

# Cattle Producer's Handbook

Quality Assurance Section

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## Dairy Beef Quality Assurance



**Dairy BQA:** A program to educate dairy owners, managers, and employees about on-farm practices that affect food safety, consumer confidence, and quality of beef that is produced from market dairy cows and bulls at slaughter.

### Dairy Cattle = Beef

*Your dairy has a "steak" in the beef business.*

Dairy animals are also beef animals. In fact, the dairy industry contributes about 20 percent of all the beef

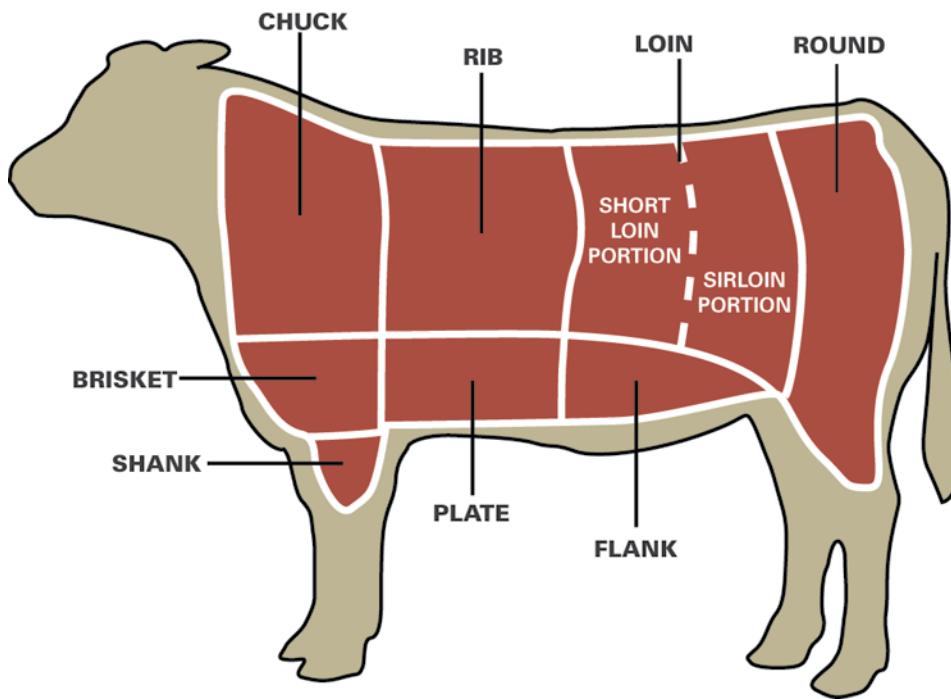
produced in the United States. Furthermore, income from the sale of market dairy cows and bulls makes up about 4 to 15 percent of the total income on a dairy.

When a dairy cow or bull is culled from the herd and sold for slaughter, the seller is making the same commitment to food safety and quality as when

milk is sold for human consumption. Today's consumers are becoming more concerned about their food and how it has been handled and produced. As a result, beef packing companies are becoming more concerned with the quality and safety of beef from market dairy cows.

In the past, most dairy cows were culled based primarily on their ability to produce milk, and never on the quality of their carcass. Therefore, no one considered them of much value since it was assumed that beef from these animals was only used for ground beef. However, nothing could be further from the truth. Today, more than 50 percent of every market cow carcass is made into nearly 20 wholesale cuts of beef that are sold to consumers as steaks, roasts, deli and fast-food roast beef, philly steaks, fajitas, and other high-quality and high-value products (Table 1).

Since these high-quality and high-value cuts are in demand by consumers, dairy producers need to do everything possible to ensure that animals are free from injection site lesions, bruises, and illegal drug residues. For the dairy industry to remain viable, several on-farm management practices must be used so that the beef



from dairy cattle is tender, palatable, and free of defects and drug residues.

## Dairy Beef Quality Assurance

Dairy Beef Quality Assurance (BQA) is a nationwide program that addresses the on-farm day-to-day management practices that influence the safety, quality, and wholesomeness of beef from market dairy cows and bulls. By making an effort to improve the beef we produce, we are taking the responsibility to assure consumers that we can meet high standards in food safety and quality.



