



RIGHT WAY. RIGHT TIME.

A Guide to Cull Cattle Management



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Management and marketing of cull cows and bulls should be integral to the ranch operating and business plan. We need to recognize these animals can contribute significantly to the profitability of the ranch. We spend extensive time and money adding replacement cattle to our herd, so it is imperative that we capture good value for cull cattle to offset these expenses. This can be accomplished through management, timing of marketing, and having good marketing plans.

Managing cull cattle to be in good condition and soundness for transport will increase their value significantly. The animals leaving our ranching operations are not only a valuable financial resource, but they also constitute a class of cattle that need and deserve as much care as any other animal on the operation. There are times when cull cows and bulls need more attention than other cattle, since some of them can be compromised by age, condition, lameness, etc. Following Beef Quality Assurance (BQA) guidelines for proper care of these cattle, including proper euthanasia if warranted, is imperative to preserve our reputation in the industry and contribute to providing high quality beef to consumers. Cull cows and bulls should not be an afterthought, but they should be a focus of strategic management on the ranch.

Trey Patterson

President/CEO

Padlock Ranch Company, Wyoming



Glossary

Animal Welfare/Well-being

The state of an animal including its physical and mental state in relation to the conditions in which it lives.

Body Condition Score

Describes the relative fatness and muscling of a cow based on a nine-point scale. It is an effective management tool to evaluate the nutritional status of the herd.

Compromised Animal

An animal with reduced capacity to withstand transportation but where transportation with special provisions is not likely to lead to suffering, injury or death.

Culling

The departure of cows from the herd because of sale, slaughter, salvage, or death.

Custom Exempt Processor

A processor that does not require continuous federal inspection because they only process meat for the owner of the animal. This is an option for emergency slaughter of compromised animals.

Euthanasia

The intentional ending of an animal's life by an acceptable method to relieve pain and suffering.

Fitness for Transport

The animal's ability to withstand transportation without compromising their welfare.

Foreign Object

Something that is in the body but doesn't belong there.

Mobility

Describes an animal's ability to walk based on a four-point scale. It is an effective management tool to evaluate fitness for transport.

Non-Ambulatory/Downer

Disabled or compromised animal unable to rise, stand and/or walk without human assistance.

Non-Terminal Market

A market where animals are bought and sold, for example, a sale yard or auction market; not a slaughter facility.

Open Cows

Non-pregnant cows at the end of the breeding season.

Safe Area

A pen, paddock or other space that provides adequate protection from the elements and predators; this space should have adequate bedding or suitable substrate for footing or traction and access to sufficient amounts of quality feed and water; whenever possible, the area should be separate from other cattle.

Terminal Market

A slaughter facility or packing plant; not a sale yard or auction market.

Introduction

For cattle producers across the country, whether beef or dairy, cull cattle are part of doing business. Animals age, they no longer breed back, and their health deteriorates. Incorporating culling decision guidelines into an operation's best management practices benefits both animal welfare as well as the producer's bottom line. Animal well-being must be considered in every decision made throughout the animal's life.

Cull cattle, while being removed from the herd, are an untapped market for producers. It's estimated that sales of market cows and bulls contribute up to 20% of operational gross revenue for beef operations.¹ According to Derrell Peel with Oklahoma State University, "It is possible to increase the value of cull cows by 25 to 45 percent or more by improving cull cow management and marketing."

According to the 2022 National Beef Quality Audit (NBQA), the market cow and bull sector provides an alternative product and a secondary value to animals once their original purpose is no longer suitable. When it comes to product fabrication, market cows and bulls are typically associated with ground beef production. However, over time, the industry has realized that some market cows and bulls have the potential to yield valuable primals to be fabricated and sold as retail cuts and to the restaurant trade.

Even though cull animals are often viewed as a loss, with effective planning, these animals can be a significant source of revenue and should not be overlooked. In essence, cull cattle are market cattle. This document addresses key problem areas, provides strategies for making timely culling decisions, and is designed to help producers examine the opportunity to capture more value through effective management regarding cull cattle.

Keeping Cull Cattle Healthy

Culling management starts with the foundational health of your herd. It is inevitable that cows will reach the end of their productive lives while in the producer's care, but if the animal's health is maintained throughout its lifetime, the cow will have better outcomes when it is time to be culled from the herd.

The following are a few Beef Quality Assurance basics to assist with keeping cows healthy:

- **Veterinary Client Patient Relationship (VCPR) –** A VCPR is critical to both animal health and herd profitability. Establishing a working relationship with a veterinarian allows them to diagnose and treat animals, provide guidance on treatment and vaccination protocols, prescribe medications, and issue Certificates of Veterinary Inspection (CVIs) or health certificates. Remember, all injectable antibiotics for livestock require a prescription from a licensed veterinarian under a valid VCPR.
- **Animal Health Products –** There are a multitude of animal health products on the market that afford cattle producers the ability to prevent against disease (vaccines) and treat harmful bacteria that infect cattle. All animal health products' labels have been scrutinized and approved by the U.S. Food and Drug Administration, and MUST be applied specifically as the label indicates – including route of administration, dosage, frequency, and even storage requirements. Remember, animal health products are not 'management in a bottle,' but a tool that can help meet herd health goals.
- **Injection Location –** All injectable animal health products must be given in the neck within the injection triangle, unless otherwise directed by the label. The injection triangle provides ample room for both intramuscular and subcutaneous injections, without the risk of damaging high value meat cuts. Even cows and bulls will become part of the beef supply, so it is important to consider where and how we give injections to maintain meat quality. Remember, even if you are synchronizing estrus for an AI protocol, injections still need to be given in the neck – ensure facilities allow for safe product administration.
- **Record Keeping –** It is important to maintain accurate, thorough, and timely production records. Records have many uses that help producers manage herd health and nutrition programs, control production costs, and help make well-informed decisions about marketing cattle. Remember, you can't manage what you don't measure.
- **Withdrawal Period –** The amount of time that must pass from the last time an animal was given an animal health product to the date the animal can be shipped is called a withdrawal period. It is the producer's obligation to keep good records and abide by withdrawal periods to eliminate the risk of drug residues in beef carcasses. Remember, all antibiotics have withdrawal periods, but they are also found on vaccines and dewormers.

