



United States  
Department of  
Agriculture

Animal and  
Plant Health  
Inspection  
Service

Veterinary  
Services

# Injection Practices in Large Feedlots

National Animal Health Monitoring System

Injection site lesions continue to be of great concern to the beef industry. On-going surveys of top sirloin butts would indicate that progress has been made in eliminating lesions from this cut of meat (Figure 1). **Feedlot operators have responded significantly to the message of quality assurance in beef production, particularly with respect to injection practices.**

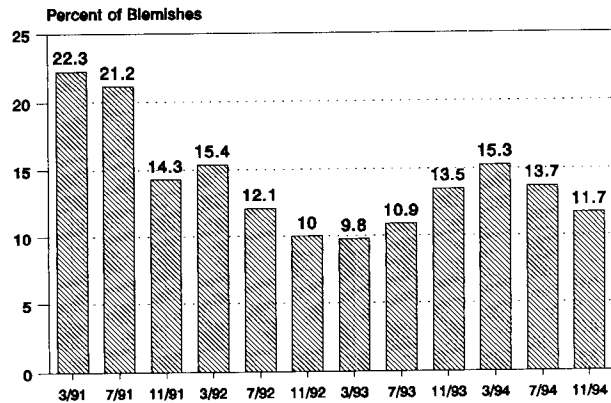
The USDA's National Animal Health Monitoring System (NAHMS) collected management information from feedlots with at least 1,000 head, one-time capacity in the 13 primary cattle feeding states<sup>1</sup>. Over 85 percent of the January 1, 1994, inventory of cattle on feed for the United States were present in these 13 states. Though these large-capacity feedlots represented only 4 percent of all feedlots in the 13 states, they had 83.3 percent of the 13 states' January 1994 feedlot inventory. In October, November, and December of 1994, 453 feedlot operators provided information on health management practices for NAHMS' Cattle on Feed Evaluation (COFE). The results were weighted to represent all large (1,000 head or more capacity) feedlots in the 13 states.

Previous COFE information from feedlots in the same area showed that 83.1 percent of these large-capacity feedlots had changed their injection practices (location or route) in the past 5 years due to concerns about quality assurance or food safety. However, there is still room for improvement as the National Cattlemen's Association study of top sirloin butts would indicate.

Much concern about injection site lesions has centered around the use of clostridial vaccines, especially multivalent products. Most large feedlots (91.0 percent) vaccinated some cattle with a clostridial vaccine. Of all of the placements in large

Figure 1

## Injection Site Damage in Beef Top Sirloin Butts



Source: National Cattlemen's Association

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feedlots between July 1, 1993, and June 30, 1994, 92.0 percent were reported to have received at least one clostridial vaccination. **Just over 23 percent of the cattle placed on operations using clostridial vaccines received more than one clostridial injection.** Multiple vaccinations (at the same time or at different times) may lead to more injection site lesions. Table 1 shows the primary clostridial organisms vaccinated against included *Cl. perfringens* type C and D (90.8 percent of cattle placed),

Table 1

### Percent of Large Operations, and Percent of All Cattle Placed, Vaccinated for Various Clostridial Agents

Organism	Percent of:	
	Operations	Cattle Placed
<i>Cl. perfringens</i> C and D	89.7	90.8
<i>Cl. chauvoei</i>	88.6	84.0
<i>Cl. septicum</i>	87.5	82.8
<i>Cl. novyi</i>	86.0	82.8
<i>Cl. sordellii</i>	86.0	82.0
<i>Cl. hemolyticum</i>	35.2	31.9
<i>Cl. tetani</i>	16.7	4.0

<sup>1</sup> Arizona, California, Colorado, Idaho, Illinois, Iowa, Kansas, Minnesota, Nebraska, Oklahoma, South Dakota, Texas, & Washington.

Cl. chauvoei (84 percent), Cl. septicum, and Cl. novyi (both 82.8 percent).

