

## Biosecurity on U.S. Goat Operations

Biosecurity is a system of practices designed to reduce the risk of disease introduction into a herd and prevent the spread of disease within a herd. Because disease transmission to even one animal can affect the health of the entire herd, biosecurity practices are an important part of the health management plan of all operations. Good biosecurity practices include proper handling of new animals and visitors; regular veterinary consultations; limiting contact with other animals; use of animal identification; and management of kidding areas and kidding products to minimize environmental contamination. Ideally, goat producers should work with a veterinarian experienced in goat production to develop practical and cost effective biosecurity practices that reduce disease risk.

The NAHMS Goat 2009 study was the first national study of the U.S. goat industry and was conducted in 21 of the Nation's major goat-producing States.<sup>1</sup> These States represented 75.5 percent of U.S. goat operations and 82.2 percent of U.S. goats (NASS 2007 Census of Agriculture). Data for the study were collected from a stratified random sample of goat operations that kept at least one goat for meat, dairy, fiber, or other purposes. A total of 2,484 operations completed the study's first survey questionnaire and 634 completed a second mail-in questionnaire. The second questionnaire was limited to operations with 10 or more goats.

### Herd additions

Adding new animals to a herd can introduce disease. One way an operation can prevent disease introduction is to keep a closed herd (adding animals only through kidding on the operation), although adding new animals from outside the herd is a great way to improve stock and bring in new bloodlines. When added, new animals should be quarantined and monitored for signs of disease. The duration of isolation must

be sufficient for diseased animals to show clinical signs; however, it is important to be aware that infected animals may shed viruses without showing clinical signs.

Overall, 21.5 percent of operations had added goats or kids to the operation in the 12 months prior to the study (July 1, 2008 to June 30, 2009). Most operations that added adult goats obtained goats directly from another goat operation (72.8 percent of operations) or purchased goats at an auction market (23.5 percent of operations). Goats or kids obtained at an auction market or from another goat operation are considered a high risk for disease transmission compared with goats born on operation. Overall, 48.6 percent of operations that added goats or kids always isolated new additions, while 39.5 percent never isolated new additions. On average, new additions were isolated for a minimum of 21 days before introduction into the herd. A minimum of 30 days is recommended, and a longer quarantine is more likely to reduce transmission of previously unrecognized infections.

Another good practice is to require health management measures prior to introducing new animals. These measures can include veterinary examination, disease testing, deworming, and vaccinations. For operations with 10 or more goats that added goats in the previous 12 months, the most common health management practices used were inspecting new goats for abscesses or scars (66.2 percent of operations) and internal parasite treatment (65.5 percent of operations) [figure 1]. Only 9.0 percent of operations required a veterinary examination, and only 11.6 percent required any individual animal testing for specific diseases.

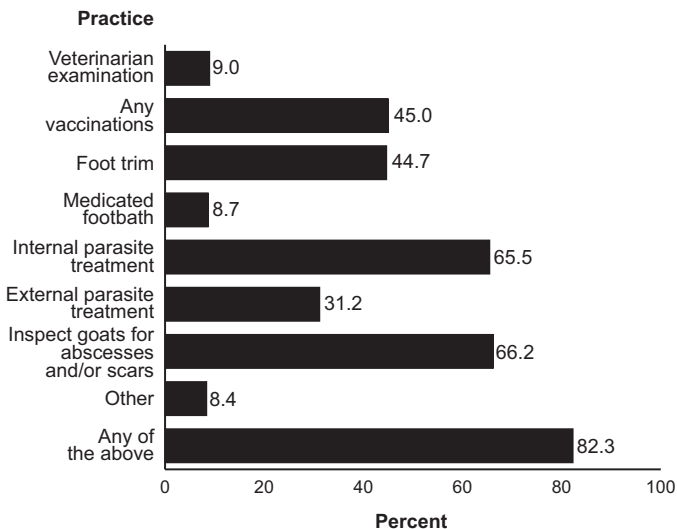
<sup>1</sup> **States and Regions:**

**Northeast:** Indiana, Iowa, Michigan, Missouri, New York, Ohio, Pennsylvania, Wisconsin

**Southeast:** Alabama, Florida, Georgia, Kentucky, North Carolina, Oklahoma (east), Tennessee, Texas (east), Virginia

**West:** California, Colorado, Oklahoma (west), Oregon, Texas (west), Washington

**Figure 1. For operations\* that added goats during the previous 12 months, percentage of operations by health management practices required for new additions**



\*Operations with 10 or more goats.

