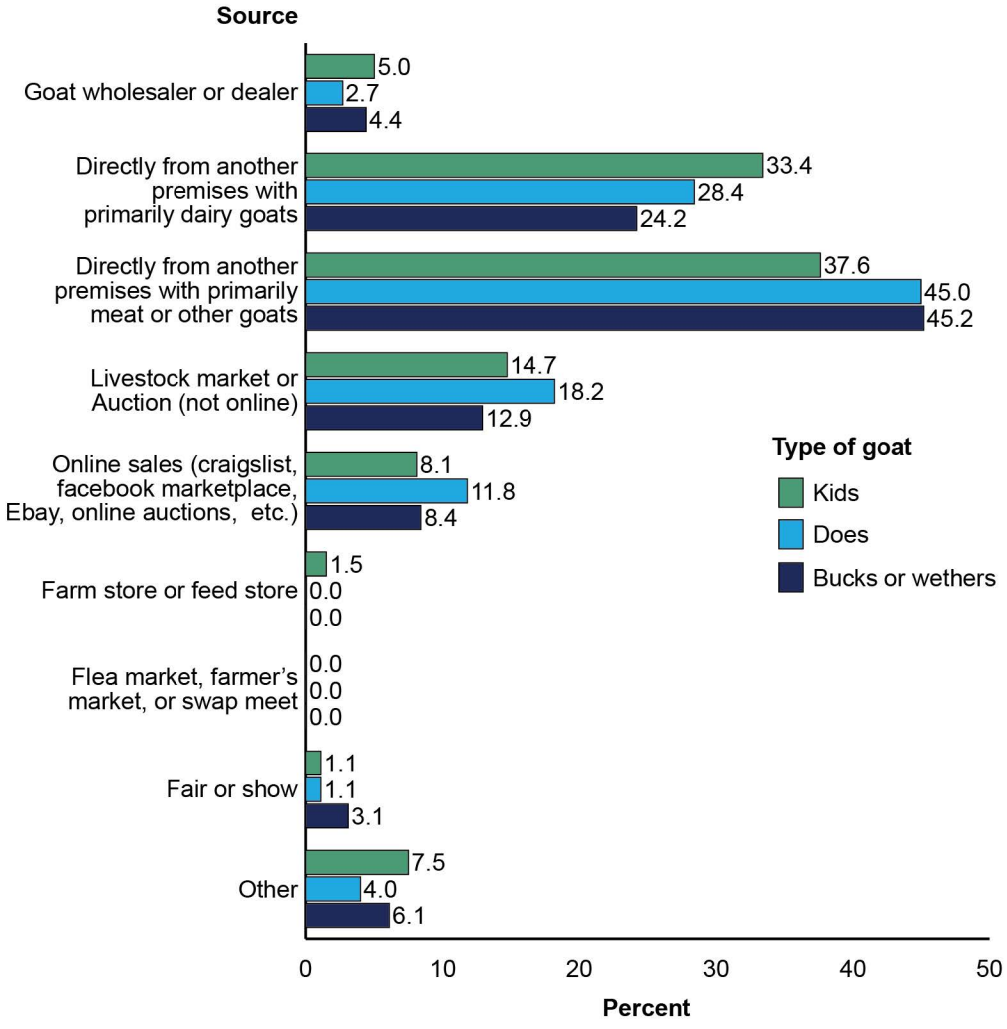
G.4.c. For the 13.4 percent of operations that added any bucks or wethers in the previous 12 months (table G.1.a.), percentage of bucks or wethers by source, and percentage of shipments by source:

Percent

Source of bucks or wethers	Bucks/wethers[1] Pct.	Bucks/wethers[1] Std. error	Shipments[2] Pct.	Shipments[2] Std. error
Goat wholesaler or dealer	3.4	(2.1)	3.6	(1.4)
Directly from another premises with primarily dairy goats	11.5	(6.4)	21.1	(3.9)
Directly from another premises with primarily meat or other goats	20.4	(9.9)	38.5	(5.6)
Livestock market or auction (not online)	57.7	(19.7)	21.1	(7.2)
Online sales (craigslist, Facebook marketplace, eBay, online auctions, etc.)	4.0	(2.4)	7.6	(2.3)
Farm store or feed store	(D)[3]	(D)	(D)	(D)
Flea market, farmer's market, or swap meet	0.0	(—)	0.0	(—)
Fair or show	0.9	(0.8)	2.5	(1.9)
Other	2.1	(1.2)	5.6	(2.0)
Total	100.0		100.0	

[1]Percent bucks/wethers calculated from the number of bucks/wethers added to the operation in the previous 12 months.
[2]Percent shipments calculated from the number of shipments of bucks/wethers added to the operation in the previous 12 months.
[3]Values of (D) denote too few to report.

***For the 15.2 percent of operations that added kids, percentage of operations by source of kids; for the 15.0 percent of operations that added does, percentage of operations by source of does; and for the 13.4 percent of operations that added bucks or wethers, percentage of operations by source of bucks or wethers**



*During the previous 12 months.

5. Goats and kids that left the operation and returned

Goats and kids that leave an operation and commingle with goats from other operations present a disease risk if they return to their home operation. Overall 20.3 percent of operations had any goats or kids leave the operation and then return. There were no differences by herd size and region in the percentage of operations that had goats or kids leave and then return.

G.5.a. Percentage of operations that in the previous 12 months had any goats or kids leave the operation to visit another operation or to attend an event (e.g., fair, show, sale, rodeo) and then return, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
17.3	(2.2)	23.5	(2.1)	20.7	(3.8)	15.0	(2.1)	22.3	(1.8)	20.3	(1.4)

A higher percentage of dairy operations (29.0 percent) had goats or kids leave the operation and then return than meat operations (15.7 percent).

G.5.b. Percentage of operations that in the previous 12 months had any goats or kids leave the operation to visit another operation or to attend an event (e.g., fair, show, sale, rodeo) and then return, by primary production of operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
15.7	(1.9)	29.0	(2.7)	23.8	(3.1)

Goats returning to the operation should be quarantined for at least 30 days in order to reduce the risk of introducing disease to the operation: 30 days allows time to complete any testing and to ensure that the goats do not develop any clinical signs of illness.

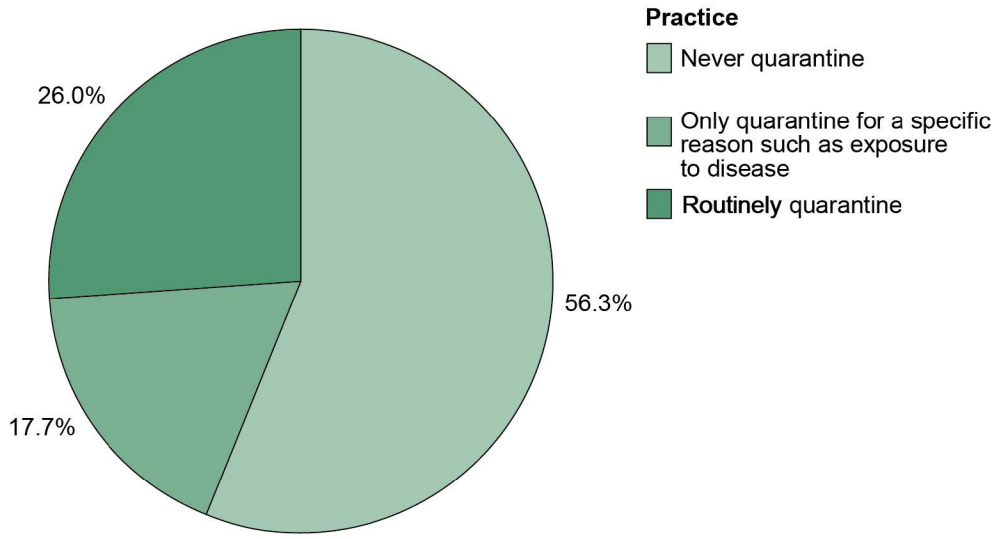
Overall, 56.3 percent of operations never quarantined returning goats; 17.7 percent quarantined goats if there was a specific reason, such as known exposure to disease. There were no differences by herd sizes or by region in the percentage of operations by quarantine practice used for returning goats.

G.5.c. For the 20.3 percent of operations in which any goats or kids left the operation to visit another operation or to attend an event (e.g., fair, show, sale, rodeo) and then return in the previous 12 months (table G.5.a.), percentage of operations by quarantine practice used for returning goats, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Practice	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Never quarantine	62.0	(6.6)	53.1	(5.0)	47.3	(11.0)	62.5	(7.0)	54.7	(4.6)	56.3	(3.9)
Only quarantine for a specific reason such as known exposure to disease	17.5	(4.9)	16.5	(4.2)	26.1	(11.4)	9.5	(2.2)	19.9	(3.9)	17.7	(3.1)
Routinely quarantine	20.5	(5.0)	30.4	(4.5)	26.6	(6.5)	28.0	(7.0)	25.4	(3.4)	26.0	(3.1)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

For the 20.3 percent of operations in which any goats or kid goats left the operation to visit another operation or to attend an event and then returned in the previous 12 months, percentage of operations by quarantine practice used for returning goats and kids



There were no differences by primary production of operation in the percentage of operations by quarantine practice used for returning goats or kids.

G.5.d. For the 20.3 percent of operations in which any goats or kids left the operation to visit another operation or to attend an event (e.g., fair, show, sale, rodeo) and then returned in the previous 12 months (table G.5.a.), percentage of operations by quarantine practice used for returning goats, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Practice	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Never quarantine	62.6	(5.9)	55.5	(5.3)	47.9	(7.5)
Only quarantine for a specific reason such as known exposure to disease	10.0	(4.0)	22.8	(5.3)	24.4	(6.6)
Routinely quarantine	27.4	(5.0)	21.8	(4.0)	27.7	(6.6)
Total	100.0		100.0		100.0	

On operations that routinely quarantined any goats or kids that left the operations and then returned, goats were isolated for an average of at least 28.4 days.

G.5.e. For operations that routinely quarantined any goats or kids that left the operations and then returned in the previous 12 months* (table G.5.c.), average minimum number of days returning goats or kids were quarantined:

Average Minimum Days	Std. error
28.4	(7.8)

*Refers to the 5.3 percent of operations that routinely quarantined any returning goats. This estimate comes from the 20.3 percent of operations in which any goats or kids in the previous 12 months left the operation to visit another operation or to attend an event (e.g., fair, show, sale, rodeo) and then returned (table G.5.a.), of which 26.0 percent of those operations routinely quarantined returning goats (table G.5.c.).

For operations that routinely quarantined goats or kids that left the operations and then returned, 29.7 percent quarantined returning goats or kids for a minimum of 1 to 7 days.

G.5.f. For operations that routinely quarantined any goats or kids that left the operations and then returned in the previous 12 months* (table G.5.c.), percentage of operations by minimum number of days returning goats or kids were quarantined:

Minimum days quarantined	Percent operations	Std. error
1 to 7	29.7	(6.4)
8 to 14	29.5	(6.3)
15 or more	40.8	(6.5)
Total	100.0	

*Refers to the 5.3 percent of operations that routinely quarantined any returning goats. This estimate comes from the 20.3 percent of operations in which any goats or kids in the previous 12 months left the operation to visit another operation or to attend an event (e.g., fair, show, sale, rodeo) and then returned (table G.5.a.), of which 26.0 percent of those operations routinely quarantined returning goats (table G.5.c.).

6. Permanent removals

Note: For this section, tables G.6.a. to G.6.p. refer to sales and permanent removals of live goats or kids but exclude goats or kids that died or were home slaughtered for operator consumption.

Finding a buyer for goats is easier at an auction or sale barn than finding one through direct sales. Direct sales, however, can be more profitable because there may be no transportation costs and no sales commission.

Overall, 68.3 percent of operations sold or otherwise permanently removed any goats or kids. A higher percentage of medium and large operations (78.7 and 88.8 percent, respectively) sold or permanently removed any goats or kids than small operations (55.6 percent).

G.6.a. Percentage of operations that sold or otherwise permanently removed any goats or kids from the operation in the previous 12 months, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
55.6	(3.0)	78.7	(2.3)	88.8	(2.7)	69.6	(3.2)	67.8	(2.2)	68.3	(1.8)

A lower percentage of other operations (53.1 percent) sold or permanently removed any goats or kids than meat or dairy operations (74.8 percent and 69.6 percent).