FROM THE SALE BARN:

"In emergency situations of illness or injury where cows are unlikely to sustain the auction process without further injury or requiring euthanasia, taking steps for salvage slaughter is best. But prolonging decision making until it's become an emergency situation, means the producer is leaving valuable price discovery off the table."

Animal Evaluation

Cows are often evaluated for their longevity in the herd during preg-checking. In addition to pregnancy status, producers evaluate important traits that help them identify if a cow will be able to withstand the remainder of the pregnancy and any upcoming environmental challenges (winter, drought, etc.). Often, a cow's teeth, body condition, feet and legs and other potential abnormalities are evaluated to help producers make well-informed marketing decisions. Keep in mind that most of these criteria are analyzed once the cow is in the chute. However, it is common for producers to use a topical or trans-

dermal product, like a pour-on dewormer, when cattle are waiting in the lead up. Be aware that these products also have a withdrawal period, so although it is easy to apply a pour-on before cows reach the chute, if she is later identified as open, or has another issue that requires her to be culled, she will likely be under withdrawal. Some dewormers have withdrawal periods of 45 days or longer. It is important to ensure all animals have cleared withdrawal times on any pharmaceutical that they may have received prior to shipping them.

Emergency Slaughter

At times emergency slaughter may be considered for animals where recovery is unlikely or incomplete, treatment facilities are inadequate or there is insufficient time available for effective treatment and full recovery. It becomes an option when there is a nearby slaughter facility and transport is available to that facility. A veterinary opinion may need to be consulted for advice on the fitness of the animal for transport. Strong consideration should be given to the animal's existing level of pain and distress and what might happen should the process not go according to plan. The animal should also be free of antibiotic residues, have a low likelihood of being condemned, and be fit for the journey.



Increasing Value

Defects, such as injection site lesions and bruising, negatively impact the overall quality of the end product. However, there are practices to help minimize these defects which can result in increased value for producers and better animal welfare for cattle. Producers should cull cattle before defects progress and hinder an animal's ability to be marketed.

Animal Handling

Appropriate animal handling is critical to reducing stress, maintaining health, and preventing injury and bruising. Facilities should be inspected frequently to make sure equipment is working properly and that there are no protrusions that can potentially cause hide or tissue damage. Handling and transportation are stressful events for cattle. By utilizing natural animal behaviors and considering individual temperaments, producers can mitigate stress and reduce incidences of injury.

The single best way to enhance animal welfare in the cattle industry is to improve how cattle are handled. Proper employee training is critical to both human and animal safety.

Cattle Natural Behaviors:

- They are prey animals and like to see who and what is around them.
- They have panoramic vision, meaning cattle can see 300° and have a blind spot directly behind them.
- They are sensitive to loud sudden noises.
- They are herd animals and don't like to be isolated.
- They want to return to the last safe location.

Transportation

Mean Values for Time and Distance Traveled, Number of Cattle in the Load, Trailer Dimensions and Subsequent Area Allotted Per Head for All Trailer Types Surveyed

Transportation Characteristics	n	Mean	Std. Dev.	Min.	Max
Time Traveled (hours)	114	6.3	5.5	0.1	24
Distance Traveled (miles)	112	304.8	254.0	2.0	1,099.8
Number of Cattle in Load	123	27.2	12.9	1	49
Number of Compartments Used	119	4.0	1.7	1	8
Trailer Dimensions (Sq. Ft.)	102	380.0	119.2	3.2	451.0
Area Allotted Per Head (Sq. Ft.)	102	25.5	37.9	8.7	221.0

Source: 2022 National Beef Quality Audit

Since 2016, there has been an increase in the amount of trailer loads that allotted sufficient space as outlined in the *Animal Handling Guidelines*, developed by the North American Meat Institute. In addition, there were no cattle in the most recent NBQA that were hauled longer than 24 hours. Of truck drivers surveyed, 63.6% reported to be BQA certified. Increased transporter training provides confidence that animals coming to slaughter are being handled properly, thus reducing the risks of stress, bruising, downers, and negative public perception.

Bruise damage is still a leading cause of trimming and finding ways to eliminate bruising should be a priority for the industry. Fewer instances of bruising allow

for less trim loss and therefore increase the value of market cow and bull carcasses. While NBQA data is collected at the packing plant, it does not take into account the entire length of the journey.

In addition to animal welfare, employee and handler safety should also be considered. Most human injuries occur during the loading and unloading process, therefore training is important.

See page 16, for examples of bruising and product loss due to bruising.

Visit www.bqa.org for information about Beef Quality Assurance Transportation training and certification resources.



FROM THE SALE BARN:
 "Don't bring your problems to town."