Of operations that did not add any goats or kids during the previous 12 months, 40.6 percent had added goats or kids in the past 1 to 2 years and 54.8 percent had added goats or kids in the past 3 to 9 years.

## Needle usage

Note: Data in this section represent only operations that had 10 or more goats.

Using the same needle when giving injections to several animals increases the risk of disease transmission between animals. The best practice is not to reuse needles. If this is not possible, disinfecting needles between animals can reduce the risk of disease transmission. Overall, 61.8 percent of operations had given at least one injection in the previous 12 months. Of operations that gave injections, nearly 49.6 percent used the same needle on more than one goat. Of these operations, 59.8 percent never chemically disinfected needles between animals. About one-fourth of operations (22.8 percent) always disinfected needles between animals, and the same needle was used on an average of 5.1 goats.

## Use of veterinarian

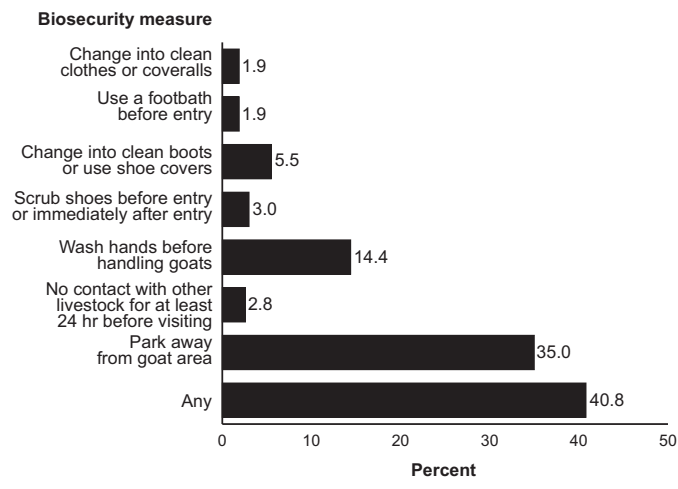
A veterinarian experienced in livestock production can help develop practical and cost-effective biosecurity measures, and can be a good source of information about goat health and current issues in the goat industry. During the previous 12 months, about one-third of operations (34.8 percent) had consulted a veterinarian for reasons related to goat health, productivity, or management. One reason so few operations had consulted a veterinarian could be difficulty in finding a veterinarian experienced in goat production. The

percentage of operations that consulted a veterinarian increased with operation size<sup>2</sup>, ranging from 28.7 percent of very small operations to 42.4 percent of large operations. A higher percentage of operations in the Northeast region<sup>1</sup> (41.6 percent) consulted a veterinarian compared with operations in the Southeast region (30.8 percent).

## Visitors

Visitors to goat operations include veterinarians, extension agents, nutritionists or feed company consultants, customers, renderers, and others. Visitors can contribute to disease spread from one location or herd to another by carrying disease agents on their vehicles, clothing, hands, or instruments. Overall, 66.7 percent of operations had visitors during the previous 12 months. Of these operations, 59.5 percent had visitors that entered the goat production area. The biosecurity measures always used for visitors by the highest percentages of operations were to have visitors park away from the goat area (35.0 percent) and to have visitors wash their hands before handling goats (14.4 percent) [figure 2].

**Figure 2. For operations on which any visitors entered the goat production area during the previous 12 months, percentage of operations that always required the following biosecurity measures**



<sup>2</sup>Operation size:

**Very small:** 1 to 9 goats

**Small:** 10 to 19 goats

**Medium:** 20 to 99 goats

**Large:** 100 or more goats

A higher percentage of very small operations (45.3 percent) required any of the biosecurity measures listed in figure 2 compared with large operations (29.7 percent). This finding is especially concerning because a higher percentage of large operations (74.0 percent) than very small operations (58.7 percent) had visitors, and a higher percentage of large operations with visitors than very small operations allowed visitors to enter the goat production area (64.7 and 53.4 percent, respectively). A higher percentage of dairy goat operations always required at least one biosecurity measure to prevent disease introduction by visitors who entered the goat production area (59.7 percent) compared with meat operations (35.1 percent).