G.6.b. Percentage of operations that sold or otherwise permanently removed any goats or kids from the operation in the previous 12 months, by primary production of the operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
74.8	(2.5)	69.6	(3.3)	53.1	(3.7)

Overall, 81.4 percent of operations that permanently removed any goats or kids sent some goats or kids to locations within their State. A higher percentage of medium operations (20.7 percent) sent permanently removed goats or kids out of State than small operations (8.7 percent).

A higher percentage of operations in the East region (17.8 percent) sent permanently removed goats or kids out of State than operations in the West region (9.1 percent).

G.6.c. For the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), percentage of operations by final destination of goats or kids, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Final destination	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
In State	83.4	(3.0)	79.3	(2.4)	83.4	(3.3)	87.4	(2.7)	78.9	(2.2)	81.4	(1.7)
Out of State	8.7	(1.9)	20.7	(2.3)	14.0	(2.1)	9.1	(1.6)	17.8	(1.8)	15.3	(1.4)
Unknown	16.7	(3.0)	19.0	(2.4)	17.1	(3.2)	14.4	(2.9)	19.3	(2.1)	17.9	(1.7)

A higher percentage of dairy and other operations (21.7 percent and 23.2 percent) sent permanently removed goats or kids out of State than meat operations (10.7 percent).

G.6.d. For the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), percentage of operations by final destination of goats or kids, by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Final destination	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
In State	80.1	(2.4)	83.5	(3.0)	83.1	(3.6)
Out of State	10.7	(1.6)	21.7	(2.6)	23.2	(4.1)
Unknown	18.0	(2.4)	18.1	(3.2)	17.3	(3.6)

Overall, 72.0 percent of goats or kids permanently removed were moved within State. A higher percentage of permanently removed goats or kids in the West region (82.3 percent) than in the East region (63.0 percent) remained in their State. A higher percentage of permanently removed goats or kids in the East region (24.1 percent) were moved out of State than operations in the West region (3.0 percent).

G.6.e. For the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), percentage of adult goats or kids by their final destination, and by herd size and region:

	Percent Goats and Kids											
	Herd size (number of goats and kids)						Region					
	Small (5–19)		Medium (20–99)		Large (100 or More)		West		East		All operations	
Final destination	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
In State	80.0	(3.2)	73.1	(3.1)	69.5	(5.6)	82.3	(3.9)	63.0	(4.6)	72.0	(3.3)
Out of State	5.6	(2.3)	12.9	(2.6)	17.0	(5.4)	3.0	(0.7)	24.1	(5.1)	14.3	(3.1)
Unknown	14.4	(3.8)	13.9	(2.1)	13.4	(3.4)	14.7	(3.9)	12.9	(1.8)	13.7	(2.1)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

A higher percentage of permanently removed goats or kids on dairy operations (16.7 percent) were sent out of State than goats on other operations (8.0 percent).

G.6.f. For the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), percentage of adult and kid goats by their final destination, and by primary production of the operation:

	Percent Goats and Kids					
	Primary Production of Operation					
	Meat		Dairy		Other	
Final destination	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
In State	71.4	(4.6)	68.8	(2.7)	80.9	(3.8)
Out of State	14.7	(4.4)	16.7	(2.4)	8.0	(1.8)
Unknown	13.9	(2.8)	14.4	(2.3)	11.1	(3.0)
Total	100.0		100.0		100.0	

Overall, 88.2 percent of operations permanently removed kids, and 58.3 percent permanently removed goats. A higher percentage of large operations permanently removed goats and kids (68.1 percent and 94.5 percent, respectively) than small operations (50.4 percent and 85.9 percent, respectively).

A higher percentage of operations in the West region (93.6 percent) permanently removed kids than operations in the East region (86.0 percent).

G.6.g. For the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), percentage of operations by age of goats and kids when removed, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Age	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than 1 year (kids)	85.9	(2.7)	88.7	(1.7)	94.5	(1.4)	93.6	(1.2)	86.0	(1.9)	88.2	(1.4)
1 year or more (goats)	50.4	(3.7)	62.5	(3.0)	68.1	(4.9)	50.6	(3.8)	61.5	(2.6)	58.3	(2.2)

For operations that permanently removed goats or kids, there were no differences by primary production of operation in the percentage of operations by age of goats removed.

G.6.h. For the 68.3 percent of operations that permanently removed goats or kids in the previous 12 months (table G.6.a.), percentage of operations by age of goats and kids when removed, and by primary production of operation:

Percent Operations

	Primary Production					
	Meat		**Dairy**		**Other**	
Age	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than 1 year (kids)	89.8	(1.8)	90.0	(2.4)	81.4	(3.8)
1 year or more (goats)	54.6	(3.0)	67.9	(3.8)	60.6	(4.8)

A higher percentage of kids on large operations (85.1 percent) than on medium operations (77.2 percent) were permanently removed, and a higher percentage of goats on medium operations (22.8 percent) than on large operations (14.9 percent) were permanently removed.

A higher percentage of goats in the East region (25.3 percent) were permanently removed than goats in the West region (14.1 percent). A higher percentage of kids in the West region were permanently removed (85.9 percent) than in the East region (74.7 percent).

G.6.i. For the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), percentage of goats and kids by age when removed, and by herd size and region:

Percent Goats and Kids

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Age	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than 1 year (kids)	63.8	(9.6)	77.2	(2.0)	85.1	(1.6)	85.9	(1.8)	74.7	(2.9)	79.9	(1.8)
1 year and older (goats)	36.2	(9.6)	22.8	(2.0)	14.9	(1.6)	14.1	(1.8)	25.3	(2.9)	20.1	(1.8)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

There were no differences by primary production of operation in the percentages of goats or kids permanently removed.

G.6.j. For the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), percentage of goats and kids by age when removed, and by primary production of operation:

	Percent Goats and Kids					
	Primary Production of Operation					
	Meat		Dairy		Other	
Age	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Less than 1 year (kids)	80.7	(2.5)	78.3	(2.4)	77.7	(3.6)
1 year and older (goats)	19.3	(2.5)	21.7	(2.4)	22.3	(3.6)
Total	100.0		100.0		100.0	

Of the operations that permanently removed goats or kids, 49.7 percent of operations sold any goats or kids through an auction/sale barn. Operations also sold goats and kids directly: 25.3 percent sold directly to consumers or ethnic markets, 3.5 percent directly to a slaughter plant/packer, 10.4 percent directly to another goat operation for backgrounding, and 18.2 percent sold goats or kids to another operation.

A higher percentage of small operations (29.6 percent) sold any goats or kids directly to consumers or ethnic markets than large operations (16.1 percent). The percentage of operations that sold any goats or kids through an auction/sale barn increased as herd size increased: 37.4 percent of small operations, 53.7 percent of medium operations, and 76.7 percent of large operations sold goats or kids at an auction/sale barn.

A higher percentage of operations in the East region (29.8 percent) than in the West region (14.3 percent) sold goats or kids directly to consumers or ethnic markets, and a higher percentage of operations in the West region (60.4 percent) than in the East (45.3 percent) sold goats or kids through an auction/sale barn.

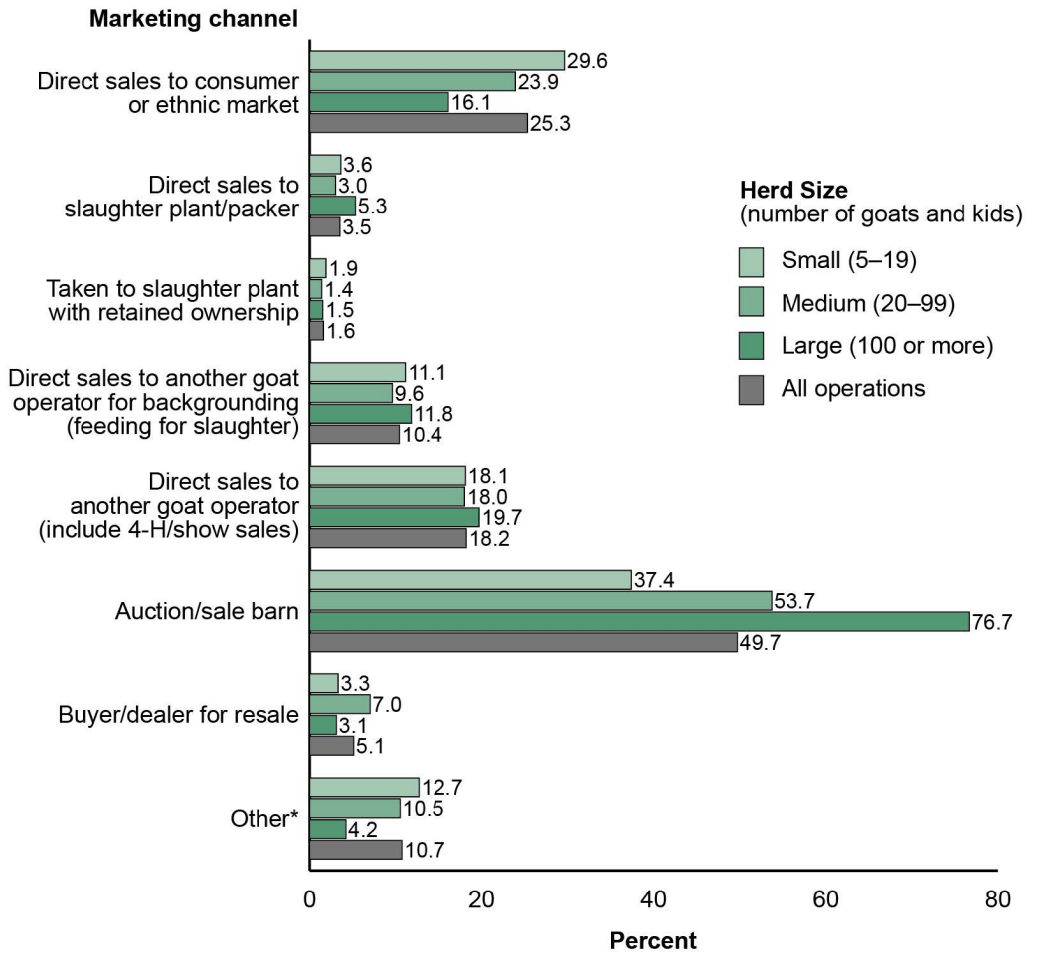
G.6.k. For the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.) percentage of operations by marketing channel(s) used when removing goats or kids, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Marketing channel	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Direct sales to consumer or ethnic market	29.6	(3.6)	23.9	(2.5)	16.1	(3.0)	14.3	(2.0)	29.8	(2.5)	25.3	(1.9)
Direct sales to slaughter plant/ packer	3.6	(1.6)	3.0	(0.9)	5.3	(1.0)	3.4	(1.2)	3.5	(1.0)	3.5	(0.8)
Taken to slaughter plant with retained ownership	1.9	(1.0)	1.4	(0.6)	1.5	(0.4)	0.8	(0.3)	2.0	(0.7)	1.6	(0.5)
Direct sales to another goat operator for backgrounding (feeding for slaughter)	11.1	(2.2)	9.6	(1.6)	11.8	(3.2)	5.1	(2.0)	12.6	(1.5)	10.4	(1.2)
Direct sales to another goat operator (include 4-H/show sales)	18.1	(2.8)	18.0	(2.0)	19.7	(4.5)	21.1	(2.9)	17.0	(1.8)	18.2	(1.5)
Auction/sale barn	37.4	(3.9)	53.7	(3.0)	76.7	(3.9)	60.4	(3.6)	45.3	(2.7)	49.7	(2.2)
Buyer/dealer for resale	3.3	(1.3)	7.0	(1.4)	3.1	(0.6)	4.8	(1.6)	5.3	(1.0)	5.1	(0.8)
Other*	12.7	(2.5)	10.5	(1.9)	4.2	(0.9)	6.6	(1.8)	12.4	(1.7)	10.7	(1.4)

*Substantial others included Internet sales, sales to a breeder, sales as pets/brush control/agritourism.