**Table 1. The 20 wholesale cuts of dairy beef animals that consumers use.**

Wholesale cut	Use by consumers
Ribeye roll	Rib steaks for grilling or prime rib
Striploin	New York or Kansas City strip steaks for grilling
Brisket	Beef for barbecue or corn beef
Chuck and whole boneless knuckle	Mostly used for ground beef
Outside skirt and bottom sirloin flap	Fajita meat or stir fry
Flank steak	Steaks for grilling with lots of flavor
Tenderloin	The most tender cut; makes great steaks
Bottom sirloin ball tip	Used for steaks and roasts
Eye of round	Pre-cooked and pre-packaged products
Boneless chuck shorrib	Ideal for slow grilling
Bottom sirloin tri-tip	Seasoned and grilled whole
Top sirloin butt	Steaks for grilling (popular foodservice steak)
Top round	Marinated for kabobs, steaks, and jerky
Beef spare ribs	Slow cooked on a grill

The Dairy Beef Quality Assurance program focuses on five key areas:

1. Early culling of cows to reduce the incidence of disables or “downer” cattle, which often result from weak or thin cows.
2. Humane cattle handling and management to avoid lameness, bruising, and injury.
3. Giving all injections to cattle in the neck to eliminate damaging valuable cuts of beef.
4. Following drug label guidelines to prevent drug residues and potential antibiotic resistance problems.
5. Implementation of biosecurity plans to control infectious diseases within a herd.

## National Market Cow Quality Audits

In 1994, 1999, and 2007 three National Market Cow and Bull Beef Quality Audits (funded by beef check-off dollars) were conducted to determine quality defects and economic losses due to inferior management, monitoring, and marketing of market cows and bulls.

According to these audits, the biggest problems with market cows and bulls at slaughter were:

- Bruises
- Antibiotic residues
- Birdshot and/or buckshot in the meat
- Arthritic joints
- Carcass weight compared to live weight (dressing percent and trim loss)
- Body condition and lameness
- High condemnation rate

In the 1999 audit, it was estimated that about \$69 per head was lost for every market cow and bull that was slaughtered in the U.S., which was caused by several major factors (Table 2).

When live cattle were evaluated just before slaughter, several major defects were observed including cancer eye, lumpy jaw, and lameness, in addition to less-than-desirable muscling and body condition. Researchers found that 72.5 percent of the dairy cows had inadequate



muscling. Also, body condition scores were too low in 5.4 percent of dairy cows, and 43 percent of cow carcasses were considered too light (less than 500 pounds).

These results clearly indicate that there is an opportunity for dairy producers to improve the quality of beef produced from their market dairy cows. By changing a few key practices on a dairy, the value of market dairy cows sold for slaughter can be improved substantially.

## One State's Role in Dairy BQA

Dairy cattle producers have several opportunities to easily improve the quality and value of their dairy cows' carcasses. Each year, about 35 percent of the cows on a dairy are culled. This means that a dairy with 1,000 cows sends about 350 cows to slaughter each year. If \$68.82 is lost due to quality defects for each cow, that dairy is losing over \$24,000 annually. Using Idaho's production records, for example, 175,000 dairy cows are slaughtered every year (which is 35% of 500,000 cows), which results in a collective loss of over \$12 million annually to Idaho's dairy producers.

The major problems and losses occurring in market cows and bulls are due to the fact that:

1. Too many cows and bulls are not sold for slaughter in a timely manner.
2. Too many beef and dairy cows have inadequate muscling at slaughter.
3. Too many market cows are disabled before slaughter.



Severe emaciation

**Table 2. Major loss factors in the slaughter of market cows and bulls.**

Item	Loss
Inadequate muscling and lightweight carcasses	\$19.98
Trim loss (arthritic joints, bruises, injection sites, etc.)	\$14.40
Excess external fat	\$10.17
Condemnations, residues, and disabled or “downer” cattle	\$10.11
Yellow external fat and dark cutting muscle	\$7.89
Hide value loss (brands, insects, etc.)	\$6.27
<b>Total loss per head</b>	<b>\$68.82</b>

Source: 1999 National Market Cow and Bull Quality Audit

4. Too many market cows and carcasses are condemned.
5. Too many carcasses have excessive bruising.

Therefore, consider these key items relative to managing and marketing cull animals:

1. **Body condition muscling**—60 percent of market cows don't have enough body condition or external fat reserves. Without enough fat cover and muscling, market dairy cows are more susceptible to bruising, more likely to become "downers," and produce a poor carcass.
2. **Lameness and bruising**—In most dairy herds, nearly 1 in 4 cows are lame and have problems walking and being transported. The incidence of arthritic joints and bruising then increases and causes significant trim loss at slaughter, including nearly 40 pounds per head due to arthritic joints and up to 30 pounds due to extreme bruising.
3. **Injection site quality control**—Injection site lesions are most commonly found in the rump of market dairy cows, which damages several high quality and high value beef cuts. The proper location to give all injections is in the neck region.
4. **Drug residues**—It is critical to follow label directions and proper withdrawal periods when administering animal health products. Good animal identification, treatment records, and working closely with a veterinarian can help avoid marketing animals that may not clear proper drug withdrawal times.