Evaluating Your Cull Cattle: *Timely Marketing*

When determining if cull cattle are ready to ship, there are a variety of attributes to evaluate in order to ensure animal welfare. Defined by BQA as "fitness for transport," body condition score, soundness and full udders, and health status should be considered before sending cattle to auction markets or slaughter facilities. While these decisions can be difficult, it is important to separate economics from emotions. Below is an outline of some main concerns and issues when marketing cull cattle, however, the list is not all inclusive.

Fitness For Transport

Evaluating fitness for transport is an important responsibility that all cattle caretakers should prioritize. The purpose of evaluating fitness for transport is to make timely decisions regarding an animal's ability to withstand the rigors of transport, meaning they make the entire journey – not just the singular leg to the animal's next destination. Transportation is a stressful event for cattle and prioritizing fitness for transport is a way to remove some of that stress and be intentional about the next step of the animal's life. It's important to always consider that cull cattle are going beyond the auction market.

Treat, Delay, or Euthanize?

- Exhaustion
- Calving
- Weakness
- Fever greater than 102.5°F
- Lameness to the point that they are in pain or having trouble keeping up with the herd (mobility score 3 or higher)
- Withdrawal times have not been met
- Cows that have calved in the last 48 hours

Delay Transportation & Reassess
(consult veterinarian)



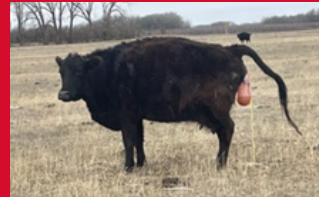
- Pneumonia without fever
- Cancer eye (eye intact)
- Injuries that are not severely affecting mobility
- Prolapse (not severe)
- Hardware with localized signs
- Broken jaw
- Intestinal accident
- Blind
- Sickness that is not a public health concern
- Cows within two weeks of calving

Transport Direct to Packer
(consult veterinarian)

- Fractures of limb and/or spine
- Arthritis with multiple joints
- Severe cancer eye
- Emaciated
- Extensive cancer/Leukosis
- Severe prolapse uterus
- Nervous disorder
- Water belly
- Severe open wounds
- Hernia that impedes movement
- Peritonitis

Humanely Euthanize

DO NOT SHIP



Imminent Calving



Prolapse



Advanced Cancer Eye



Broken limb or spinal injury



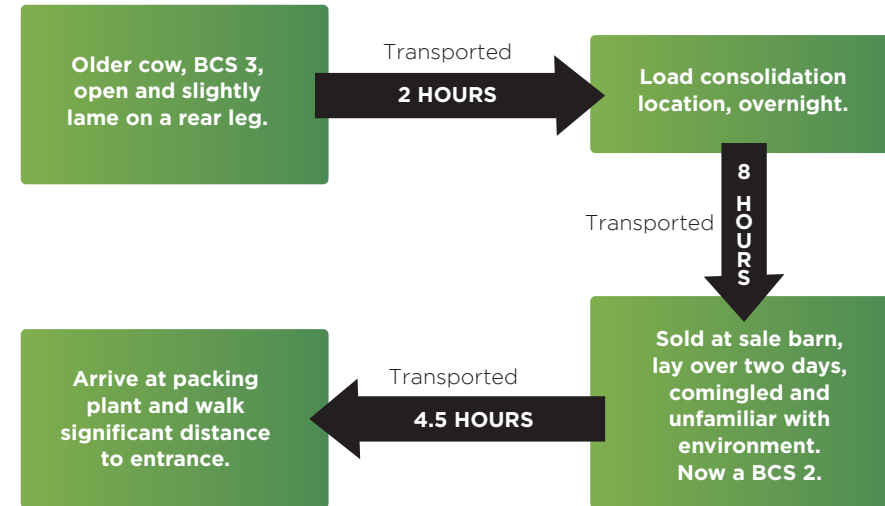
Injury impairing mobility



What to Consider:

- Market earlier in life so cull cattle are in better shape to withstand the length of the trip.
- Evaluate the animal's ability to withstand the rigors of transport.
- Ensure that all animals have met withdrawal dates.
- Confirm that the animal isn't a risk to public or animal health.
- Evaluate animal health and calving status.
- Cull cattle with a recent fracture unrelated to mobility should be transported directly to a packing or processing facility, if the animal is ambulatory.
- Minimize the risk of animals becoming non-ambulatory (downer) during transport.