For the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months, percentage of operations marketing channel(s) used when removing goats or kids, and by herd size



*Substantial others included Internet sales, sales to a breeder, sales as pets/brush control/agritourism.

A higher percentage of dairy and other operations (16.9 percent and 17.1 percent, respectively) sent goats or kids to another goat operation for backgrounding than meat operations (6.3 percent). A higher percentage of dairy operations (30.5 percent) sold goats or kids to another operation than meat operations (12.7 percent).

G.6.l. For the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), percentage of operations by marketing channel(s) used when removing goats or kids, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Marketing channel	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Direct sales to consumer or ethnic market	22.0	(2.4)	29.9	(3.6)	31.4	(4.6)
Direct sales to slaughter plant/packer	4.3	(1.2)	4.1	(1.1)	0.4	(0.2)
Taken to slaughter plant with retained ownership	1.7	(0.6)	2.2	(1.6)	0.7	(0.5)
Direct sales to another goat operator for backgrounding (feeding for slaughter)	6.3	(1.5)	16.9	(2.3)	17.1	(3.7)
Direct sales to another goat operator (include 4-H/show sales)	12.7	(1.9)	30.5	(3.7)	23.3	(3.7)
Auction/sale barn	61.3	(3.0)	35.0	(3.6)	27.8	(4.4)
Buyer/dealer for resale	6.1	(1.3)	4.7	(0.9)	2.6	(1.3)
Other*	7.4	(1.6)	13.5	(2.9)	18.3	(3.6)

*Substantial others included Internet sales, sales to a breeder, sales as pets/brush control/agritourism.

For operations that permanently removed goats or kids, 50.3 percent of goats and 55.1 percent of kids permanently removed were sold through an auction/sale barn. Only 11.2 percent of the goats and 8.5 percent of the kids permanently removed were sold to a slaughter plant, either by direct sales or by retained ownership.

G.6.m. For the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), percentage of goats and kids by marketing channel used when removing goats or kids:

Percent

	Goats		Kids	
Marketing channel	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Direct sales to consumer or ethnic market	14.5	(2.7)	12.0	(2.0)
Direct sales to slaughter plant/ packer	9.8	(3.3)	7.8	(3.1)
Taken to slaughter plant with retained ownership	1.4	(0.9)	0.7	(0.3)
Direct sales to another goat operator for backgrounding (feeding for slaughter)	4.6	(0.9)	5.1	(0.8)
Direct sales to another goat operator (include 4-H/show sales)	8.6	(1.9)	8.8	(1.6)
Auction/sale barn	50.3	(4.4)	55.1	(3.5)
Buyer/dealer for resale	6.7	(1.7)	4.3	(1.8)
Other*	4.2	(1.1)	6.0	(2.6)
Total	100.0		100.0	

*Substantial others included Internet sales, sales to a breeder, sales as pets/brush control/agritourism.

For operations that permanently removed any goats or kids by selling them directly to consumers or ethnic markets, 7.8 percent slaughtered the goats on the operation. A higher percentage of large operations (31.7 percent) slaughtered goats on the operation than small operations (4.8 percent).

There were no differences by region in the percentage of operations that slaughtered goats on the operation for consumers or ethnic markets.

G.6.n. For operations that permanently removed any goats or kids via direct sales to consumers or ethnic markets in the previous 12 months* (table G.6.k.), percentage of operations that slaughtered the goats or kids on the operation, by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
4.8	(2.2)	7.4	(2.7)	31.7	(12.1)	6.7	(2.5)	8.1	(2.3)	7.8	(2.0)

*Refers to the 17.3 percent of operations that permanently removed any goats or kids via direct sales to consumers or ethnic markets. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), of which 25.3 percent of those operations permanently removed any goats or kids via direct sales to consumers or ethnic markets (table G.6.k.).

There were no differences by primary production of operation in the percentage of operations that slaughtered goats on the operation for consumers or ethnic markets.

G.6.o. For operations that permanently removed any goats or kids via direct sales to consumers or ethnic markets in the previous 12 months* (table G.6.k.), percentage of operations that slaughtered the goats or kids on the operation, by primary production of operation:

Percent Operations					
Primary Production					
Meat		Dairy		Other	
Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
6.8	(2.7)	12.5	(5.0)	5.7	(2.9)

*Refers to the 17.3 percent of operations that permanently removed any goats or kids via direct sales to consumers or ethnic markets. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), of which 25.3 percent of those operations permanently removed any goats or kids via direct sales to consumers or ethnic markets (table G.6.k.).

Overall, 12.7 percent of the goats and 6.2 percent of the kids permanently removed via direct sales to consumers or ethnic markets were slaughtered on the operation.

G.6.p. For operations that permanently removed any goats or kids via direct sales to consumers or ethnic markets in the previous 12 months* (table G.6.k.), percentage of goats and kids slaughtered on the operation:

Percent goats	Std. error	Percent kids	Std. error
12.7	(6.8)	6.2	(2.1)

*Refers to the 17.3 percent of operations that permanently removed any goats or kids via direct sales to consumers or ethnic markets. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), of which 25.3 percent of those operations permanently removed any goats or kids via direct sales to consumers or ethnic markets (table G.6.k.).

7. Culled goats

Operations cull goats for various reasons, including disease, reduction of herd size, and reduction of operational costs. Additionally, some operations may choose to cull goats to improve genetics or enhance desirable traits.

For the operations that permanently removed any goats or kids, 43.8 percent culled any goats; 31.6 percent culled breeding does; and 19.3 percent culled breeding bucks. A higher percentage of medium and large operations (48.3 percent and 64.0 percent, respectively) culled any goats than small operations (32.7 percent). The percentage of operations that culled breeding does increased as herd size increased: 21.9 percent of small, 34.1 percent of medium, and 56.0 percent of large operations culled breeding does.

G.7.a. For the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), percentage of operations by type(s) of goat culled, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Type of goat	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Breeding does	21.9	(3.0)	34.1	(2.8)	56.0	(4.9)	34.6	(3.6)	30.4	(2.3)	31.6	(1.9)
Breeding bucks	15.9	(2.8)	20.8	(2.4)	25.4	(3.8)	18.3	(2.7)	19.8	(2.1)	19.3	(1.7)
Other goats	5.5	(1.7)	8.8	(1.7)	6.8	(2.2)	2.9	(0.7)	9.0	(1.5)	7.3	(1.1)
Any goats	32.7	(3.6)	48.3	(3.0)	64.0	(4.8)	42.8	(3.8)	44.2	(2.6)	43.8	(2.1)

A higher percentage of other operations (14.2 percent) culled other goats than meat operations (5.4 percent).

G.7.b. For the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), percentage of operations by type(s) of goat culled, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Type of goat	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Breeding does	31.9	(2.7)	35.3	(3.3)	27.0	(4.4)
Breeding bucks	19.9	(2.4)	23.1	(3.3)	13.8	(2.9)
Other goats	5.4	(1.2)	6.1	(1.8)	14.2	(3.5)
Any goats	44.0	(2.9)	46.9	(3.9)	40.1	(4.8)

For operations that permanently removed any goats or kids, 57.8 percent of goats permanently removed were culled goats, with 43.5 percent being culled breeding does and 7.2 percent being culled breeding bucks. A higher percentage of culled goats were breeding does (43.5 percent) compared with breeding bucks (7.2 percent). Large operations had a higher percentage of permanently removed goats that were culled breeding does (63.5 percent) than small and medium operations (17.8 percent and 36.6 percent, respectively). A higher percentage of large operations (75.0 percent) culled any goats than small operations (27.1 percent).

G.7.c. For the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), percentage of removed goats that were culled, by type(s) of goat culled, and by herd size and region:

Percent Goats*

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Type of goat	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Breeding does	17.8	(7.8)	36.6	(4.0)	63.5	(5.0)	55.7	(6.6)	37.6	(5.6)	43.5	(4.8)
Breeding bucks	5.3	(2.5)	8.9	(1.5)	6.5	(1.7)	6.1	(1.2)	7.7	(1.5)	7.2	(1.1)
Other goats	4.0	(2.1)	11.2	(3.5)	5.0	(2.1)	3.0	(1.0)	9.2	(2.6)	7.1	(1.8)
Any goats	27.1	(11.6)	56.7	(5.0)	75.0	(5.3)	64.8	(6.6)	54.4	(7.9)	57.8	(6.0)

*Percentage of goats culled calculated from the total number of goats removed in the previous 12 months.

A higher percentage of goats other than breeding bucks or breeding does (20.8 percent) were culled on other operations than on dairy operations (4.3 percent).

G.7.d. For the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), percentage of removed goats that were culled, by type(s) of goat culled, and by primary production of operation:

	Percent Goats*					
	Primary Production of Operation					
	Meat		Dairy		Other	
Type of goat	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Breeding does	41.8	(6.8)	59.2	(5.1)	27.1	(5.0)
Breeding bucks	7.4	(1.6)	5.4	(0.8)	9.0	(2.8)
Other goats	5.4	(2.2)	4.3	(1.2)	20.8	(6.3)
Any goats	54.6	(8.4)	68.9	(5.6)	56.9	(8.4)

*Percentage of goats culled calculated from the total number of goats removed in the previous 12 months.

A higher percentage of large operations (58.0 percent) culled any breeding does because of old age/teeth problems than small operations (30.2 percent). The percentage of operations that culled breeding does due to low milk production increased as herd size increased, ranging from 3.1 percent of small operations, 10.3 percent of medium operations, and 25.1 percent of large operations. A lower percentage of small operations (3.4 percent) culled breeding does for failure to kid than medium and large operations (14.9 and 22.7 percent, respectively).

G.7.e. For operations that culled any breeding does in the previous 12 months[1] (table G.7.a.), percentage of operations by reason(s) for culling, and by herd size and region:

Percent Operations

	Herd size (Number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Reason for culling	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Illness												
Mastitis	5.8	(3.3)	13.0	(3.0)	23.2	(4.7)	13.4	(3.9)	12.7	(2.4)	13.0	(2.1)
Thin/unthrifty	5.1	(3.4)	7.7	(2.2)	14.8	(2.5)	8.9	(2.9)	8.0	(1.8)	8.3	(1.6)
Neurologic signs	0.0	(—)	0.3	(0.3)	0.7	(0.4)	0.1	(0.1)	0.4	(0.2)	0.3	(0.2)
Internal parasites, high fecal egg count, or based on FAMACHA score	0.8	(0.8)	3.8	(1.8)	1.5	(0.4)	4.5	(2.7)	1.6	(0.7)	2.6	(1.0)
Pregnancy toxemia	0.8	(0.7)	0.2	(0.2)	4.9	(3.7)	0.0	(—)	1.8	(1.1)	1.2	(0.8)
Other illness	0.0	(—)	0.7	(0.3)	1.4	(0.7)	0.6	(0.4)	0.7	(0.3)	0.7	(0.2)
Other reasons												
Old age/teeth problems	30.2	(7.6)	39.9	(4.9)	58.0	(5.2)	41.7	(5.9)	40.2	(4.4)	40.7	(3.5)
Low milk production	3.1	(1.2)	10.3	(1.9)	25.1	(3.1)	7.0	(1.7)	13.0	(1.6)	11.1	(1.2)
Poor genetics	8.9	(4.8)	17.2	(3.5)	13.1	(4.3)	12.4	(4.2)	14.9	(3.0)	14.2	(2.4)
Poor mothering	7.2	(3.7)	10.7	(2.9)	13.9	(4.4)	10.6	(3.1)	10.2	(2.6)	10.3	(2.0)
Failure to kid (open or aborted) or other reproductive problems	3.4	(1.9)	14.9	(3.0)	22.7	(4.7)	9.7	(1.9)	14.8	(2.7)	13.2	(2.0)
High somatic cell count	0.0	(—)	1.6	(0.6)	4.6	(1.1)	0.1	(0.1)	2.5	(0.5)	1.7	(0.4)
Economic issues (e.g., drought, herd reduction, market conditions)	23.8	(6.6)	15.5	(3.7)	7.2	(1.7)	19.9	(5.4)	14.5	(3.1)	16.2	(2.8)
Other[2]	23.4	(6.2)	6.8	(2.0)	1.3	(0.6)	9.9	(4.3)	10.5	(2.3)	10.3	(2.1)

[1]Refers to the 21.6 percent of operations that culled any breeding does. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), of which 31.6 percent of those operations culled any breeding does (table G.7.a).
[2]Substantial others included aggressive/abnormal behavior and injuries.

