Cull Cow Beef Quality Issues: Hide Defects, Contamination, and Non-Ambulatory Cattle

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Hide Defects
Hides are the most valuable byproduct from a beef animal a processor can sell to increase the value for a harvested animal. Therefore, defects that result in a hide's devaluation can be concerning for a cattle processor. There are three primary types of hide devaluation.

Brands
Brands, especially multiple brands and those located in high value areas like the rib can significantly reduce the value of a hide. Packers are forced to sell branded hides at a lower price than "native" hides (i.e., hides lacking brands) since branded hides cannot be used to produce high-value leather products.

Latent Defects
These defects include scratches, cuts, and scars that are not created by branding.

Insect Damage
Significant hide damage can also be caused by biting and sucking insects. These external parasites cause the hide to become “pitted,” and as a result, no longer usable for the manufacture of high-value leather products.

Best Management Practices
Producers can prevent or minimize hide devaluation.

1. **Proper Brand Placement**—Although many packers would prefer that producers not brand their cattle, branding is a permanent means of cattle identification and ownership. Producers can read most brands from a distance minimizing the need for restraining the animal. Therefore, cattle producers will continue to use branding as a method of identification in their herds. To minimize the loss in value due to a brand, cattle producers should place brands in lower value areas of the hide. Rib brands should be avoided; cattle producers should place all brands high on the hip and close to the tail head (Figure 1). This location allows processors remove a small portion of the hide without ruining the more valuable portions.

2. **Parasite Control**—Cattle producers should implement parasite control into their overall herd management scheme. Face flies, lice, and grubs are all external parasites that can cause damage to hides and should therefore be controlled at the cattle producer level.

Hide Contamination
Cull cattle that enter the harvest facility with excessive amounts of mud and/or manure on their hide pose a threat

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to beef food safety. The primary reason hide contamination has become such an issue within the industry is that it can lead to carcass contamination, which results in trim loss at the processor level and an increased risk for food-borne illness.

**Best Management Practices**

It is difficult for many cattle producers to prevent hide contamination, because the majority of beef cattle live outside and are exposed to the natural elements. Hide contamination can occur during transport or while in holding pens at a harvest facility.

1. *Practice Proper Sanitation Techniques*—Almost all harvest facilities rinse cattle off prior to entering the harvest facility. By rinsing cattle with water to remove the majority of the dirt and manure from an animal’s hide, processors reduce the potential that dirt and manure will contaminate the carcass as hides are removed. Holding pens and trailers should be cleaned between groups of cattle. Additionally, all carcasses that are harvested in modern processing facilities undergo a process that utilizes several steps to prevent the spread and growth of harmful microorganisms. As a part of this, carcasses are sprayed with a lactic acid wash that will kill bacteria that may have contaminated the carcass during hide removal.

2. *Minimize Disabled/Non-Ambulatory Animals*—Most of the excessive hide contamination issues occur with disabled or non-ambulatory cull animals. Management practices that minimize and avoid the incidence of disabled or non-ambulatory animals is imperative.

**Disabled or Non-Ambulatory Cattle**

Disabled or non-ambulatory cattle are commonly referred to as “downer” cattle within the beef industry. Downer cattle lack the ability to stand and move on their own and are illegal to harvest for human consumption. Most cases of downer cattle are due to severe cases of lameness and/or emaciation. Due to the regulations and liabilities associated with downer cattle, these animals pose two primary beef quality problems to the industry.

**Condemnation**

Non-ambulatory cattle that cannot move unaided must be condemned and humanely euthanized at the harvest facility. Most downer cattle do not have a health problem that would pose a food safety risk for consumers. However, downers do exhibit two of the classic symptoms of Bovine Spongiform Encephalopathy (BSE): neurological signs and the inability to stand. Because BSE affects the animal’s central nervous system, BSE-infected cattle are unable to walk once the disease has reached its advanced stages. Although there is no risk for a consumer to contract BSE from eating beef from the downer beef animal, as a

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**Trim Loss**

Whenever cattle are harvested, one of the first steps in the manufacturing process is the removal of the hide. If cattle have dirt, mud, and/or manure on their hides, some of the manure or mud may contaminate the carcass during the hide removal process. Carcass contamination from dirt, mud, or manure must be completely trimmed from the carcass. The USDA requires the removal of these contaminants to help minimize the spread of microorganisms that could cause food-borne illness. Carcass trim losses from cattle with excessive hide contamination can be costly for both the cattle producer and the beef processor, since trimming must be done before a carcass weight is taken.

**Food-Borne Illness Risk**

Some of the organisms that may cause food-borne illness in consumers reside in the digestive tract of healthy animals. These organisms may be part of the normal gut flora for a beef animal. When a cow’s hide becomes contaminated with dirt and manure, there is a possibility that those organisms could contaminate the animal’s carcass when the hide is removed. The most noted of these is the bacteria *E. Coli* O157:H7, which has been associated with recalls and cases of food-borne illness. Although the chance of contracting a food-borne illness from eating beef is extremely low, excessive hide contamination in cull cattle can unnecessarily raise that risk.
safeguard and to ease the public perception about food safety concerns and BSE, USDA does not allow beef from downer animals to enter the human food supply. Packers will not accept non-ambulatory disabled cattle because of the economic losses and logistical problems associated with handling and condemning these animals. These cattle must be humanely euthanized, handled separately from the other cattle, and retained for BSE testing.

Public Perception and Animal Well-Being

Downer cattle are a well-being concern for beef cattle producers, thus properly caring for a down animal is a priority. Most downer cattle are in a less than desirable state of overall health and well-being. These downer cattle are too weak or injured to be able to stand and move. As a result, some producers may nurse downer animals in an attempt to improve their state and become a marketable animal. However, depending upon the reason for a down animal, some will not recover and be able to stand and walk. If an animal is determined to be unable to rise, they should be humanely euthanized. If an animal is treated and shows improvement post-treatment, a producer may continue to treat this animal. If the condition for a treated animal deteriorates, a producer should no longer consider further treatment but rather humane euthanasia.

Best Management Practices

The problems associated with disabled or non-ambulatory cattle can be prevented in two primary ways.

1. *Timely Marketing*—Cattle producers should monitor their herds more closely. Identify which animals are appropriate to enter marketing outlets and which animals should not be marketed. Cattle producers should also recognize those cattle that need to be marketed directly to the harvest facility rather than intermediate market scenarios, because the animal could become disabled at the market or in transit.

2. *Euthanasia*—For animals that are in a deteriorated condition or are already disabled, cattle producers should make the responsible decision to humanely euthanize them on the farm by an adequately trained person or by a licensed veterinarian. These animals would not be fit for human consumption and would simply misrepresent how the cattle industry and its producers raise cattle.