Producers were asked about the route and location of clostridial injections. Only 13.8 percent of large feedlots that gave some clostridial vaccines did so in the muscle. For operations that used the intramuscular route for clostridial vaccination, 72.7 percent indicated that all intramuscular injections were given in the neck. **Another 18.4 percent of operations indicated that all of their intramuscular clostridial vaccinations were given in the upper rear leg** (Figure 2). Other sites were used much less frequently.

Other injectables that have been a concern to the industry as a potential source of lesions are some antibiotics and vitamins. Producers reported that 16.1 percent of the cattle placed on feed in large feedlots received one or more regular antibiotic injections (label specified effect was 24 hours or less) for prevention or treatment purposes, and 13.1 percent received long-lasting antibiotic injections (label specified effect was greater than 24 hours).

Most large feedlots (84.3 percent) that gave regular antibiotics indicated that some of the regular antibiotics were given intramuscularly. For operations using the intramuscular route, 12.8 percent indicated that all intramuscular injections were given in the upper rear leg. Over one-half (51.3 percent) indicated that all intramuscular injections were given in the neck. Many feedlots (62.8 percent) reported that some long-acting antibiotics were given in the muscle. Of those injecting in the muscle, 12.6 percent indicated all were given in the upper leg. Over one-half (57.9 percent) indicated all intramuscular injections were given in the neck.

Fifty-eight percent of large producers reported use of any vitamin injections. Overall, 44.3 percent of the cattle placed on feed received some sort of vitamin injection while they were on feed. The most commonly used vitamin injection was a combination of vitamins: A, D, and E (46.1 percent of operations and 42.5 percent of all cattle placed.)

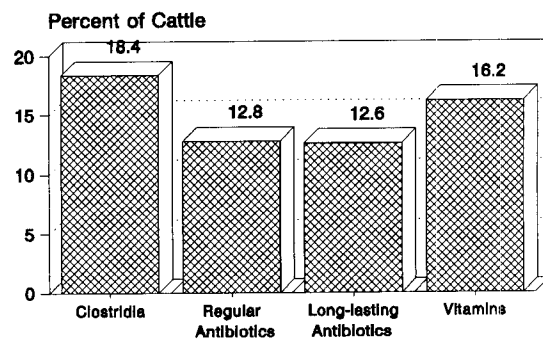
Over three-fourths (76.8 percent) of large feedlots giving vitamin injections gave some intramuscularly. Among the operations using the intramuscular route,

16.2 percent gave all intramuscular vitamin injections in the upper rear leg.

In summary, most operators of large feedlots have altered their injection practices in response to concern about beef quality. Still, there are a number of producers using products in ways that may lead to injection lesions. To some extent, this behavior is due to label clearances for specific products. However, the pharmaceutical and biologics industry is responding to the call for more products to be cleared for subcutaneous use and to document the lack of injection blemishes when used according to label indications. Together, beef producers and professionals allied to the beef industry can and will make progress in further improving beef quality.

Figure 2

### Percent of Operations\* Using the Upper Hip for All Intramuscular Injections by Type of Product



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\*Of those operations (1,000 or more head capacity) using the intramuscular route.

NAHMS collaborators included the National Agricultural Statistics Service (USDA), State and Federal Veterinary Medical Officers, and the National Veterinary Services Laboratories (USDA:APHIS:VS).

Other COFE information is available on the following topics: Branding, Mexican-origin cattle, environmental management, vaccination practices, and information sources. Study results on beef cow/calf, dairy cattle, and swine are also available. For more information contact:

Centers for Epidemiology and Animal Health  
USDA:APHIS:VS, Attn. NAHMS  
2150 Centre Ave., Bldg. B, MS 2E7  
Fort Collins, CO 80526-8117  
(970) 494-7000  
[NAHMSweb@aphis.usda.gov](mailto:NAHMSweb@aphis.usda.gov)

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