

## Biosecurity on U.S. Feedlots<sup>1</sup>

Biosecurity is a collection of management practices designed to minimize the risk of disease introduction and spread on an operation. Such practices may include: isolation of new arrivals, rodent control, equipment cleaning, and minimizing visitor entry into pens. Because feedlots frequently obtain animals from more than one source, biosecurity practices are important in preventing disease introduction and spread.

The U.S. Department of Agriculture's National Animal Health Monitoring System (NAHMS) conducted the Feedlot 2011 study, an in-depth look at large feedlots (1,000 head or more capacity) in 12 States<sup>2</sup> and small feedlots (fewer than 1,000 head capacity) in 13 States.<sup>3</sup>

Large feedlots accounted for 82.1 percent of the January 1, 2011, inventory of feedlot cattle in all U.S. feedlots but only 2.8 percent of all feedlots. The 12 participating States accounted for over 95 percent of the inventory of cattle in large feedlots (NASS, "Cattle on Feed" February 18, 2011). Small feedlots accounted for 16.0 percent of the inventory on all U.S. feedlots and 92.9 percent of all U.S. farms with cattle on feed. The 13 participating States accounted for 85.4 percent of U.S. farms with fewer than 500 cattle on feed and 90.5 percent of the inventory on farms with fewer than 500 cattle on feed (NASS, 2007 Census of Agriculture). Study results presented in this information sheet reflect only large feedlots,<sup>4</sup> which were divided into two groups: those with a capacity of 1,000 to 7,999 head and those with a capacity of 8,000 or more head.

One objective of the Feedlot 2011 study was to describe the current biosecurity practices and capabilities of U.S. feedlots. Biosecurity practices are important in preventing the introduction and spread of potentially catastrophic foreign animal diseases, as well as managing endemic and epidemic domestic disease. Understanding feedlot population characteristics and common biosecurity practices can improve risk evaluations and suggest intervention strategies for particular diseases. Biosecurity practices examined included housing management, vaccination protocols

and disease testing, management of Mexican-origin cattle, contact with other animals, visitor management, equipment sharing and cleaning, information sources and contacts in case of an outbreak, proximity to other operations with livestock, and worker contact with livestock on other operations.

### Housing management

Feedlots, especially those with a capacity of 8,000 or more head, receive animals from many sources. Animals that leave feedlots for purposes other than slaughter represent a potential avenue for introducing pathogens to breeding herds.

Overall, 17.1 percent of feedlots had some animals leave the feedlot and return to a breeding or stocker operation. For feedlot animals destined to return to breeding or grazing operations, biocontainment practices—primarily segregation—could be one way to mitigate the spread of certain pathogens.

Of these feedlots with beef breeding cattle and stocker cattle, about half (49.6 and 44.1 percent, respectively) provided a segregated area that prevented breeding and stocker cattle coming into direct contact with cattle on feed for slaughter (see table on next page). The majority of feedlots that fed any breeding cattle (70.2 percent) and that fed any stocker cattle (59.3 percent) housed some of these animals in pens that allowed nose-to-nose contact with cattle on feed for slaughter. There were no substantial differences in housing practices by feedlot capacity or by region.



Photograph courtesy of Judy Rodriguez.

<sup>1</sup> Feedlots with a capacity of 1,000 head or more.

<sup>2</sup> Arizona, California, Colorado, Idaho, Iowa, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, Washington.

<sup>3</sup> Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio, Pennsylvania, South Dakota, Texas, Wisconsin.

<sup>4</sup> Information on small feedlots is available at:

[http://www.aphis.usda.gov/animal\\_health/nahms/feedlot/index.shtml](http://www.aphis.usda.gov/animal_health/nahms/feedlot/index.shtml)

**Of the 17.1 percent of feedlots that fed any dairy breeding, beef breeding, or stocker cattle, percentage of feedlots by type of cattle housing<sup>1</sup>**

Housing type	Percent feedlots
Dairy breeding cattle <sup>2</sup>	
Beef breeding cattle	
Segregated area with no direct contact with cattle on feed for slaughter	49.6
Pens adjacent to cattle on feed for slaughter (nose-to-nose contact)	70.2
Pens with cattle on feed for slaughter (commingled)	4.4
Hospital pens with cattle on feed for slaughter for any length of time	10.0
Stocker cattle (destined to be returned to grazing)	
Segregated area with no direct contact with cattle on feed for slaughter	44.1
Pens adjacent to cattle on feed for slaughter (nose-to-nose contact)	59.3
Pens with cattle on feed for slaughter (commingled)	5.6
Hospital pens with cattle on feed for slaughter for any length of time	33.5

<sup>1</sup>From July 1, 2010, through June 30, 2011.

<sup>2</sup>Too few to report.

**Pathogen testing**

Pathogen testing can be used to determine if cattle returning to breeding or grazing pose a risk of transmitting a disease to the herd of origin. Nearly one-third of feedlots (30.6 percent) did some pathogen testing on beef animals destined to be returned to breeding.