A higher percentage of meat operations (47.7 percent) culled breeding does due to old age/teeth problems than dairy operations (28.6 percent). Conversely, a higher percentage of dairy operations culled breeding does due to low milk production (35.7 percent) than meat or other operations (3.9 and 6.5 percent, respectively).

G.7.f. For operations that culled any breeding does in the previous 12 months[1] (table G.7.a.), percentage of operations by reason for culling, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Reason for culling	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Illness						
Mastitis	12.8	(2.9)	21.0	(4.1)	3.5	(2.6)
Thin/unthrifty	8.0	(2.3)	11.3	(2.0)	5.7	(2.8)
Neurologic signs	0.0	(—)	1.3	(0.7)	0.0	(—)
Internal parasites, high fecal egg count, or based on FAMACHA score	3.3	(1.6)	2.0	(0.9)	0.5	(0.2)
Pregnancy toxemia	0.0	(—)	5.8	(3.4)	0.0	(—)
Other illness	0.3	(0.2)	1.5	(0.6)	0.7	(0.6)
Other reasons						
Old age/teeth problems	47.7	(4.8)	28.6	(4.4)	29.8	(9.4)
Low milk production	3.9	(1.1)	35.7	(3.8)	6.5	(3.1)
Poor genetics	12.4	(3.3)	20.7	(3.9)	12.5	(5.7)
Poor mothering	11.4	(2.7)	6.7	(3.5)	10.9	(5.8)
Failure to kid (open or aborted) or other reproductive problems	10.9	(2.2)	16.6	(3.2)	17.2	(6.8)
High somatic cell count	0.1	(0.1)	7.9	(1.7)	0.0	(—)
Economic issues (e.g., drought, herd reduction, market conditions)	16.1	(3.7)	10.7	(2.3)	23.5	(8.4)
Other[2]	5.5	(2.0)	10.5	(3.1)	27.8	(8.8)

[1]Refers to the 21.6 percent of operations that culled any breeding does. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), of which 31.6 percent of those operations culled any breeding does (table G.7.a.).
[2]Substantial others included aggressive/abnormal behavior and injuries.

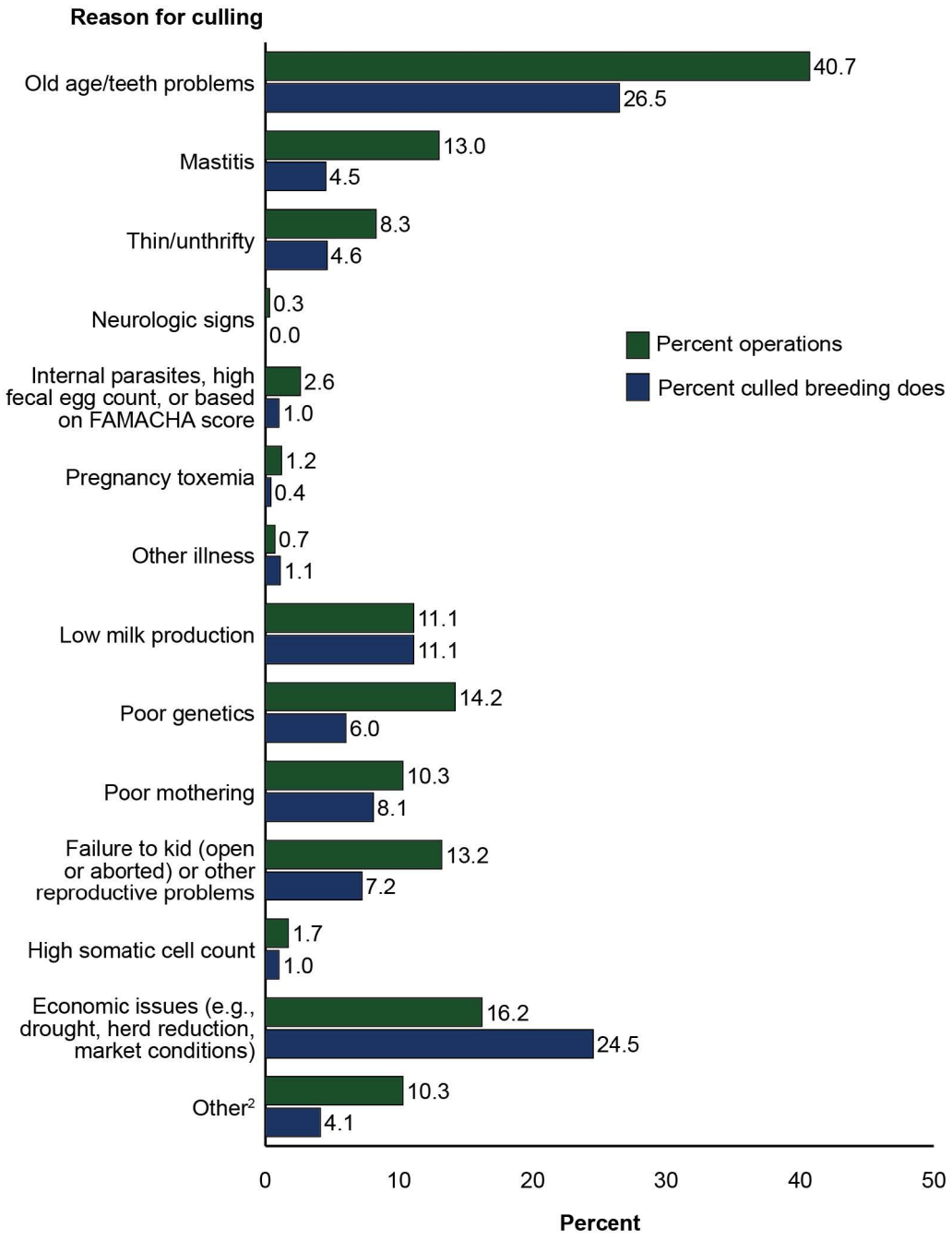
Overall, 26.5 percent of culled breeding does were culled due to old age/teeth problems, and 24.5 percent were culled due to economic issues. Only 11.6 percent of culled breeding does were culled due to illness.

G.7.g. For operations that culled any breeding does in the previous 12 months[1] (table G.7.a.), percentage of culled breeding does by reason for culled:

Reason for culling	Percent culled breeding does	Std. error
Illness		
Mastitis	4.5	(0.8)
Thin/unthrifty	4.6	(0.9)
Neurologic signs	0.0	(0.0)
Internal parasites, high fecal egg count, or based on FAMACHA score	1.0	(0.4)
Pregnancy toxemia	0.4	(0.3)
Other illness	1.1	(0.5)
Other reasons		
Old age/teeth problems	26.5	(3.4)
Low milk production	11.1	(1.6)
Poor genetics	6.0	(1.2)
Poor mothering	8.1	(2.8)
Failure to kid (open or aborted) or other reproductive problems	7.2	(1.5)
High somatic cell count	1.0	(0.2)
Economic issues (e.g., drought, herd reduction, market conditions)	24.5	(6.6)
Other[2]	4.1	(1.1)
Total	100.0	

[1]Refers to the 21.6 percent of operations that culled any breeding does. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), of which 31.6 percent of those operations culled any breeding does (table G.7.a.).
[2]Substantial others included aggressive/abnormal behavior and injuries.

For operations that culled any breeding does in the previous 12 months[1], percentage of operations by reason for culling, and percentage of culled breeding does by reason culled



[1]Refers to the 21.6 percent of operations that culled any breeding does. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a), of which 31.6 percent of those operations culled any breeding does (table G.7.a).
[2]Substantial others included aggressive/abnormal behavior and injuries.

On average, breeding does that were culled were 4.4 years old. There were no differences across herd size or region in the average age of culled breeding does.

G.7.h. For operations that culled any breeding does in the previous 12 months* (table G.7.a.), average age in years of culled does, by herd size and by region:

Average Age (years)

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Avg.	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
3.9	(0.4)	4.4	(0.3)	5.1	(0.3)	4.3	(0.2)	4.4	(0.3)	4.4	(0.2)

*Refers to the 21.6 percent of operations that culled any breeding does. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), of which 31.6 percent of those operations culled any breeding does (table G.7.a.).

There were no differences by primary production of operation in the average age of culled breeding does.

G.7.i. For operations that culled any breeding does in the previous 12 months* (table G.7.a.), average age in years of culled does, by primary production of operation:

Average Age (years)

Primary Production of Operation					
Meat		**Dairy**		**Other**	
Avg.	**Std. error**	**Avg.**	**Std. error**	**Avg.**	**Std. error**
4.6	(0.3)	3.9	(0.3)	4.3	(0.4)

*Refers to the 21.6 percent of operations that culled any breeding does. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), of which 31.6 percent of those operations culled any breeding does (table G.7.a.).

On average, breeding does were culled at 3 to 6 years of age on 58.4 percent of operations. A lower percentage of large operations (8.2 percent) culled breeding does less than 3 years of age than small and medium operations (28.0 percent and 23.4 percent).

There was no difference by region in the percentages of operations by average age of culled does.

G.7.j. For operations that culled any breeding does in the previous 12 months* (table G.7.a.), percentage of operations by average age in years of culled does, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Average age (years)	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than 3	28.0	(6.4)	23.4	(4.2)	8.2	(1.6)	20.2	(4.9)	22.5	(3.6)	21.8	(2.9)
3 to 6	55.7	(7.8)	56.2	(4.9)	68.2	(5.3)	68.0	(5.6)	53.9	(4.4)	58.4	(3.5)
7 or more	16.3	(6.6)	20.4	(4.2)	23.6	(5.4)	11.8	(3.2)	23.6	(4.0)	19.9	(3.0)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

*Refers to the 21.6 percent of operations that culled any breeding does. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), of which 31.6 percent of those operations culled any breeding does (table G.7.a.).

There were no differences by primary production of operation in the percentages of operations by average age in years of culled does.

G.7.k. For operations that culled any breeding does in the previous 12 months* (table G.7.a.), percentage of operations by average age in years of culled does, and by primary production of the operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Average age (years)	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Less than 3	18.1	(4.2)	34.7	(4.6)	19.1	(5.8)
3 to 6	61.0	(4.9)	48.3	(4.7)	61.3	(9.0)
7 or more	20.9	(4.0)	17.1	(4.4)	19.6	(8.3)
Total	100.0		100.0		100.0	

*Refers to the 21.6 percent of operations that culled any breeding does. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), of which 31.6 percent of those operations culled any breeding does (table G.7.a.).

Operations did not cite a predominant reason for culling breeding bucks; however, 24.4 percent culled breeding bucks due to old age/teeth problems, and 36.4 percent culled breeding bucks for reasons other than those listed in the following table. Only 3.7 percent of operations culled bucks due to illness.

G.7.l. For operations that culled any breeding bucks in the previous 12 months[1] (table G.7.a.), percentage of operations by reason for culling:

Reason for culling	Percent operations	Std. error
Illness		
Thin/unthrifty	2.0	(1.4)
Neurologic signs	0.6	(0.5)
Internal parasites, high fecal egg count, or based on FAMACHA score	0.0	(—)
Other illness	1.1	(0.9)
Other reasons		
Old age/teeth problems	24.4	(4.1)
Low productivity	1.5	(0.8)
Poor genetics	12.4	(3.2)
Buck breeding performance	8.5	(2.9)
Economic issues (e.g., drought, herd reduction, market conditions)	16.4	(3.5)
Other[2]	36.4	(4.6)

[1]Refers to the 13.2 percent of operations that culled any breeding bucks. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), of which 19.3 percent of those operations culled any breeding bucks (table G.7.a.).
[2]Substantial others included preventing inbreeding and introducing new genetics to the herd, and bad behavior or disposition.

Only 4.5 percent of culled breeding bucks were culled due to illness. There was no predominant reason for culling breeding bucks.