Transportation Impact Example



Total Travel Time Over Five Days: 15 hours

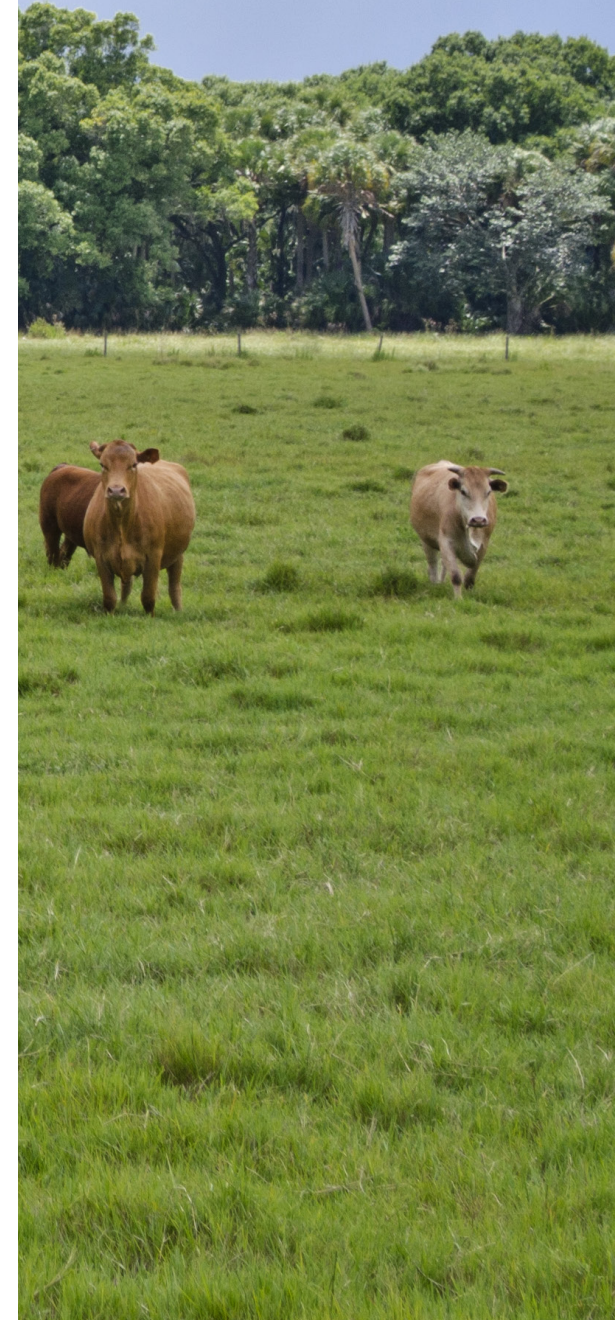
These are the considerations for the journey this cow is making:

- Will she have enough energy and strength to make the trip?
- Will she withstand that much time on the truck plus multiple unloading and loading events?
- Will she make it through the auction market?
- Consider loading density, how much room will she have on the trailer?
- What is the feed and water availability to maintain energy?
- Should you consider taking her to a closer local packing plant?
- After arriving at the final destination is she capable of standing there for a period of time, pass pre-slaughter inspection, and then walk the distance from the holding pen to the plant?

Am I making the right decision for the cow?

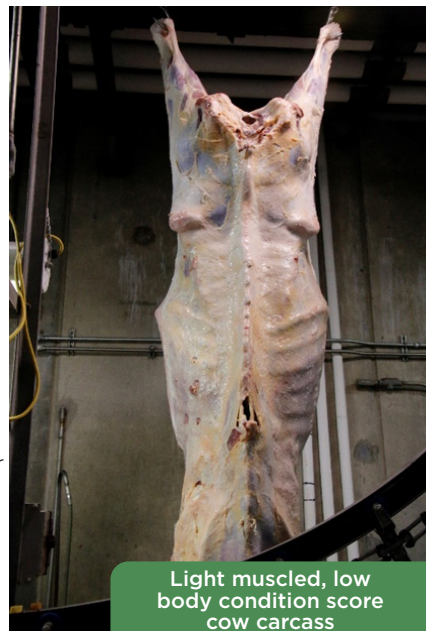
FROM THE SALE BARN:

"Dairy and beef producers need to realize that they can help the auctions to capture the best value of their animals by making timely culling decisions. Tough decisions have to be made, but the willingness to make those culling decisions early before cows become compromised beyond recovery, allows us to help the producer's bottom line."



Body Condition Score

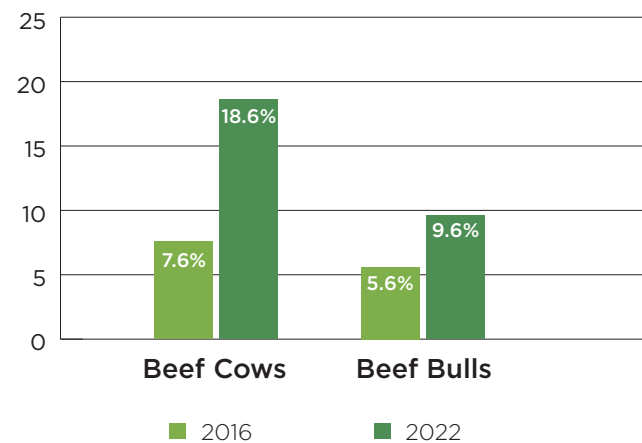
The most recent NBQA displayed the highest percentage of cattle that were too light muscled across all audits for the past 27 years, and there was an increase in the percentage of cattle categorized as too thin, according to body condition scores. Producers should consider market cows and bulls and their eligibility for feeding prior to slaughter in order to increase their muscling and finish, thus returning more revenue.



What to Consider:

- Evaluate cattle for body condition score.
 - Do not transport animals that are a BCS 2 or less on beef or dairy scale.
 - Cattle that are severely thin will not handle the rigors of transport because they are weak and don't have enough energy stores.
- Market cattle when they are higher BCS to prioritize animal welfare and improve producer bottom line.