5. **Biosecurity**—The U.S. cattle industry is continually at risk of facing economic hardship due to diseases such as foot-and-mouth disease (FMD), a highly contagious disease that has occurred in countries other than the U.S. recently. However, diseases such as Johne's Disease have become more prevalent in the U.S. As a result, dairies are using biosecurity plans to avoid the introduction and spread of these and other diseases.



Inadequate muscling



Downer cow



Injection site lesion



Drug residue violation tag



Restrict access

## Body Condition and Carcass Quality

Besides producing milk, dairy cows supply a large amount of beef to consumers. By distributing market cows in better condition when they still have adequate muscling and fat thickness, more dollars can return to the dairy. A Body Condition Scoring (BCS) system has been established in order to provide dairies with a herd management tool to monitor the amount of external fat each cow has (Table 3). The system uses scores of 1 to 5 (1 = extremely thin, 5 = extremely fat) to rate each cow visually based on her average fat content.

**Table 3. Body Condition Score (BCS) quality measuring system descriptions.**

BSC	Description
1	Very thin
2	Individual ribs can be seen
3	Some fat seen over the ribs
4	Fat is collecting in the brisket area
5	Very fat

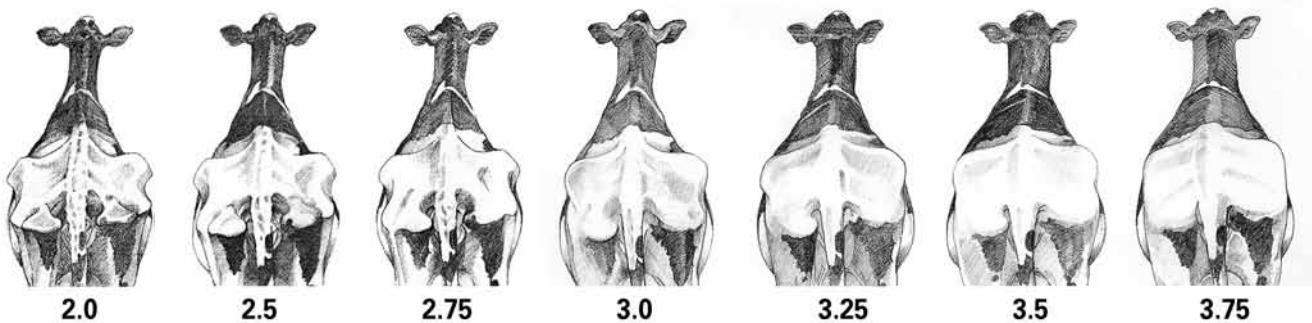
Cows sold with a Body Condition Score of 2.5 to 3.0 will produce the most valuable carcasses for beef, benefiting the dairy producer, beef packer, and consumer. However, in 2007, 63 percent of all dairy cows had a BCS of 2.5 or lower at slaughter, according to the National Market Cow and Bull Beef Quality 2007 Audit. Cows that are too thin bring less income since they have inadequate red meat yield (Table 4).

However, when cows get thinner and have a Body Condition Score of 2.5 or less, they typically become weak and are more likely to become disabled when transported and have an increased incidence of bruising, abscesses, swelling, and condemnations.

Unfortunately, nearly 75 percent of market dairy cows have inadequate muscling and about 1 in 20 cows is in a serious negative energy balance with a Body Condition Score of 1. These



Excessive bruising



2.0      2.5      2.75      3.0      3.25      3.5      3.75

**Table 4. Relationship between Body Condition Score (BCS) and beef value.**

BSC	Live weight	Dressing %	Carcass weight
1	1,050	42%	440
2	1,175	46%	540
3	1,300	48%	625
4	1,425	52%	740
5	1,550	58%	900

extremes can be prevented by better management and more timely culling.