**Management of Mexican-origin cattle**

Mexican-origin cattle in feedlots are thought to be at a higher risk of being infected with certain pathogens, such as *Mycobacterium bovis*. Overall, 11.4 percent of feedlots fed any Mexican-origin cattle. A higher percentage of feedlots with a capacity of more than 8,000 head fed Mexican-origin cattle than feedlots with a capacity of 1,000 to 7,999 head (33.1 and 2.5 percent, respectively).

**Contact with other animals**

Animals other than cattle can present biosecurity concerns. Other animals most commonly observed on feedlots were cats (77.2 percent of feedlots); dogs (63.3 percent) and horses, donkeys, mules, etc. (61.7 percent). About 7 of 10 feedlots (72.8 percent) also observed raccoons, squirrels, skunks, or rabbits on at least a monthly basis, and about 3 of 10 (33.5 percent) observed wild ruminants.

**Visitor management**

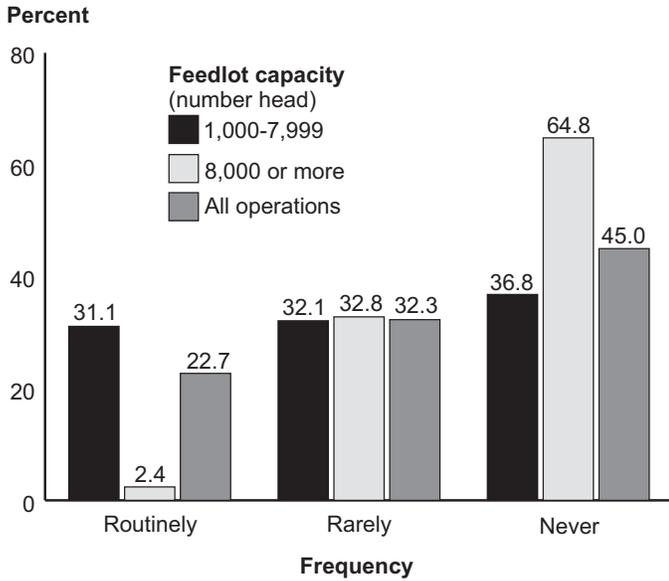
Visitors can also present biosecurity concerns. The three most common classes of visitors included veterinarians, livestock haulers, and nutritionists (95.3, 91.8, and 89.0 percent of feedlots, respectively). Overall, 25.1 percent of feedlots displayed signage directing that visitors check with the office before entering the feedlot. Only 10.3 percent of feedlots with a capacity of 1,000 to 7,999 head displayed such signage, compared to 60.6 percent of feedlots with a capacity of 8,000 head or more. Most feedlots did not provide outer protective clothing or footbaths for visitors; however, 65.7 percent limited access to animal areas, and 59.9 percent restricted vehicles from animal areas. Restricting visitor access to animal areas was more common on feedlots with a capacity of 8,000 head or more (88.1 percent) than on feedlots with a capacity of 1,000 to 7,999 head (56.3 percent).

**Equipment sharing and cleaning**

Using the same equipment to handle manure and cattle feed can increase the risk of disease transmission. Pathogens can be transmitted from fecal material to cattle feed, and can be transferred from one pen to another via contaminated feed. Nearly 2 of 3 feedlots with a capacity of 8,000 head or more (64.8 percent) never used the same equipment to handle manure and feed (see figure on next page). In contrast, 36.8 percent of feedlots with a capacity of 1,000 to 7,999 head never used the same equipment for handling manure and feed. Approximately one of three feedlots with a capacity of 1,000 to 7,999 head (31.1 percent) routinely used the same equipment for handling manure and feed. For feedlots that did use the same equipment to handle manure and feed, 81.1 percent washed the equipment with water or steam and 6.3 percent washed and chemically disinfected the equipment between uses.

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**Percentage of feedlots by frequency the same equipment was used to handle manure and cattle feed, and by feedlot capacity**



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**Information sources and contacts in an outbreak**

In the event of a foreign animal disease outbreak such as foot-and-mouth disease, communication with and notification of the proper officials are vital. Understanding which information resources feedlots would choose in the event of such an outbreak can facilitate the timely delivery of important information. Overall, 94.3 percent of feedlots were very likely to contact their private veterinarian in the case of an outbreak of foreign animal disease.

**Proximity to another operation with livestock**

Direct contact with cattle from another operation poses a threat to cattle health and might increase the risk of disease spread. Relatively few (7.9 percent) feedlots shared a fence line with a neighboring feedlot.

**Labor**

Employees that have contact with livestock on more than one operation can be a biosecurity concern. Contact with other livestock outside the feedlot was minimal for about half of feedlots; 53.2 percent of full-time employees who only handled cattle had no contact with livestock on other operations, and 59.7 percent of employees did not own any livestock.

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