Comparison Between Percentages of Cattle Classified as "Too Thin"



"Too Thin" = BCS 1 or 2 (9-point scale)
Source: 2022 National Beef Quality Audit

DO NOT TRANSPORT



SAFE TO TRANSPORT



IDEAL FOR TRANSPORT

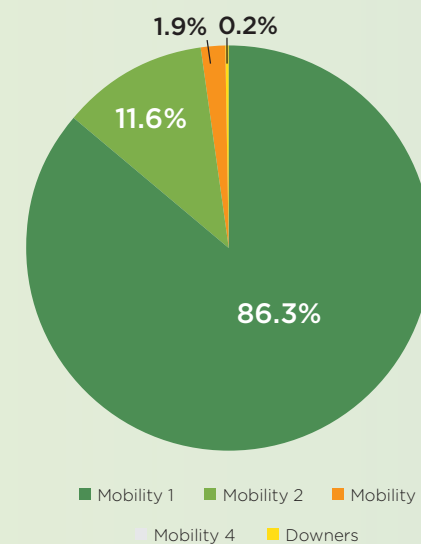


FROM THE SALE BARN:

"We see trouble with cows coming off fescue hay in the spring. If they lacked condition going into the winter, by spring, they are worn out."

Soundness

Mobility Score of Market Cows & Bulls Entering Packing Plants



The NBQA found that of market cows and bulls entering the packing facility, 86.3% were sound with a mobility score of 1 — a decrease from the previous audit.

Mobility Score 1 - Normal, walks easily with no apparent lameness or change in gait.

Mobility Score 2 - Exhibits minor stiffness, shortness of stride or a slight limp but keeps up with normal cattle in the group.

Mobility Score 3 - Exhibits obvious stiffness, difficulty taking steps, an obvious limp or obvious discomfort and lags behind normal cattle walking as a group.

Mobility Score 4 - Extremely reluctant to move even when encouraged by a handler. Described as statue-like.

Source: 2022 National Beef Quality Audit

All cull cattle that are being transported should be sound enough to make the trip. If cattle are non-ambulatory (downer) when they arrive at the processing plant, they will be condemned and immediately euthanized. If it is suspected that the animal will not make the trip, that animal should not be loaded onto a trailer. Marketing earlier in life may provide opportunity for these animals to be healthier at a terminal market.

A four-point mobility score is commonly used when evaluating cattle soundness and determining fitness for transport. It's important to continually monitor any mobility issues and better to address the issue early on.

Mobility score 3s should be strongly scrutinized and evaluated for their ability to make the full trip to their end destination and in shape to walk into the processing plant. These are considered compromised cattle, and it is likely for them to deteriorate and go from a mobility score 3 to a mobility score 4 on the trip or become non-ambulatory (downer). If mobility score 3s must be transported, travel the shortest distance possible and consider building a relationship with a local packing plant as a marketing outlet.

What to Consider:

- Market animals earlier when they first become lame or have mobility issues that could worsen.
- Evaluate mobility score — especially before loading onto a trailer.
 - Animals should ideally be a Mobility Score of 1 or 2, with special provisions for a score of 3. The special provision would be to send directly to a local packing plant that is the shortest distance possible.
 - Do not send mobility score 3s to an auction barn or commercial packing plant.
 - If an animal in the shipping pen can not stand for a period of time, and repeatedly tries to lay down, do not transport. It is likely the animal will also lay down in the trailer causing injury.
- Consider the entire trip the animal must make, including ability to walk from the truck into the packing plant.
- Evaluate animals for injuries, disabilities or health issues that impair soundness.
- Do not load non-ambulatory (downer) cattle because they will be condemned at the plant and it's an animal welfare issue.
- Do not transport animals that require assistance to rise.

She's Been Good to You

Your cows have helped maintain profitability over the years. It's time to prioritize her well-being through the end of her life.



Full Udder

Full udders can cause animal discomfort and mobility issues resulting in welfare concerns, especially for long transport times. Milk is considered a carcass contaminant in packing and processing, and is a food safety concern. A full udder at time of slaughter has a high risk of contamination at the packing plant. FSIS does not tolerate milk contamination. If milk from a full udder is spilled on a carcass, contaminated product is cut out. Product that is cut out is deemed unfit for human consumption and sent to rendering at a drastically reduced value. Additionally, this process of trimming out contaminated meat causes a backlog on the line for packing plant workers.

What to Consider:

- Evaluate lactation status of animal and consider drying out before sending to market/packing plant.
- Full udders are considered a defect, and of all the defects in cows identified in the 2022 NBQA, 47.5% were due to full udders.

Beef packing plants are strictly regulated by the USDA Food Safety Inspection Service (FSIS), and can be shut down if not in compliance with a particular regulation based on an inspector's interpretation. For instance, if an animal is down in the tail of a cattle pot when it arrives at the plant, and the transporter decides to unload the remainder of the trailer without addressing the non-ambulatory (downer) animal first, the plant would be shut down. A single shutdown can send ripples through the live cattle supply chain, adding welfare concerns like cattle waiting on trucks for extended periods.

If cattle producers cannot demonstrate their commitment to animal welfare when making culling decisions, we have to be prepared for similar regulations to be thrust upon us. Cattle producers are the ultimate caretakers of their livestock, and must be committed to providing the best life (and death) for their cattle. The threat of regulatory action can't be, and is not, what drives their dedication. Most U.S. cattle producers understand that prioritizing the well-being of livestock is not only the right thing for the animal, but also contributes to profitability. Yet, producers still have to demonstrate their moral obligation to animal welfare through their daily actions and sound decision-making, regardless of the animal's phase of production.