## Market Cows in a Timely Manner

Public perception has a major affect on the demand for beef. Therefore, animals should be culled and slaughtered as soon as possible when problems such as these are first visible.

If cows are not culled early, the dairy risks losing 100 percent of the value of that cow if its carcass is condemned. Therefore, animals should be culled and harvested as soon as possible before animal health issues progress to advanced stages making dairy cows ineligible for slaughter.



**Severe emaciation and lameness**

Follow these five rules when culling animals:

1. Sell market cows **before** they become severely thin.
2. Do not distribute market animals that pose a public health threat or have a terminal disease condition.
3. Be certain that **all** animals shipped to slaughter have cleared proper withdrawal times.
4. Do not send market animals to slaughter that are downers or have advanced eye lesions.
5. Use products properly and observe withdrawal times to prevent violative residues.



**Visible abscesses**



**Lameness or injury**



**Cancer eye**



**Condemned stamp**



**Disabled or downer cows**



**Severe lameness**

## Don't Let Cows Get Lame

Lameness is a common reason for culling dairy animals. When cows become lame, they are more likely to have problems walking and being transported, and arthritic joints are more likely to occur and be trimmed at slaughter.

In most dairy herds, a large number of cows are lame (nearly one in four according to research in Wisconsin). The National Market Cow and Bull Quality 2007 Audit found that 49 percent of dairy cows evaluated immediately before slaughter were lame. On average, over 39 pounds of beef per cow is lost due to trimming of arthritic joints and nearby tissue.

To avoid lameness problems, it is important to closely monitor cows for lameness. A Locomotion Scoring System (LSS) of 1 to 5 (1 = normal, 5 = extremely lame) has been developed to help evaluate how dairy cows stand and walk, and to enable early detection of problems.

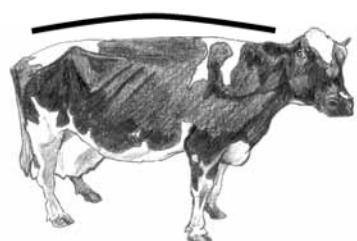


**LSS Score 1—NORMAL.** Normal posture and gait, level back. All feet are placed with purpose.



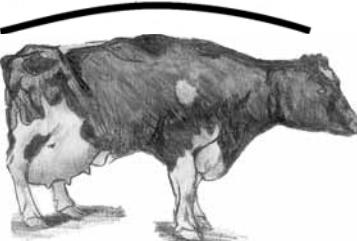
**LSS Score 2—MILDLY LAME.** Back is flat when standing but arched when walking. This stage is the first indication of lameness and should

be identified and treated before it progresses.



**LSS Score 3—MODERATELY LAME.** Back is arched while walking AND standing, and strides are shorter but gait may appear normal.

Cow will have a V-posture in her stance.



**LSS Score 4—LAME.** Back is arched while walking and standing AND gait is abnormal including favoring one or more legs.



**LSS Score 5—SEVERELY LAME.** Back is arched and cow will not bear weight on one leg and may resist standing. Cows with this score should not be sold or transported and should be euthanized.

When a lameness problem is first observed (Locomotion Score = 2), an effort should be made to avoid more severe problems (Lameness Score 3 or 4). For instance, cows marketed at a Score of 3 or 4 have a greater risk of becoming a downer during transport. Cows with a Score of 5 should not be sold and should be euthanized. They are beyond the window for profitable and responsible culling.

## Take Extra Care with Downers

Most cattle are slaughtered in good health and physical condition. However, some cattle should not be sold to slaughter because of animal welfare concerns. Instead, these animals should be euthanized. A downer cow is an animal that cannot stand from a lying down position of rest due to broken bones, severed tendons or ligaments, nerve paralysis, fractured backbone, or disease.

### Handling

Be extra careful when handling downer cattle by:

- Immediately determining whether a downer cow should be humanely euthanized or receive additional care.
- Providing feed and water to downer cows at least once daily.
- Not dragging downer cows or lifting them with chains. If movement is necessary, use caretakers to humanely roll the animal onto a sled or low-boy trailer, or into the bucket of a large loader.



A downer cow should be humanely euthanized.