### Physical contact with other animals

Domestic and wild animals often serve as reservoirs (sources) of disease and minimizing contact with these animals is another important biosecurity measure. During the previous 12 months, almost 9 of 10 goat operations (88.8 percent) had dogs or cats on the operation and more than 5 of 10 (52.9 percent) had horses or donkeys. More than half of large operations (59.9 percent) had beef or dairy cattle. One-third of large operations (31.2 percent) had poultry, compared with about half of very small operations. A lower percentage of operations in the Southeast region (8.9 percent) had domestic sheep than operations in the West and Northeast regions (22.2 and 23.6 percent, respectively).

Overall, goats on 71.2 percent of operations had fence-line contact with or commingled with dogs, cats, raccoons, skunks, or opossums during the previous 12 months. Also, goats on more than 4 of 10 operations (43.9 percent) had commingled with or had fence-line contact with predators. Goats on one-third of operations (32.9 percent) had been in contact with deer, elk, antelope, or exotic hoof stock. In the West region, goats on one of five operations (21.2 percent) had fence-line contact or commingled with domestic sheep or goats from another operation, and goats on more than one-third of operations (37.2 percent) had contact with beef or dairy cattle from another operation.

### Animal identification

The use of individual animal identification (ID) [a unique number assigned to each goat] and/or herd ID (farm name, farm logo, or a number unique to the farm) can be important tools in disease management and control. ID helps producers monitor important production parameters and makes it possible to trace an animal to its herd of origin if disease is diagnosed after an animal has been moved. Certain forms of ID are required by the USDA and/or individual States when animals are sold or when they are moved from their herd of origin. The percentage of operations that used either herd or animal ID increased with herd size, ranging from about one of three very small operations (30.7 percent) to three of four large operations (74.3 percent). Scrapie tags were

the most common form of herd ID (15.6 percent of operations, representing 25.7 percent of goats and kids).

### Kidding management

Note: Data in this section represent only operations with 10 or more goats that had kids born alive.

Does that become infected with certain pathogens for the first time while pregnant may abort, kid early, or have small or abnormal kids. Therefore, keeping first-kidding does away from others until after they have kidded may reduce the risk of infection. Overall, 38.1 percent of goat operations separated first-time kidders from older does during kidding. Using the kidding area as a place to house sick goats is convenient when facilities are limited; however, this can also increase the risk of spreading infections within the herd.

Overall, 90.3 percent of operations did not house sick goats in the kidding area during the previous 12 months. This practice was less common on large operations (83.0 percent) than on small operations (95.1 percent). Ideally, manure and waste bedding should be cleaned from the kidding area after every birth, although doing so is not always practical, especially on large operations. One of four operations (25.7 percent) cleaned manure and waste bedding from the kidding area after each doe during the last kidding season, and 28.9 percent of operations never cleaned manure and waste bedding from the kidding area. A lower percentage of operations in the Northeast region (9.4 percent) than in the Southeast or West regions (34.1 and 35.3 percent, respectively) never cleaned manure and waste bedding from the kidding area.

Good biosecurity includes prompt removal of placentas and aborted fetuses. Placentas and aborted fetuses can harbor thousands of infectious organisms that can spread infections to other goats within the herd or to other animals on the farm. Dogs or cats can move placentas to areas that might contaminate feed, promoting transmission of infectious organisms.

A lower percentage of small and medium operations left placentas and aborted fetuses in the field or birthing areas (36.2 and 37.4 percent, respectively) than large operations (64.2 percent). A higher percentage of operations in the West and Southeast regions (52.6 and 41.6 percent, respectively) left placentas and aborted fetuses in the field and birthing areas than operations in the Northeast region (21.6 percent).

## Summary

Introduction of disease to a naïve herd can have serious economic consequences. Biosecurity measures can help reduce the risk of disease introduction. Goat producers can benefit from working with a veterinarian experienced in goat production to develop a cost-effective biosecurity plan for the operation. Recommended biosecurity practices include isolating new animals for 30 days, disinfecting needles between animals, limiting contact with outside animals, limiting visitor access to goat production areas, using animal identification, and managing kidding areas and kidding products to minimize environmental.

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