Our industry continues to share messaging about producers doing the right thing, but we also need to pause and look in the mirror. Is every producer, every time, culling animals that can safely and humanely withstand the rigors of transport? Do we have enough self-awareness to ensure that egregious acts are not happening simply because we think we can get one more calf out of our oldest, most productive cows? Can we make earlier decisions to avoid future problems? Are there new or different processes we can implement to avoid negative impacts on our cows? Can we make different decisions based on how and when we evaluate an animal? This guide is a powerful tool to answer some of these questions, while reviewing best practices that help explain the "why" behind culling management recommendations.

Libby Bigler and Jesse Fulton

Beef Quality Assurance (BQA) Coordinators, Colorado and Nebraska



Foreign Objects: *The Hidden Defect*

Foreign objects being found in beef and beef products has plagued the beef industry for over 30 years. While it can be assumed that certain objects such as wire, nails, and bolts are generally accidentally ingested by the animal, there are other objects of concern that are too commonly found. These include birdshot, broken needles, and Remote Delivery Device (RDD) darts.

Packing plants are utilizing multiple detection systems to locate foreign objects, such as x-rays, metal detectors, and/or magnets. However, they cannot pick up every foreign object contamination and pieces still get through the system. According to a voluntary survey, 100% of market cow and bull packing plants report finding foreign objects. Of those plants, 50% report customer complaints. Meaning further processors or those down the supply chain complain about birdshot leaving the packing plant.

Percentage of Plants Reporting Foreign Objects Found in Beef from Market Cows and Bulls

Objects Found	Percentage
Buckshot/Birdshot	100.0
Bullets	18.8
Needles	18.8
Wire	18.8
Darts	18.8
Other	12.5

Source: 2022 National Beef Quality Audit

Any abuse of animals is not tolerated, and shotguns are not a cattle handling tool.

DO NOT use, or promote the use of, shotguns as a cattle handling device. Using birdshot and/or buckshot to control or move cattle, whether they are the neighbor's cattle or your own is not acceptable.

FROM THE SALE BARN:

"Hardware disease doesn't happen overnight."

RR Birdshot

Birdshot is one of the most common “non-accidental” foreign objects found in beef. Based on interviews with processors, this issue is not regional nor is it specific to one sector of the industry. While hunting may play a small role in this problem, it is not the sole reason for all birdshot issues.

Producer comments have indicated that some producers take no issue with the use of birdshot to shoot at cattle when gathering or trying to deter them away. This can be when cattle are in thick brush or run out into waterways. Additionally, interviewed producers have indicated that a neighboring producer has utilized birdshot to “chase” cattle who have ended up “on the wrong side of the fence.”



Example of birdshot making it to the retailer.

RR Broken Needles

The next foreign object found in beef and beef products is broken needles. While the instance of breaking a needle off in an animal may not be entirely preventable, the marketing of that animal into the commercial beef supply while the broken needle remains in the body, is prohibited. When a needle breaks off in an animal during any type of injection, it should be considered an emergency event. Broken needles can quickly migrate away from their entry point. However, with a quick response, broken needles can be retrieved by the producer or veterinarian.

Broken needles are preventable. When administering injections, animals should be adequately restrained to prevent excessive movement during the injection. Bent needles are more prone to breaking and should be discarded as soon as they are observed.



Example of a broken needle found in product.

RR Remote Delivery Device Darts

The most recent foreign objects being detected in beef carcasses at the packing plant are RDD darts. While these products are growing in popularity among producers because of the assumed ease of treating animals, there are concerns with their use related to BQA. Besides the fact that RDDs have been shown to not always consistently deliver the intended dosage of an animal health product and could strike sensitive tissues when fired at the animal, the entire dart components of these RDDs have been found during fabrication at commercial beef slaughter facilities.

While it is not known why or how the entirety of a RDD dart is being found in the beef carcass at fabrication, it is an animal welfare and food safety concern. The BQA program does not recommend the routine use of RDDs because injection site locations cannot be guaranteed, animals may be struck by a dart in sensitive tissue resulting in significant injury, and darts can be a source for foreign object contamination. It is also difficult to provide best management practices related to dart use. Darts are not an excuse for lack of labor, poor facilities and poor management.

While commercial beef slaughter facilities are equipped with measures to prevent foreign objects from remaining in beef products prior to leaving the facility, the methods are not always perfect. Foreign objects have been known to be recovered outside of the slaughter facility. Foreign objects jeopardize the safety of beef products and could be detrimental to consumer confidence.



Example of a dart found in product.

Detect the Defect

Approximately 45.1% of all cattle surveyed had no visible defects and 37.9% of cattle with defects only displayed a single defect. This demonstrates that producers are making an effort to market cows and bulls before mobility issues and health-related defects progress further, however, there is still room for improvement.

Bruising



Bruising can occur at several points throughout the lifecycle, including handling and transportation. Additionally, cattle with a lower body condition score are likely to bruise more severely. Product loss due to bruising is a lost opportunity for producers.

Injection Site Lesions and Abscesses



Injection site lesions are another source of product loss. Ensure the use of proper BQA protocols when using injectable animal health products.



Abscess examples from injection site lesions.

For best practices and animal handling resources, visit the Beef Quality Assurance Program at www.bqa.org.

Making the Decision to Euthanize

After all these considerations it might not be appropriate to market the animal and euthanasia could be the correct course of action for the welfare of the animal. **Euthanasia is not a failure.** It is better to make the decision to euthanize at the farm or ranch before the animal is put through the rigors of transport. It is a way to provide good welfare by removing pain and stress when recovery is prolonged or not likely. Always consider the animal's well-being first and quickly make the decision to euthanize and carry it out as soon as possible. Work with a veterinarian to develop euthanasia protocols.