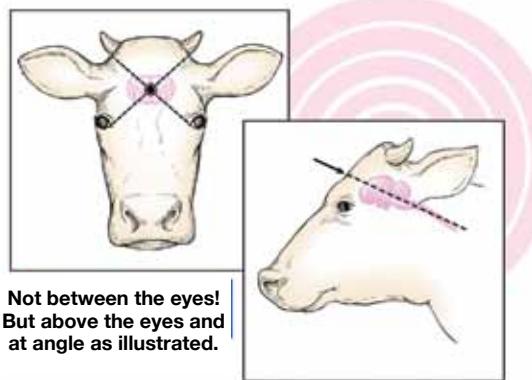
- Euthanizing cattle that are unable to sit up unaided or refuse to drink or eat within 24 to 36 hours of initial onset.
- Not sending downer animals to a livestock auction or a packing plant. These facilities are not the place to dispose of dying or sick cows.
- Selling cows to slaughter before they become downers to provide a better quality of life for the animal and provide economic benefit for the operation.

### Euthanasia

In some cases, euthanasia should be used. Euthanasia means humane death without pain and suffering, commonly performed on-farm by the owner since a veterinarian may not be immediately available. The decision to euthanize an animal should consider the animal's welfare.

Reasons to euthanize:

- Severely thin or weak cattle that are at risk of becoming a downer.
- Rapid deterioration of a medical condition. Severe, debilitating pain. Compound (open) bone fracture,



When euthanasia must be done, a properly placed gunshot or penetrating captive bolt (in combination with bleeding out) is an acceptable method when a veterinarian is not available. A gunshot can be done with a .22 caliber long rifle bullet for young animals, or with a larger caliber bullet (.357 or 9 mm) for older cows and bulls. The firearm should be held a few inches from the skull and aimed at the intersection of two imaginary lines (see diagram) drawn from the inside corner of the eye to the base of the opposite horn.

Death must be confirmed before an animal is disposed, which can be confirmed by: (1) lack of a heartbeat, (2) lack of breathing, or (3) lack of corneal reflex (eye twitching when touched) for a period of more than 5 minutes.

Additional information can be found online at:  
<http://lacs.vetmed.ufl.edu/HumaneEuthanasia/>

including spinal injury. Central nervous system disease. Multiple joint infections with chronic weight loss.

- Downer cattle that will not sit up, eat, or drink and have not responded to therapy and have been down for 24 hours or more.

### Transporting

Transporting lame or weak cows can often result in them becoming a downer. When transporting cattle, be sure that adequate space is provided so cattle can stand without the risk of being forced down due to overcrowding. Do not load cattle that are unable to withstand the rigors of transportation. If a trailer is not full, safely partition cattle into smaller areas to provide stability for the cattle.

### Avoid Injection-site Lesions

Injection-site lesions result when an injection is given directly into muscle causing irritation and damage to the tissue. This causes unappetizing scars and lesions in steaks that are cut from this area. In market dairy cows, injection-site lesions are most prevalent in the rump or round, primarily since it is a convenient location to give injections. However, it is not the correct place to give injections since they affect consumer confidence in beef and reflect poorly on the dairy industry, ultimately lowering the price that packers pay for cows.

Retail sellers of beef have identified injection-



Wrong place for an injection.



Result of giving an injection into the muscles of an animal's round.



**One injection site lesion can ruin a lot of steaks.**

site blemishes as their No. 1 concern. Injections given in the rump area damage high quality and high value cuts, costing the industry an estimated \$4.2 million annually.

The round is usually cut into steaks and roasts, and consumers are often the ones who find injection-site lesions. In addition to losing product due to trimming, injections in the round can actually cause steaks to be much tougher up to 3 inches away from the injection site.

Research has shown that at least one in three rounds from dairy cows has at least one injection-site lesion. These injection-site lesions require the trimming of over half a pound of beef from every cow's carcass. Even with small needles and a small amount of a drug, the lesion of scar tissue can become the size of a baseball.



**Give immunizations in the neck.**

## **Proper Injection Procedure**

By moving the site of injections from the rump to the neck, dairies can improve the quality and value of market cows sold for slaughter. Follow these five steps to prevent costly product losses, build public confidence, and enhance the effectiveness of the products you use to maintain herd health.