G.7.m. For operations that culled any breeding bucks in the previous 12 months[1] (table G.7.a.), percentage of culled breeding bucks by reason for culling:

Reason	Percent culled breeding bucks	Std. error
Illness		
Thin/unthrifty	3.9	(2.9)
Neurologic signs	0.2	(0.2)
Internal parasites, high fecal egg count, or based on FAMACHA score	0.0	(—)
Other illness	0.4	(0.3)
Other reason		
Old age/teeth problems	30.9	(5.3)
Low productivity	1.2	(0.6)
Poor genetics	10.3	(3.1)
Buck breeding performance	11.7	(3.6)
Economic issues (e.g., drought, herd reduction, market conditions)	19.2	(4.8)
Other[2]	22.2	(4.4)
Total	100.0	

[1]Refers to the 13.2 percent of operations that culled any breeding bucks. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), of which 19.3 percent of those operations culled any breeding bucks (table G.7.a.).
[2]Substantial others included preventing inbreeding and introducing new genetics to the herd, and bad behavior or disposition.

On operations that culled any breeding bucks, bucks were culled at an average age of 3.4 years.

G.7.n. For operations that culled any breeding bucks in the previous 12 months* (table G.7.a.) average age in years of culled bucks:

Avg. age (years)	**Std. error**
3.4	(0.2)

*Refers to the 13.2 percent of operations that culled any breeding bucks. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), of which 19.3 percent of those operations culled any breeding bucks (table G.7.a.).

On operations that culled any breeding bucks, 60.1 percent of breeding bucks culled were 3 to 6 years old, and 34.7 percent were less than 3 years old.

G.7.o. For operations that culled any breeding bucks in the previous 12 months* (table G.7.a.), percentage of operations by average age in years of culled bucks:

Age (years)	**Percent operations**	**Std. error**
Less than 3	34.7	(4.5)
3 to 6	60.1	(4.8)
7 or more	5.2	(2.5)
Total	100.0	

*Refers to the 13.2 percent of operations that culled any breeding bucks. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), of which 19.3 percent of those operations culled any breeding bucks (table G.7.a.).

H. Identification (ID)

Tattoos, tags, or other ID methods can be used for individual-animal or herd ID. Individual-animal ID refers to a unique ID for each animal in a herd. Herd ID designates the animals as belonging to a particular operation, and this ID is the same for every animal on the operation. Ear tags, electronic IDs, tattoos, ear notches, and collar/leg bands can be used for both individual and herd level ID, whereas brands tend to be used for herd level ID.

ID methods can be official or unofficial. Official IDs are recognized by USDA and State agencies and are vital to the success of the USDA National Scrapie Eradication Program. Official ID is used for official animal testing or interstate movement. Types of official ID include National Scrapie Eradication Program ear tags (including visual only plastic or metal tags and RFID tags) display, for example approved electronic implants, official flock identification tattoos, and approved breed registry tattoos. Official tags can be identified by the U.S. shield printed on each tag. Unofficial ID can be used to manage goats and identify their operation of origin if they are commingled with goats from other operations. Unofficial IDs include tags, tattoos, ear notches, leg bands, freeze brands, neck chains, collars, photos, goat names, and microchips.

Individual-animal and herd ID are both important for traceback purposes and proper record keeping. If, for example, an animal is suspected of scrapie at slaughter, an official scrapie tag and sufficient record keeping allow animal health officials to trace that animal back to its herd of origin, with the goal of controlling, stopping, and/or eradicating the spread/presence of disease.

ID types

Tattoo— Most often animals are tattooed on the ear or in the tail webbing. Tattoos might or might not be registered with a breed association and can be used as individual-animal or herd ID. Only approved registry tattoos in combination with the registry certificate and official flock ID tattoos can be used as official ID.

Collar/leg band— Collars/leg bands can be made of a variety of materials and colors and can be used as individual-animal or herd ID. Collar/leg bands can be difficult to read in large groups of animals.

Ear notch— Small piece(s) of an animal's ear are removed. Ear notches can be used as individual-animal or herd ID.

Hot-iron/freeze brand— Any marking created by a hot iron or by freezing. Brand location might vary from operation to operation. Brands can be used for herd ID or to give each animal a unique ID number. Branding is not common on goat operations.

Paint brand— Paint branding is a temporary form of ID and is often used with permanent forms of ID. Paint branding is an effective temporary ID method when treating goats or preparing them for sale.

Electronic ID/microchip (EID)— EID includes tags, EID collars, and implanted microchips. Electronic microchips are implanted beneath the skin, typically between the shoulder blades or near the base of the ear. Electronic ID can store various information about the goat and the herd; however, they require additional equipment to read and sometimes cannot be read from a distance due to a relatively low radio frequency strength. Some RFID tags are official tags and can be identified by the US shield printed on the tag. To determine if an implant may be used for official ID in goats check the package insert and make sure the number starts with 840.

Official metal scrapie-program ear tag— These tags can be used as both individual and herd ID (if printed with a herd ID number) and have the U.S. shield. Metal tags are less commonly used than the plastic scrapie tags due to concerns with infections when used in goats.

Official plastic scrapie-program ear tag— These tags are probably the most commonly used type of official USDA tag. They can be used as both individual and herd ID (if printed with a herd ID number) and have the U.S. shield. In the past, USDA provided tags at no cost to all producers and were colored white or orange. During the time of this study, the National Scrapie Eradication Program transitioned to only providing a limited number of free plastic tags. These no-cost tags are still available to producers who were new to the Program. While operators must still obtain a Flock ID number directly from USDA, they can now order additional tags and other tag styles and colors directly from manufacturers, at their own expense.

Other official ear tag with a U.S. shield— These tags are approved for use in other species, such as cattle and swine, and have the U.S. shield. These tags may not be used in place of official scrapie-program ear tags for official purposes, including interstate movement and presenting goats at shows/events.

Other plastic ear tag— Any unofficial tag without the U.S. shield. Ear tags can be used as individual or herd level ID and take the form of letters, numbers, and colors. These tags are usually visible from front and back and are inexpensive and easy to read.

Other ID— Any ID method used not mentioned previously, e.g., photos, names, or nose printing.

1. Herd ID for culled goats

For operations that culled any goats, 59.0 percent reported that at least one culled goat had a herd ID when leaving the operation. There were no differences by herd size or by region in the percentage of operations in which any culled goats had herd ID when removed.

H.1.a. For the operations that culled any goats in the previous 12 months* (table G.7.a.), percentage of operations in which any culled goats had any herd ID when they left the operation (e.g., operation name, logo, or a number unique to the operation on an ear tag or other device), by herd size and by region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
48.1	(6.8)	62.7	(4.4)	67.1	(5.6)	53.3	(5.8)	61.3	(3.8)	59.0	(3.2)

*Refers to the 29.9 percent of operations that culled any goats. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), of which 43.8 percent of those operations culled any goats (table G.7.a.).

There were no differences by primary production of operation in the percentage of operations in which culled goats had a herd ID when they left the operation.

H.1.b. For operations that culled any goats in the previous 12 months* (table G.7.a.), percentage of operations in which any culled goats had any herd ID when they left the operation (e.g., operation name, logo, or a number unique to the operation on an ear tag or other device), by primary production of operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
54.5	(4.3)	70.5	(5.9)	61.9	(7.6)

*Refers to the 29.9 percent of operations that culled any goats. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), of which 43.8 percent of those operations culled any goats (table G.7.a.).

Overall 70.6 percent of culled goats had any herd ID when they left the operation. A higher percentage of culled goats on large operations (80.6 percent) had any herd ID when they left the operation than culled goats on small operations (50.9 percent). There was no difference by region in the percentage of culled goats that had any herd ID when they left the operation.

H.1.c. For operations that culled any goats in the previous 12 months* (table G.7.a.), percentage of culled goats that had any herd ID when they left the operation (e.g., operation name, logo, or a number unique to the operation on an ear tag, or other device), by herd size and region:

Percent Culled Goats

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
50.9	(8.0)	61.3	(6.1)	80.6	(4.2)	66.1	(7.9)	73.2	(4.1)	70.6	(3.8)

*Refers to the 29.9 percent of operations that culled any goats. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), of which 43.8 percent of those operations culled any goats (table G.7.a.).

There were no differences by primary production of operation in the percentage of culled goats that had any herd ID when they left the operation.

H.1.d. For operations that culled any goats during the previous 12 months* (table G.7.a.), percentage of culled goats that had any herd ID when they left the operation (e.g., operation name, logo, or a number unique to the operation on an ear tag, or other device), by primary production of operation:

Percent Culled Goats

Primary Production of Operation

Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
72.1	(5.5)	69.1	(4.1)	65.2	(7.0)

*Refers to the 29.9 percent of operations that culled any goats. This estimate comes from the 68.3 percent of operations that permanently removed any goats or kids in the previous 12 months (table G.6.a.), of which 43.8 percent of those operations culled any goats (table G.7.a.).

2. ID types used

Overall, 59.9 percent of operations had any goats with some form of ID (individual and/or herd). The percentage of operations that had any goats with any ID increased as herd size increased: 51.2 percent of small, 65.7 percent of medium, and 80.6 percent of large operations had any goats with some form of ID.

H.2.a. Percentage of operations that had any goats identified by an ear tag, tattoo, collar, ear notch, leg band, brand, microchip, or other ID device in the previous 12 months, by herd size and region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
51.2	(2.9)	65.7	(2.7)	80.6	(3.3)	59.7	(3.4)	60.0	(2.2)	59.9	(1.8)

A higher percentage of dairy operations (71.4 percent) had any goats with any form of ID than meat and other operations (57.4 and 56.8 percent, respectively).

H.2.b. Percentage of operations that had any goats identified by an ear tag, tattoo, collar, ear notch, leg band, brand, microchip, or other ID device in the previous 12 months, by primary production of operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
57.4	(2.6)	71.4	(3.5)	56.8	(3.7)

For operations that had any goats with any form of ID, a higher percentage of large operations (21.4 percent) used ear notches than small and medium operations (3.5 percent and 3.7 percent). A higher percentage of medium operations used electronic ID (6.9 percent) than large operations (2.8 percent).

A higher percentage of operations in the East region (38.7 percent) used tattoos as ID than operations in the West region (26.4 percent). A higher percentage of operations in the West region (10.6 percent) used ear notches for ID than operations in the East region (3.6 percent). A higher percentage of operations in the East region (61.2 percent) used any official ear tag than operations in the West region (44.4 percent).

H.2.c. For the 59.9 percent of operations that had any goats with any form of ID in the previous 12 months (table H.2.a.), percentage of operations by ID type used for individual goats or for herd ID, and by herd size and region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Type of ID	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Tattoo	34.2	(3.4)	38.7	(3.0)	23.8	(3.9)	26.4	(3.0)	38.7	(2.6)	35.2	(2.0)
Collar/leg band	11.0	(2.4)	5.9	(1.1)	7.4	(1.5)	7.2	(2.1)	8.5	(1.4)	8.2	(1.2)
Ear notch	3.5	(1.4)	3.7	(1.3)	21.4	(4.4)	10.6	(2.2)	3.6	(1.1)	5.6	(1.0)
Hot iron/freeze brand	0.0	(—)	0.1	(0.1)	0.8	(0.4)	0.2	(0.1)	0.1	(0.1)	0.1	(0.1)
Paint brand	(D)[1]		(D)		(D)		(D)		(D)		0.4	(0.4)
Electronic ID/ microchip	2.8	(1.2)	6.9	(1.7)	2.8	(0.6)	3.5	(1.5)	5.3	(1.2)	4.8	(0.9)
Official metal scrapie program ear tag	13.8	(2.5)	12.5	(2.0)	13.9	(3.4)	9.6	(2.4)	14.6	(1.8)	13.2	(1.4)
Official plastic scrapie program ear tag	40.9	(3.8)	45.6	(3.2)	40.5	(4.6)	32.1	(3.6)	47.5	(2.6)	43.1	(2.2)
Other official ear tag with a U.S. Shield	1.7	(0.8)	6.1	(1.5)	9.8	(4.1)	4.9	(1.8)	4.6	(1.0)	4.7	(0.9)
Other plastic ear tag	22.5	(3.6)	26.1	(3.0)	33.5	(4.9)	35.8	(4.2)	21.3	(2.4)	25.4	(2.1)
Other ID	4.9	(1.7)	1.0	(0.4)	1.2	(0.5)	1.0	(0.3)	3.3	(1.0)	2.6	(0.7)
Any official ear tag[2]	52.0	(3.9)	60.3	(3.1)	56.6	(5.0)	44.4	(4.1)	61.2	(2.5)	56.4	(2.2)

[1](D) Too few to report.