When to Euthanize:

- Fractures in leg, hip or spine that result in immobility or an inability to stand.
- Emergency medical conditions that can't be relieved by treatment.
- If animals are too weak to be transported due to injury or illness.
- Paralysis from traumatic injury or disease.
- Diseases with no effective treatment that can be a significant threat to human health.

Euthanasia Protocols

For euthanasia on the farm or ranch, the most common method is gunshot. To that extent, it is the responsibility of all who own or work with livestock to have the proper equipment and knowledge to conduct this procedure effectively. Effectiveness depends upon selection of the appropriate caliber of firearm, type of bullet or shot/shell, and accuracy of aim. Never select a hollow point or other fragmenting bullet for euthanasia. The producer will most likely perform on-farm euthanasia because a veterinarian may not be immediately available to perform the service. Persons who perform this task must be technically proficient and have an understanding of the relevant anatomical landmarks and the protocols used for humane euthanasia of animals. For more information refer to the American Association of Bovine Practitioners guidelines or www.bqa.org.



FROM THE SALE BARN:

"Eye problems in the fall of the year will result in value discounts. Treated versus non-treated or blind in one or both eyes. Buyers are watching for these defects and bid accordingly."

Cull cattle management is certainly an important topic in the beef industry today. Labor shortages, increased costs, climate concerns, among others, impact us all as we try to see a positive return on our investment(s). The beef packer is just one link in the chain that provides safe, wholesome and quality beef products to millions of domestic and foreign consumers every day. The strength of our industry relies on the confidence that animals bred, raised, fed and slaughtered are done so in an ethical manner and they are healthy and treated humanely.

The beef packer doesn't have it any easier or harder than any other subset of the business. The following is a brief overview from a federally inspected packer's perspective once animals arrive on the premises of a slaughter facility.

The USDA's Food Safety and Inspection Service (FSIS) personnel perform "ante mortem" inspection on all live animals. The 9 Code of Federal Regulations (CFR), Parts 309 and 313, provide specifics related to ante mortem inspection. In-plant USDA-FSIS personnel make the final decision and there are only three outcomes.

1. Passed for slaughter
2. U.S. Suspect. This means a Public Health Veterinarian must perform a full necropsy/veterinary disposition at post mortem.
3. U.S. Condemned. This means the animal will be euthanized outside and is forbidden from entering the food chain.

This ante mortem inspection involves two general assessments. The first being the handling/welfare of the animals offered for slaughter and second being the overall health and condition of each animal.

"All animals that are on the premises of the establishment, on vehicles that are on the premises, or animals being handled in connection with slaughter (e.g., livestock on trucks being staged for slaughter) are to be handled humanely." (USDA-FSIS Directive 6100.1 rev. 3)

"Fitness for transport" must be a top consideration when loading animals. Those that are lame or are in poor body condition (or both) have a much higher incidence of going down in transit or moving through the ante mortem inspection process. Unloading trailers becomes extremely challenging as it is forbidden to allow ambulatory animals to go over the top of the downed animal. Similarly, animals going down while traversing the holding pens/ante mortem process can create significant complications. Both can lead to severe regulatory impacts (e.g. plant suspension), not to mention the high risk to human safety. Oftentimes, unloading

times become delayed which negatively affects the "upstream" flow and can potentially cause cattle to be on trucks longer than desired. Animals that are able to be unloaded but are severely lame or crippled will automatically be included in the U.S. Suspect or U.S. Condemned categories (9 CFR 309.2(b)). All non-ambulatory animals will be U.S. Condemned. These are animals that cannot rise from a recumbent position or cannot walk. These would include, but not limited to, broken legs, severed tendons/ligaments, fractured vertebral columns or metabolic conditions (9 CFR 309.3(e), 309.13).

The second assessment of ante mortem inspection is the overall health and condition of each individual animal. USDA-FSIS inspectors observe animals at rest and in motion from all sides, paying close attention to alertness, mobility and, breathing. They are looking for any unusual swellings or abnormalities. Those that are suspected of being diseased or affected with certain conditions will be U.S. Suspect or U.S. Condemned. The following are just a few examples and are not all encompassing (9 CFR 311):

Ketosis, milk fever, transport tetany, grass tetany, emaciation, acute inflammatory lameness, cancer eye, generalized edema, lumpy jaw, woody tongue, pneumonia, peritonitis, enteritis, septicemia, toxemia, pyemia, fever ≥ 105°

"Livestock plainly showing on ante-mortem inspection any disease or condition that, under part 311 of this subchapter, would cause condemnation of their carcasses on post-mortem inspection shall be identified as U.S. Condemned and disposed of in accordance with § 309.13." (9 CFR 309.3(b))

As stated previously, all USDA-FSIS federal regulations pertaining to the ante mortem inspection process can be found online in parts 309 and 313 of the 9 CFR. More information related to how USDA-FSIS inspection personnel are to follow regulatory guidelines can also be found online in USDA-FSIS' Directive 6100.1 revision 3.

Knowing when to cull an animal from the production process is always challenging. The fear of culling too soon and the risk of losing out on another calf or breeding season is valid. With that said, culling too late often results in little or no salvage value and can create animal welfare concerns. Due to the complexity of dealing with animals in pain or those that are extremely under conditioned, the risk of severe USDA-FSIS violations multiplies which can have significant, negative impacts to the upstream flow.