1. Give all injections in the neck area in front of the shoulder. Never give injections in the hindquarters!



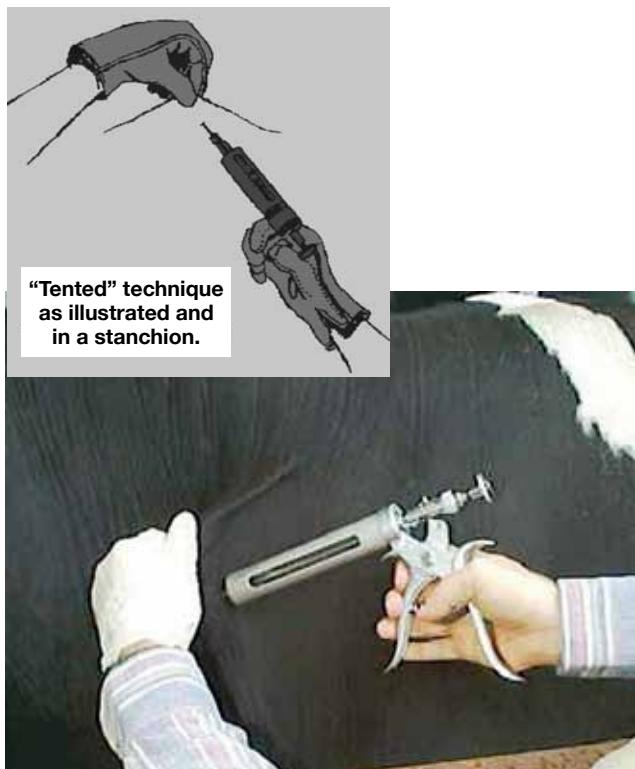
**Giving injections in head locks**

2. Follow label instructions. Understand the reason, withdrawal times, dose, safety, and expiration date of all products given and keep track of what product was used, when, and why.
3. Choose subcutaneous (Sub-Q) rather than intramuscular (IM), only if given a choice on the product's label since some products must be used IM because they are not approved for Sub-Q use.
4. Use the two-handed "tent" technique (see photo) for Sub-Q injections. Don't inject more than 10 cc of product per injection location and space injection locations at least 4 inches apart (which is about the width of one's hand).
5. Use 16 gauge needles that are 1/2- to 3/4-inch needles at least 1 inch long for IM. Change needles often (about every 10 animals) and don't use dirty, burred, bent, or broken needles. Never straighten and re-use a bent needle. Clean syringe guns regularly with hot water only.

Needle size should be based on the size of an animal, route of administration, and viscosity of the injectable product. Select the needle to fit the cattle size (the smallest practical size without bending) (Table 5).

**Table 5. Route of administration**

Viscosity of injectable	Subcutaneous (Sub-Q) (1/2- to 3/4-inch needle)			Intravenous (IV) (1 1/2-inch needle)			Intramuscular (IM) (1- to 1 1/2-inch needle)		
	Cattle weight (lb)			Cattle weight (lb)			Cattle weight (lb)		
	under 300	300-700	over 700	under 300	300-700	over 700	under 300	300-700	over 700
Thin (saline)	18	16-18	16	16-18	16	14-16	18-20	16-18	16-18
Thick (oxytetracycline)	16-18	16-18	16	16	14-16	14-16	18	16	16



## Avoid Drug Residues

It is illegal to sell a cow to slaughter if she still has a residue of drugs in her system (from drugs such as penicillin). All drugs have withdrawal times listed on their labels for both meat and milk, indicating the amount of time that must pass before meat or milk can be sold for human consumption.

Animal health products should only be used based on label directions. Extra-label or off-label use should ONLY be done when prescribed by a veterinarian. If the label isn't followed, proper records are not kept, or an animal isn't identified properly it is possible for a carcass from a market cow to have an illegal residue and be condemned.

**Illegal residue:** Concentration of product in body tissues (meat

and milk) that exceeds government standards for that product.

**Withdrawal time:** The number of hours or days after product use that it takes the tissue concentration of the product to reach acceptable government levels.