[2]Includes metal scrapie program ear tag, plastic scrapie program ear tag, or other official ear tag with a U.S. Shield.

For operations that had goats with any form of ID, a higher percentage of dairy operations (65.7 percent) had any goats with tattoos than meat or other operations (21.5 and 37.2 percent, respectively). A higher percentage of dairy operations (19.3 percent) used collar/leg bands than meat operations (3.3 percent). A higher percentage of meat operations used other plastic ear tags and ear notches as ID (35.4 percent and 7.7 percent, respectively) than dairy operations (18.1 and 5.3 percent, respectively).

H.2.d. For the 59.9 percent of operations that had any goats with any form of ID in the previous 12 months (table H.2.a.), percentage of operations by ID type used for individual goats or for herd ID, and by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
Type of ID	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Tattoo	21.5	(2.8)	65.7	(3.7)	37.2	(4.5)
Collar/leg band	3.3	(1.2)	19.3	(2.8)	8.6	(2.9)
Ear notch	7.7	(1.6)	1.0	(0.4)	5.3	(2.1)
Hot iron/freeze brand	0.1	(0.1)	0.3	(0.2)	0.1	(0.0)
Paint brand	(D)[1]		(D)		(D)	
Electronic ID/microchip	3.3	(1.2)	6.1	(1.7)	6.6	(2.3)
Official metal scrapie program ear tag	11.9	(1.9)	11.7	(2.1)	17.5	(3.8)
Official plastic scrapie program ear tag	51.0	(3.2)	28.2	(3.3)	39.6	(4.5)
Other official ear tag with a USDA shield	6.3	(1.4)	3.6	(1.8)	2.2	(1.1)
Other plastic ear tag	35.4	(3.2)	9.5	(2.4)	18.1	(3.7)
Other ID	1.9	(0.9)	4.2	(1.9)	2.7	(1.5)
Any official ear tag[2]	65.3	(3.0)	39.0	(3.7)	52.9	(4.7)

[1](D) Too few to report.
[2]Includes metal scrapie program ear tag, plastic scrapie program ear tag, or other official ear tag with a U.S. Shield.

For operations that had any goats with any form of ID, a higher percentage used collar/leg bands, ear notches, or other plastic ear tags as individual-animal ID. No predominant type of ID was used for herd ID.

H.2.e. For operations that had any goats with the following types of ID in the previous 12 months (table H.2.c.), percentage of operations by information included on the ID:

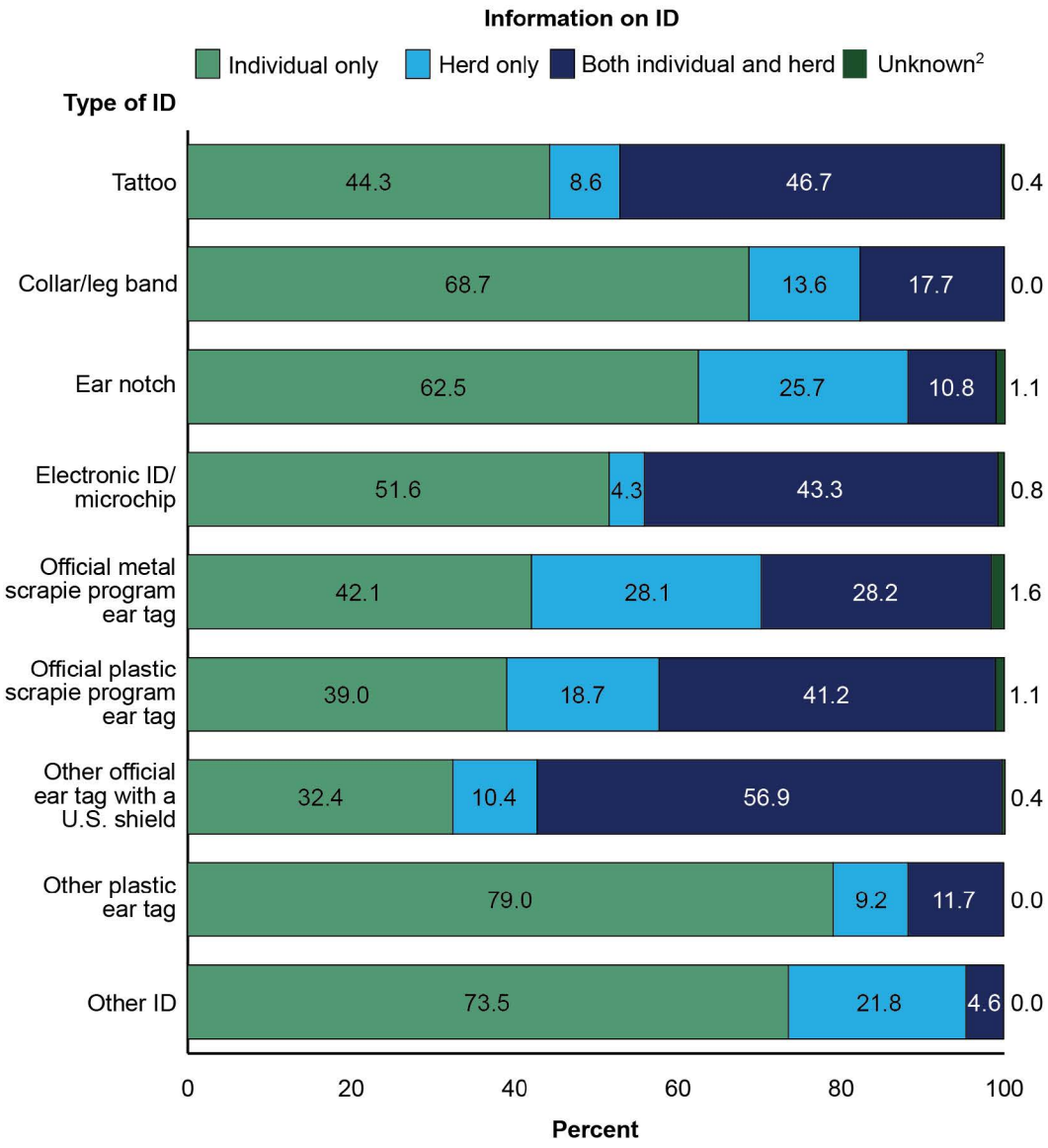
Percent Operations

Information on ID

	Individual only		Herd only		Both individual and herd		Unknown[1]		Total
Type of ID	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	
Tattoo	44.3	(3.5)	8.6	(1.8)	46.7	(3.4)	0.4	(0.3)	100.0
Collar/leg band	68.7	(7.2)	13.6	(4.6)	17.7	(6.8)	0.0	(—)	100.0
Ear notch	62.5	(8.2)	25.7	(6.6)	10.8	(5.4)	1.1	(1.1)	100.0
Hot iron/freeze brand	(D)[2]	(D)	(D)	(D)	(D)	(D)	(D)	(D)	100.0
Paint brand	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	100.0
Electronic ID/ microchip	51.6	(9.9)	4.3	(3.9)	43.3	(9.7)	0.8	(0.7)	100.0
Official metal scrapie program ear tag	42.1	(5.7)	28.1	(5.4)	28.2	(5.2)	1.6	(1.3)	100.0
Official plastic scrapie program ear tag	39.0	(3.5)	18.7	(2.6)	41.2	(3.4)	1.1	(0.6)	100.0
Other official ear tag with a U.S. Shield	32.4	(8.6)	10.4	(5.4)	56.9	(9.4)	0.4	(0.3)	100.0
Other plastic ear tag	79.0	(4.0)	9.2	(2.8)	11.7	(3.0)	0.0	(0.0)	100.0
Other ID	73.5	(13.4)	21.8	(13.5)	4.6	(2.4)	0.0	(—)	100.0

[1]Includes operations that indicated they had used a particular ID type but did not know what information was on it.
[2](D) Too few to report.

For the operations that had any goats with the following types[1] of ID in the previous 12 months, percentage of operations by information included on the ID



[1]Categories Hot iron/freeze brand and Paint brand had too few respondents to report and were not graphed.
[2]Includes operations that indicated they used a particular ID type but did not know what information was on it.

As mentioned previously, the USDA's National Scrapie Eradication Program assigns each operation a unique herd ID, which allows animals to be traced back to their operation of origin if they are determined to be scrapie positive or exposed. Some States require that all goats or goats over 1 year of age have a scrapie tag or ID when sold. For operations that had any goats with any form of ID, 57.8 percent had been assigned a unique herd ID through the scrapie program. A higher percentage of large operations (70.4 percent) had been assigned a unique herd ID than small operations (49.8 percent).

There were no differences by region in the percentage of operations that had been assigned a unique herd ID as part of the National Scrapie Eradication Program.

H.2.f. For the 59.9 percent of operations that had any goats on the operation with any form of ID in the previous 12 months (table H.2.a.), percentage of operations that had been assigned a unique herd ID as a part of the National Scrapie Eradication Program / Flock ID, by herd size and by region:

Percent Operations

	Herd size (number of goats and kids)						**Region**					
	Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
USDA-Assigned ID	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Yes	49.8	(3.8)	61.8	(3.1)	70.4	(4.2)	48.7	(4.1)	61.3	(2.5)	57.8	(2.2)
No	44.1	(3.8)	31.2	(3.0)	27.5	(4.1)	45.7	(4.2)	32.4	(2.5)	36.1	(2.2)
Don't know	6.1	(1.7)	7.0	(1.8)	2.1	(0.6)	5.6	(2.2)	6.3	(1.3)	6.1	(1.1)
Total	100.0		100.0		100.0		100.0		100.0		100.0	

There was no difference by primary production of operation in the percentages of operations that had been assigned a unique herd ID as a part of the National Scrapie Eradication Program.

H.2.g. For the 59.9 percent of operations that had any goats with any form of ID in the previous 12 months (table H.2.a.), percentage of operations that had been assigned a unique herd ID as a part of the National Scrapie Eradication Program/Flock ID), by primary production of operation:

	Percent Operations					
	Primary Production					
	Meat		Dairy		Other	
USDA-Assigned ID	Pct.	Std. error	Pct.	Std. error	Pct.	Std. error
Yes	60.1	(3.1)	57.8	(3.8)	52.4	(4.6)
No	33.1	(3.0)	36.3	(3.7)	42.6	(4.6)
Don’t know	6.7	(1.7)	5.8	(2.0)	5.0	(2.1)
Total	100.0		100.0		100.0	

I. Fiber Production

Mohair from Angora goats and cashmere from several different breeds of goats are soft, warm fibers that can be used to create long-wearing products. In recent years, however, the number of goats used for fiber production has greatly decreased.

1. Fiber production practices

Only 2.7 percent of all operations had any goats or kids with a primary use of fiber production, and only 2.5 percent of operations sheared, clipped, or combed any goats or kids for fiber. A higher percentage of large operations (9.6 percent) sheared, clipped, or combed any goats or kids for fiber than small and medium operations (2.2 percent and 1.3 percent).

I.1.a. Percentage of operations that sheared, clipped, or combed any goats or kids for fiber in the previous 12 months, by herd size and region:

Percent Operations

Herd size (number of goats and kids)						**Region**					
Small (5–19)		**Medium** (20–99)		**Large** (100 or More)		**West**		**East**		**All operations**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
2.2	(0.9)	1.3	(0.6)	9.6	(3.1)	4.3	(1.2)	1.8	(0.6)	2.5	(0.6)

A higher percentage of other operations (7.4 percent) sheared, clipped, or combed any goats or kids for fiber than meat operations (0.6 percent).

I.1.b. Percentage of operations that sheared, clipped, or combed any goats or kids for fiber in the previous 12 months, by primary production of operation:

Percent Operations

Primary Production					
Meat		**Dairy**		**Other**	
Pct.	**Std. error**	**Pct.**	**Std. error**	**Pct.**	**Std. error**
0.6	(0.3)	1.4	(0.9)	7.4	(2.0)

Overall, 62.6 percent of operations that sheared, clipped, or combed any goats or kids for fiber produced mohair from Angora goats.