**Withholding time:** The number of hours, days, or milkings that milk from a treated animal must be withheld from sale.

### Keep Drug Treatment Records

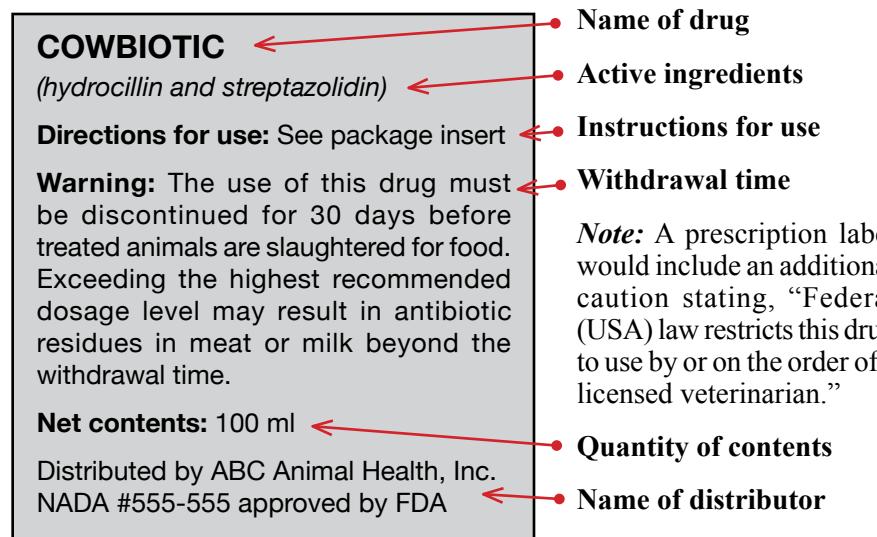
To be sure that animals intended for slaughter have met their withdrawal time, it is important to have written records (Table 6). Treatment records should include:

- Animal's individual identification number and tentative diagnosis.
- Product used, dosage given, route of administration, and who gave it.
- Date, including earliest date animal clears withdrawal period.

**Remember:** Meat withdrawal is longer than milk withdrawal. The time to consider the meat withdrawal required after treatment is BEFORE TREATMENT!

### Example of Label Type:

#### Over the Counter (OTC) product



**Table 6. Treatment record for individual cattle.**

Animal ID: \_\_\_\_\_ Home group/pen: \_\_\_\_\_ Color: \_\_\_\_\_  
(Rx = medication name; WD = withdrawal time)

Date	Diagnosis	Temp.	Severity	Rx 1	Rx 2	Rx 3	Comments	WD

## Proper Feedstuff Management

It is essential to monitor feed sources to prevent chemical residues and ensure high quality feeds. In addition, products such as pesticides and chemicals that are used on cropland must be FDA/USDA/EPA approved. A quality control program for feedstuffs aids in preventing chemical residues and ensures high quality feeds.

When new feedstuffs arrive at the dairy:

- Avoid molds and mycotoxins.
- Analyze suspect feedstuffs before use.
- Do not feed ruminant-derived protein to cattle (meat and bone meal).
- Monitor and record use of pesticides and herbicides on pasture or crops to avoid chemical residues.

## Ruminant By-Products Law

Since 1998, federal regulations prohibit the feeding of certain mammalian protein sources. The regulations primarily impact the feeding of meat and bone meal derived from ruminants. Tallow, blood by-products, gelatin, and milk products are excluded from the regulation and are acceptable for use in ration formulations.

## Medicated Feed

“Medicated feed” includes all medicated feed products intended to be a substantial source of nutrients



in the diet of an animal. The term includes products commonly referred to as supplements, concentrates (grain mixture that contains medications), premix feeds (concentrated medications mixed with additional roughage or concentrates), and base mixes and is not limited to complete feeds. Antibiotic use should be limited to prevent or control disease and should not be used if the principle intent is to improve performance.

When using feed additives, be sure to follow these guidelines:

- Use only Food and Drug Administration approved products.
- Do not use feed additives in a manner other than directed on the label.
- Follow withdrawal times.
- Keep records.



## Importance of a Biosecurity Plan

The hardships faced by European producers due to the spread of foot-and-mouth disease (FMD) in 2001 and 2007 are prime examples of the importance of biosecurity for dairy farms. The U.S. has not had FMD since 1929, however, many analysts say a major outbreak would devastate the livestock industry.

Several other infectious diseases prevalent in the U.S. are causing financial losses to dairies. These include Johne's Disease, a disease that progresses slowly and causes cows to lose body condition due to long-lasting diarrhea and weight loss. Research has shown that a cow with Johne's Disease can cost a dairy over \$200/year in reduced production and premature culling.

To avoid the introduction or spread of diseases such as Johne's in a dairy herd, many dairies are initiating biosecurity plans.

**Biosecurity:** Management practices that prevent the introduction of disease onto a farm or the spread of disease within a farm.

For instance, with Johne's Disease, biosecurity measures should attempt to reduce or eliminate the contamination of calves, which typically occurs via feces and colostrum.



Avoid stepping in the feedbunk and contaminating feed.

Biosecurity plans can also be used when new animals are arriving on a dairy. Through some simple steps, the risk of introducing new diseases can be minimized.

A typical biosecurity plan should include steps to address the following:

- Clean equipment used for non-feed purposes (loaders, shovels, etc.) before using for feeding.
- Isolate new cattle.
- Monitor who and what comes onto the dairy.
- Vaccinate against disease, if a vaccine is available.

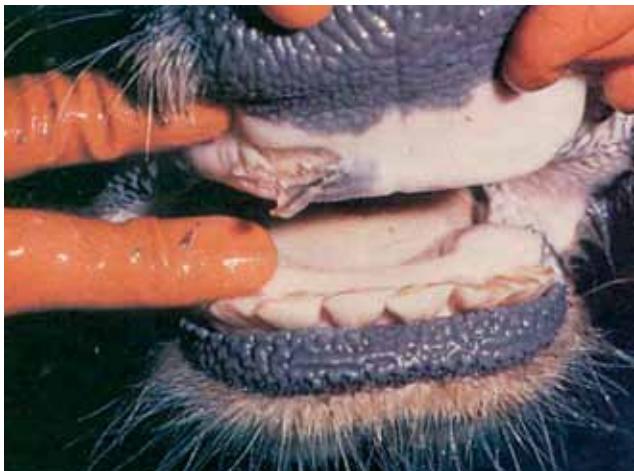
## Potential Diseases on Dairies

Several foreign animal diseases and bacterial and viral pathogens pose threats to the safety and economic viability of the U.S. livestock industry. Here are a few brief definitions and treatment protocols.

**Foot and Mouth Disease (FMD):** A highly contagious viral disease that usually does not affect humans but has devastating effects on cloven-hooved animals such as cattle, swine, sheep, goats, and deer. The U.S. has not had a case of foot-and-mouth disease since 1929.

FMD can be spread by movement of infected animals, movement of contaminated vehicles, and by contaminated facilities used to hold animals. Animals infected with FMD have excessive slobbering, go off feed, are lame, and may have blisters in the mouth or other areas of tender skin such as udders in females, nostrils, and between the hooves.

**Johne's Disease:** An infectious bacterial disease of animals, primarily affecting the intestinal tract. There is no vaccine for Johne's, but several diagnostic tests are available. Signs of Johne's disease do not develop until cattle are adults, even though transmission of the disease occurs as a calf. Johne's is primarily spread via colostrum and manure.



Classic sign of FMD

**Bovine Virus Diarrhea (BVD):** A viral disease that affects the respiratory, reproductive, digestive, immune, and nervous system of cattle. It is transmitted in urine, feces, nasal secretions, and semen. Biosecurity, vaccination, and testing are important in the control of BVD.

**Bovine Spongiform Encephalopathy (BSE or “Mad Cow Disease”):** A rare, chronic, degenerative brain disease that affects the central nervous system of cattle. It was first identified in Great Britain in 1986, and only a few cases have been documented in the U.S. Since 1997, the U.S. banned feeding mammal derived animal protein by-products in cattle feed. Affected animals may display aggression, difficulty in coordination, and rising, decreased milk production and loss of body weight.



Tongue lesion is sign of FMD.



Carcasses burning when the United Kingdom had its FMD outbreak.

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June 2009



## **Quality Assurance Marketing Code of Ethics**

Dairy cattle owners and employees take pride in their responsibility to properly care for cattle on their farms. Therefore, a Quality Assurance Marketing Code of Ethics has been developed for use by cattle producers, dairy producers, and packers.

\* \* \* \* \*

For the protection of consumers, the industry, and my farm, I commit to marketing only cattle that:

- Do not pose a known public health threat
- Have cleared proper animal health product withdrawal times
- Do not have a terminal condition
- Are not disabled
- Are not severely emaciated
- Do not have uterine or vaginal prolapses with visible fetal membranes
- Do not have advanced eye lesions or cancer eye
- Do not have advanced lumpy jaw

\* \* \* \* \*

Furthermore, I will:

- Do everything possible to humanely handle and transport cattle in accordance with accepted animal husbandry practices.

\* \* \* \* \*

Finally, I will:

- Humanely euthanize cattle when necessary to prevent suffering and to protect public health.



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