I.1.c. For the 2.5 percent of operations that sheared, clipped, or combed any goats or kids for fiber in the previous 12 months (table I.1.a.), percentage of operations by type of fiber produced:

Type of fiber	Percent operations	Std. error
Cashmere	18.8	(9.6)
Mohair (Angora goat)	62.6	(12.2)
Pygora	27.9	(12.2)
Other	0.0	(—)

Overall, 91.5 percent of sheared, clipped, or combed goats or kids produced mohair fiber and provided 87.9 percent of the total pounds of fiber produced. Cashmere was sheared, clipped, or combed from 3.3 percent of fiber goats and represented 0.2 percent of total pounds sheared, clipped, or combed.

I.1.d. For the 2.5 percent of operations that sheared, clipped, or combed any goats or kids for fiber in the previous 12 months (table I.1.a.), percentage of goats and kids by type of fiber produced, and percentage of the total pounds of fiber produced, by type of fiber produced:

Type	Percent goats	Std. error	Percent pounds	Std. error
Cashmere	3.3	(1.8)	0.2	(0.1)
Mohair (Angora goat)	91.5	(4.2)	87.9	(10.1)
Pygora	5.2	(3.7)	11.9	(10.1)
Other	0.0	(—)	0.0	(—)
Total	100.0		100.0	

There were no differences in the percentages of operations by personnel who sheared, clipped, or combed any goats or kids.

I.1.e. For the 2.5 percent of operations that sheared, clipped, or combed any goats or kids for fiber (table I.1.a.), percentage of operations by personnel who sheared, clipped, or combed goats or kids:

Shearing personnel	Percent operations	Std. error
Operation employee/owner	43.2	(11.5)
Contracted crew	20.2	(7.9)
Hired individual	50.1	(11.9)
Other	8.4	(7.1)

Disease agents can be spread if a goat or kid is accidentally cut by contaminated equipment during shearing. Properly cleaning and disinfecting clippers, shears, and combs between goats can help prevent the spread of disease agents. There were no differences by method used to treat clippers, shears, or combs between goats or kids.

I.1.f. For the 2.5 percent of operations that sheared, clipped, or combed any goats or kids for fiber in the previous 12 months (table I.1.a.), percentage of operations by usual method used to treat clippers, shears, or combs between goats:

Method	Percent operations	Std. error
Cleaned and disinfected	33.2	(10.8)
Cleaned only	26.6	(9.4)
No cleaning or disinfecting	9.5	(3.7)
Don’t know	30.7	(12.5)
Other	0.0	(—)
Total	100.0	

2. Fiber Marketing

For operations that sheared any goats or kids, 47.2 percent sold or traded any of the fiber produced.

I.2.a. For the 2.5 percent of operations that sheared, clipped, or combed any goats or kids for fiber in the previous 12 months (table I.1.a.), percentage of operations that sold or traded any fiber:

Percent Operations	Std. error
47.2	(11.5)

Of operations that sold or traded any fiber in the previous 12 months, 93.6 percent of the fiber they produced was sold or traded. The remaining 6.4 percent of fiber was kept, given, or thrown away.

I.2.b. For operations that sold or traded fiber in the previous 12 months* (table I.2.a.), percentage of fiber produced that was sold or traded:

Percent Fiber	Standard error
93.6	(4.6)

*Refers to the 1.2 percent of operations that sold or traded fiber in the previous 12 months. This estimate comes from the 2.5 percent of operations that sheared, clipped, or combed any goats or kids for fiber in the previous 12 months (table I.1.a.), of which 47.2 percent of those operations sold or traded fiber (table I.2.a.).

For operations that sold or traded any fiber, on average 1,552 pounds were sold or traded, per operation.

I.2.c. For operations that sold or traded any fiber in the previous 12 months* (table I.2.a.), average pounds of fiber sold or traded, per operation:

Average (pounds)	Standard error
1,552	(576)

*Refers to the 1.2 percent of operations that sold or traded fiber in the previous 12 months. This estimate comes from the 2.5 percent of operations that sheared, clipped, or combed any goats or kids for fiber in the previous 12 months (table I.1.a.), of which 47.2 percent of those operations sold or traded fiber (table I.2.a.).

Overall, 24.1 percent of operations that sold or traded fiber produced more than 1,000 pounds for sale or trade.

I.2.d. For operations that sold or traded any fiber in the previous 12 months* (table I.2.a.), percentage of operations by total fiber sold or traded:

Fiber sold/traded (pounds)	**Percent Operations**	**Std. error**
Less than 100	40.0	(15.4)
100 to 999	35.9	(12.6)
1,000 or more	24.1	(8.3)
Total	100.0	

*Refers to the 1.2 percent of operations that sold or traded fiber in the previous 12 months. This estimate comes from the 2.5 percent of operations that sheared, clipped, or combed any goats or kids for fiber in the previous 12 months (table I.1.a.), of which 47.2 percent of those operations sold or traded fiber (table I.2.a.).

For operations that sold or traded any fiber, 49.5 percent marketed fiber directly to commercial warehouses, and this accounted for the majority of the fiber produced (94.7 percent).

I.2.e. For operations that sold or traded any fiber in the previous 12 months[1] (table I.2.a.), percentage of operations by marketing method used, and percentage of total fiber sold or traded by marketing method:

	Percent			
	Operations[2]		**Fiber**	
Marketing method	**Pct.**	**Std. error**	**Pct.**	**Std. error**
Direct sales to consumers in person	28.9	(12.3)	1.5	(1.1)
Direct sales to consumers via internet	3.4	(2.8)	1.0	(0.9)
Direct to commercial warehouses	49.5	(13.8)	94.7	(2.5)
Direct sales to mill buyer	17.8	(13.5)	1.9	(1.4)
Cooperative pools	0.5	(0.4)	0.8	(0.7)
Other	5.6	(3.9)	0.1	(0.1)
Total			100.0	

[1]Refers to the 1.2 percent of operations that sold or traded fiber in the previous 12 months. This estimate comes from the 2.5 percent of operations that sheared, clipped, or combed any goats or kids for fiber in the previous 12 months (table I.1.a.), of which 47.2 percent of those operations sold or traded fiber (table I.2.a.).
[2]Does not sum to 100 percent because operations could have marketed fiber or fiber products using more than one method.

Section II: Methodology

A. Needs Assessment

NAHMS develops study objectives by exploring existing literature and contacting industry members about their informational needs and priorities during a needs-assessment phase. A driving force of the needs assessment was the desire of NAHMS to receive as much input as possible from a variety of operators, as well as from industry experts and representatives, veterinarians, extension specialists, universities, goat organizations, allied industry groups, and other stakeholders. Information was collected via a needs assessment survey.

The objective of the needs assessment survey for the NAHMS Goat 2019 study was to identify critical information needs concerning goat management and health. The online survey gathered opinions from a variety of stakeholders regarding goat management priorities, health priorities, industry burdens, and participation incentives for the study. The survey was available online from July 31 through September 8, 2017. The online questionnaire was distributed via email lists; newsletters; and goat associations, including breed, fiber, dairy, meat, and pack goat associations. All individuals involved in the goat industry were encouraged to participate, regardless of goat ownership. In total, 1,272 individuals from 50 States completed the study's needs assessment survey.

Respondents to the needs assessment survey represented the following affiliations:

- Goat owner (operators, hobby/pet owners)—180 percent of respondents.
- Veterinarians/nutritionists—11 percent of respondents.
- Government and university employees—8 percent of respondents.
- Other affiliation—1 percent of respondents.

A complete report on the needs assessment survey can be found on the NAHMS Goat 2019 study Web site, or by clicking this link: https://www.aphis.usda.gov/animal_health/nahms/goats/downloads/goat19/Goat19_NeedsAssess.pdf

Based on input from the needs assessment, reviews from the scientific literature, and input from government and industry researchers, primary study objectives were identified:

1. Describe changes in animal health, nutrition, and management practices in the U.S. goat industry from 2009-2019.
2. Describe practices operators use to control internal parasites and reduce anthelmintic resistance.
    a. Examine anthelmintic treatment efficacy through fecal-egg-count-reduction test.
    b. Examine cost of parasitism and resistance in the United States.
3. Describe antimicrobial stewardship on goat operations and estimate the prevalence of enteric pathogens and patterns of antimicrobial resistance.
    a. Estimate the prevalence of *Salmonella, E. coli, Campylobacter, Giardia,* and *Cryptosporidium* in the United States.
    b. Examine antibiotic susceptibility in *Enterococcus, Salmonella, E. coli,* and *Campylobacter.*
4. Describe management practices associated with economically important goat diseases.
    a. Describe the prevalence of scrapie-resistant codons S146 and K222 in U.S. goats by breed.
5. Characterize the U.S. dairy goat industry.
6. Provide a serologic bank for future research.

B. Sampling and Estimation

1. State selection

The goal for NAHMS national studies is to include States that account for at least 70 percent of the animals and operations being studied. This method helps to ensure that the representation of the sample collected, and the statistical inferences made based on the sample data, can be generalized to the target population.

States were selected for inclusion in the study based on their percentage of U.S. goat inventory and operations, their geographic and primary production type representativeness, and expected response burden using population data held by the National Agricultural Statistics Service (NASS). A memo identifying these States was provided to the USDA–APHIS–VS CEAH director and, in turn, the VS regional directors. Each regional director sought input from the respective States about being included or excluded from the study.

The final 24 states selected for study inclusion were Alabama, California, Colorado, Connecticut, Florida, Georgia, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Tennessee, Texas, Vermont, Virginia, Washington, and Wisconsin. These States represented 80.4 percent of U.S. goats on operations with five or more goats and 75.8 percent of the U.S goat operations with five or more goats (individual State counts of operations and inventory not shown, but proxy counts are presented in Appendix II). In addition, because the study's needs assessment indicated a desire for a focus on dairy operations, the 24 participating States represent at least 70.0 percent of goat inventory and goat operations within each of the primary production types: dairy, meat, and other.

2. Operation selection

The list frame from which operations were sampled is managed by NASS and was updated with information from the 2017 Census of Agriculture prior to sample selection. A stratified random sampling design was planned, and 4,770 operations were selected to be part of the sample. Stratification was State based on primary production (dairy, meat and other, and unknown), and herd size (5-19, 20-99, and 100 or more adult goats).

The total sample size was computed to achieve prespecified precision criteria at the 95-percent confidence level, while accounting for the estimated population size, design effect, and expected response rate. The sample size was allocated to strata approximately proportional to size, based on a weighted average number of goat operations and the total goat inventory within the strata. This sampling design allows for logistical efficiencies in administering the survey, prespecified precision for estimates, and oversampling of larger operations. Both larger operations and dairy operations were selected in the sample at a higher rate than they appear in the population, to ensure that they were adequately represented in the sample.

3. Population inferences

a. Phase I: General goat management questionnaire

Goat operations in the United States with five or more adult goats were the study's target population. Operations with fewer than 5 adult goats are most likely to keep goats as pets or for other noncommercial uses, and so were not targeted in the study.

Inferences cover the population of operations with at least five adult goats in the study's 24 participating states. These States accounted for 80.4 percent of U.S. goats on operations with five or more goats and 75.8 percent of the U.S. goat operations with five or more goats. Estimates in this report represent 62.5 percent of U.S. goat operations with at least five adult goats in the 24 study States, after taking into account the survey design and weighting (see Section II.E.1 for more information on the calculation of the weighted response rate).

The inverse of the probability of selection (with probabilities being approximately proportional to stratum size) was used as the initial weight. Nonresponse was accounted for using an additional adjustment according to the proportion of nonrespondents within each stratum, using a propensity score model. Calibration to population totals was performed using information available for respondents and nonrespondents.

SUDAAN software (RTI, version 11.0.1) was used to produce population estimates and their standard errors. The SUDAAN software allows estimation of standard errors for complex sampling designs using Taylor series linearization.

C. Data Collection

From July 1, through August 9, 2019, NASS enumerators administered the NAHMS Goat 2019 general management questionnaire via personal interviews. The interview took an average of 115 minutes to complete. From September 10, 2019, through March 20, 2020, VS field staff administered the NAHMS Goat 2019 VS questionnaire via personal interviews and collection of biologic samples. Results from the VS questionnaire and biologics will be reported in future publications.

D. Data Analysis

1. Validation

Data were entered by NASS staff into a SAS data file and checked for validity. NAHMS staff independently performed data validation checks on the data set to identify consistency and statistical issues. Consistency issues include logical inconsistencies within a survey and were identified using summaries of responses to check for invalid responses (e.g., a response of '3' for a 0/1 response variable); threshold checks (e.g., identifying invalid total sums of goat inventory); and, if-then checks (e.g., if no buck kids will be castrated on the operation, then there should not be a reported average age of buck kids at castration).

Statistical issues were identified by investigating summary measures of responses for variables; extreme outliers were investigated by data analysts and subject-matter experts. Inconsistencies were identified using SAS software, and hard copies of questionnaires were reviewed by data analysts and subject-matter experts. Identified inconsistencies were addressed using item-level imputation measures if appropriate values could be logically deduced.

2. Estimation and confidence interval calculations

Summarization and estimation were performed using SUDAAN software, which accounts for the stratified sampling study design. Confidence intervals were computed for estimate proportions, means, and ratios using the methods described in detail in the SUDAAN Language Manual for SUDAAN version 11[1] and described briefly here. For percentages, a logit transformation was used to enforce bounding of the confidence interval bounds between 0 and 1. Student's t confidence interval bounds are computed on the logit scale and are then back-transformed to the percentage scale. For means and ratios, standard Student's t confidence intervals are computed directly on the scale of the data.

Estimates were generated by one analyst, and numbers and estimation code were reviewed by a second analyst, to ensure accurate reporting of estimates.

[1]Research Triangle Institute (2012). SUDAAN Language Manual, Volumes 1 and 2, Release 11. Research Triangle Park, NC: Research Triangle Institute.

E. Sample Evaluation

The purpose of this section is to provide counts and percentages of operations by response category, which can be used to compute various measures of response. Historically, the term “response rate” was used as a catch-all parameter, but there are many ways to define and calculate response rates. Therefore, counts and percentages of operations by response code category are presented below so that response rates can be calculated according to the preferred definition of “response rate.”

Additionally, the Office of Management and Budget (OMB) has provided guidance regarding the calculation and reporting of response rates in their Standards and Guidelines for Statistical Surveys (2006), Section 3.2. The response rate advocated in the OMB guidance estimates the percentage of eligible operations that completed the questionnaire. The calculation of this specific response rate is presented for Phase I of the study below.

1. Phase I response rates

Of the 4,770 operations selected for participation, 1,515 were ineligible (no goats, out of business, or otherwise out of scope). Of the 3,255 eligible operations, 532 were not contacted (office holds, purposefully not contacted, and inaccessible operations). Of the 2,723 eligible operations that were contacted, 1,840 (1,320 + 520) provided complete questionnaire data. Of those, 1,320 operations agreed to be contacted for Phase II of the study.

Response category group label	Response category group	Response category	Number operations	Percent operations	Weighted percent operations*
(a)	In-scope-complete	Completed NASS interview for baseline report, signed consent for Phase II	1,320	27.7	22.0
		Completed NASS interview for baseline report, refused consent for Phase II	520	10.9	10.6
(b)	In-scope-refused	Refused	883	18.5	13.9
(c)	Out of scope	Zero adult goats on hand on July 1, 2019	490	10.3	12.4
		Out of business	522	10.9	16.2
		Out of scope (including having more than 0 total goats, but fewer than 5 adult goats on July 1, 2019)	503	10.6	14.2
(d)	Not contacted	Office hold	55	1.1	1.1
		Inaccessible	477	10.0	9.7
		Total	4,770	100.0	100.0

*Weighted percentages calculated using the initial sampling weights.

According to the OMB guidance, the response rate for this study would be calculated according to the following formula:

$$\frac{a}{(a+b)+\rho*(d)},$$

Letters *a*, *b*, and *d* represent the counts (or percentages) of operations in each response-category group in the table above and ρ is the proportion of the noncontacted operations expected to be in-scope. Specifically,

$$\rho = \frac{(a+b)}{(a+b+c)} = \frac{2,723}{4,238} \approx 0.643.$$

Thus, the OMB guidance-based response rate for Phase I of the NAHMS Goat 2019 study is calculated as follows:

$$\frac{1,840}{2,723+0.643*532} = 0.600,$$

Approximately 60.0 percent of eligible operations completed the Phase I questionnaire. The weighted OMB guidance-based response rate for Phase I of the NAHMS Goat 2019 study is 62.5 percent (calculated using the initial sampling weights), which means that Phase I questionnaire information is available for approximately 62.5 percent of goat operations with at least five adult goats in the 24 participating States, after taking into account the survey design and weighting.

2. Communicating response rates

The unweighted response rate, 60.0, for Phase I is the rate that will be used, generally, to communicate the response rate for Phase I of the NAHMS Goat 2019 study, as it represents the likelihood that eligible operations completed the Phase I survey.

3. Nonresponse bias analysis

NAHMS staff performed an analysis to identify potential sources of nonresponse bias in using information collected for all sampled goat operations by NASS. This analysis was performed to identify whether there were differences in response behaviors based on known factors for respondents and nonrespondents and whether those differences could be accounted for using analysis techniques.

There were three response rates used to identify differences in response behaviors among three stratification variables (see Section II. D.2.). The three response rates were the contact rate, the in-scope rate, and the completion rate, and the stratification variables included herd size, region, and primary production type. The analysis was performed using a logistic regression model accounting for survey weighting and the complex survey design and performing pairwise comparison tests for the differences between each pair of stratification variable levels at the 95-percent confidence level. Differences observed included small operations (5-19 head) having lower in-scope rates than medium operations (20-99 head) and medium operations having lower in-scope rates than large operations (100 or more head). Also, small operations had lower completion rates than medium and large operations. Operations with an unknown type (not conclusively meat, dairy, and other) displayed lower contact, in-scope, and completion rates. Thus, if left uncorrected, there was evidence that response behavior differed by the levels of the stratification variables.

To account for the observed differences, initial sampling weights were adjusted for nonresponse and calibrated to population totals. Bias was measured using

$$\boldsymbol{Bias} = \frac{|\hat{\lambda} - \hat{p}|}{\rho},$$

where $\hat{\lambda}$ is the value estimated using information from both respondents and nonrespondents, and $\hat{p}$ is the statistic estimated using information from respondents only and was calculated for 17 estimates derived from 10 variables, including total land owned and operated, farm sales, total goat inventory, production expenses, an indicator for internet access, and whether the operation sold value-added products. The particular weight adjustments performed best compared to a number of different weight-adjustment techniques, after comparing the average, minimum, and maximum bias and the standard deviation of the weights.

After weight adjustments, the average bias was minimized among the weight adjustment options for the variables using the baseline weights adjusted for nonresponse with calibration to population totals. These variables were not used in the weight adjustment process, making these out-of-sample bias estimates. The average bias was 14.1 percent, with the minimum and maximum bias over the 17 estimates being 2.5 percent and 32.0 percent, and the standard deviation of the weights was 36.

Appendix I: Sample Profile

1. Herd Size

Herd Size (total adult goat inventory)	**Number of responding operations**
Small (5-19)	562
Medium (20-99)	820
Large (100 or more)	458
Total	1,840

2. Regions

Region*	**Number of responding operations**
West (CA, CO, OK, OR, TX, WA)	729
East (AL, CT, FL, GA, IN, IA, KY, MI, MN, MO, NY, NC, OH, OK, PA, TN, TX VA, VT, WI)	1,111
Total	1,840

*Texas and Oklahoma were divided on a line corresponding to north-south Interstate 35. The western halves of the States were included in the West region, and the eastern halves were included in the Southeast region. For more detailed information regarding the counties involved, see Appendix II.

3. Primary Production

Primary production	**Number of responding operations**
Meat	808
Dairy	614
Other	418
Total	1,840

Appendix II: U.S. Goat Population and Operations

		Number of Goats		Number of Operations	
Region	State	On operations with 1 or more head[1]	On operations with 5 or more head[2]	With 1 or more head[1]	With 5 or more head[2]
West	California	133,330	130,385	3,938	2,763
	Colorado	48,869	46,456	2,803	1,856
	Oklahoma – West[3]	40,302	-[5]	1,878	-[5]
	Oregon	45,378	42,157	3,289	1,987
	Texas – West[4]	677,375	-[5]	15,179	-[5]
	Washington	29,392	26,544	2,609	1,440
East	Alabama	51,316	49,757	3,279	2,676
	Connecticut	5,524	4,836	592	326
	Florida	61,159	58,455	4,366	3,298
	Georgia	70,182	68,130	4,063	3,318
	Indiana	41,180	39,079	2,833	1,954
	Iowa	81,428	79,988	2,400	1,823
	Kentucky	59,822	56,508	4,330	3,031
	Michigan	29,226	26,510	2,614	1,462
	Minnesota	36,312	34,538	1,996	1,336
	Missouri	76,838	74,069	4,132	3,044
	New York	30,490	28,353	2,192	1,315
	North Carolina	57,717	54,857	4,084	3,007
	Ohio	59,612	55,355	4,841	3,087
	Oklahoma – East[3]	56,452	-[5]	3,520	-[5]
	Pennsylvania	52,613	49,250	3,749	2,355
	Tennessee	97,880	94,644	5,802	4,570
	Texas – East[4]	160,514	-[5]	10,964	-[5]
	Vermont	9,801	9,385	480	315
	Virginia	48,945	46,384	3,449	2,416

	Wisconsin	100,438	97,915	2,586	1,503
	Texas – Entire State	-	824,775[5]	-	21,032[5]
	Oklahoma – Entire State	-	93,310[5]	-	4,063[5]
Total (24 States)		2,162,095	2,091,640	101,968	73,977
Total U.S. (50 States)		2,698,636	2,600,846	136,442	97,546
24 States as a % of 50 States		80.1	80.4	74.7	75.8

[1]Source: NASS, 2017 Census of Agriculture. State level estimates only available in conjunction with the Census of Agriculture every 5 years.
[2]Source: NASS, special tabulation for number of operations and inventory on operations with 5 or more goats from the 2017 Census of Agriculture.
[3]Eastern OK counties include: Adair, Atoka, Bryan, Cherokee, Choctaw, Coal, Craig, Creek, Delaware, Haskell, Hughes, Johnston, Latimer, Le Flore, Lincoln, Marshall, Mayes, McCurtain, McIntosh,
Muskogee, Nowata, Okfuskee, Okmulgee, Osage, Ottawa, Pawnee, Pittsburg,
Pontotoc, Pottawatomie, Pushmataha, Rogers, Sequoyah, Seminole, Tulsa, Wagoner,
Washington
[4]Eastern TX counties include: Anderson, Angelina, Arkansas, Atascosa, Austin, Bastrop, Bee, Bowie, Brazoria, Brazos, Brooks, Burleson, Caldwell, Calhoun, Cameron, Camp, Cass, Chambers, Cherokee, Collin, Colorado, Dallas, Delta, De Witt, Duval, Ellis, Fannin, Fayette, Fort Bend, Franklin, Freestone, Galveston, Goliad, Gonzales, Grayson, Gregg, Grimes, Guadalupe, Hardin, Harris, Harrison, Henderson, Hidalgo, Hopkins, Houston, Hunt, Jackson, Jasper, Jefferson, Jim Hogg, Jim Wells, Karnes, Kaufman, Kenedy, Kleberg, Lamar, Lavaca, Lee, Leon, Liberty, Limestone, Live Oak, Madison, Marion, Matagorda, McMullen, Milam, Montgomery, Morris, Nacogdoches, Navarro, Newton, Nueces, Orange, Panola, Polk, Rains, Red River, Refugio, Robertson, Rockwall, Rusk, Sabine, San Augustine, San Jacinto, San Patricio, Shelby, Smith, Starr, Titus, Trinity, Tyler, Upshur, Van Zandt, Victoria, Walker, Waller, Washington, Wharton, Willacy, Wilson, Wood, Zapata
[5]Numbers of operations and numbers of goats on operations with 5 or more goats were available only at the state level for Texas and Oklahoma.