Tim Delaney, DVM
 Director of Food Safety and Regulatory Affairs - Fed Beef Commercial Beef Packer

Strategies to Add Value: Secondary Value to Cull Cattle Carcasses

Patrick Linnell & Matthew McQuagge, CattleFax

The sale of cull cows and bulls make up 20% of gross revenue on most cow-calf operations. Despite this large percentage, cull cow marketing and management often does not receive the attention that it deserves. Instead, many producers often take the simplest approach of hauling all the cull animals to the local sale barn at the same time, shortly following the period of weaning and pregnancy detection. The following discussion takes a closer look at the cull cow market and highlights opportunities for producers to consider in maximizing the value of cull cows from the operation.

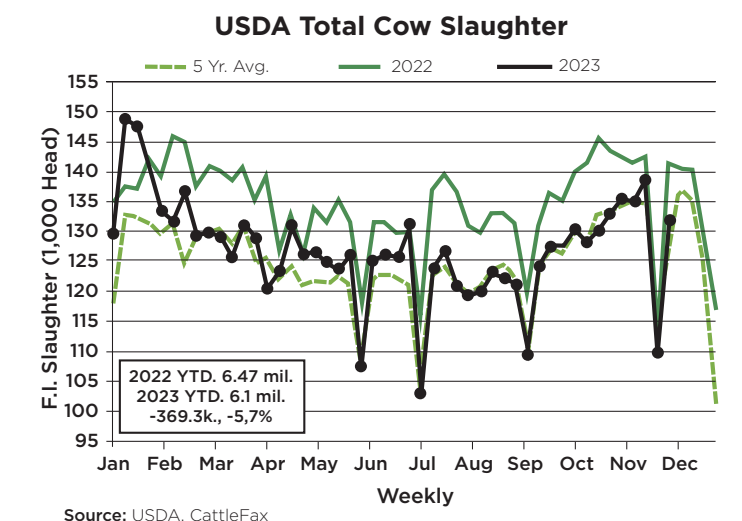
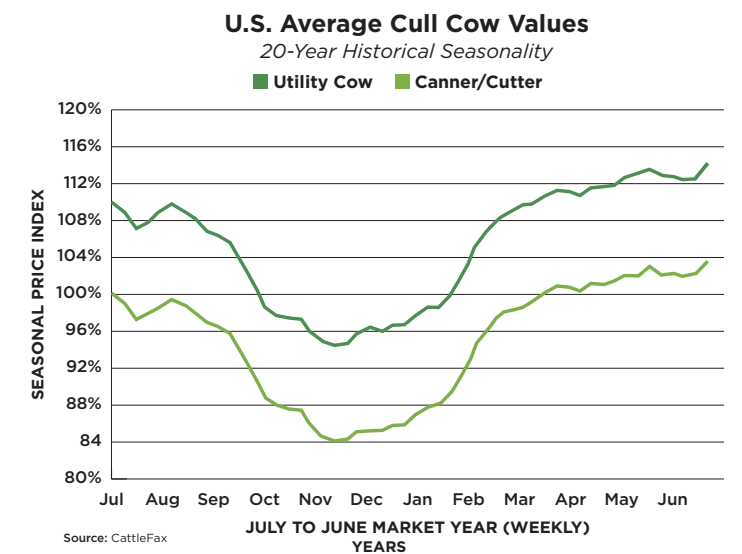
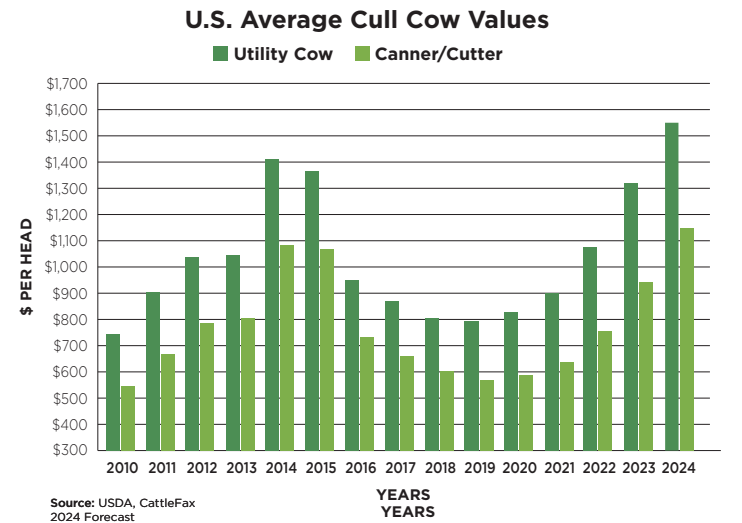
Intentional management and marketing of cull cows is important throughout the ups and downs in the cattle cycle. When margins are cyclically tight, every penny counts. During the good times, high prices offer more opportunities to maximize and capitalize on the strong values.

In many ways, good animal welfare is simply good economics. Identifying issues early and marketing culls in a timely fashion helps avoid situations that require euthanasia or result in death loss. These animals return zero salvage value to the operation, which can be a significant lost financial opportunity especially in this period of high prices.

The cull cow market tends to show extremely consistent and predictable seasonal patterns over time. Knowing the seasonal patterns allows producers to identify any opportunities to manage around it. Cull cow prices are strongest during the spring and summer as fewer cows are being brought to market and grilling activity across the country drives strong ground beef demand, especially during the summer holidays.

The period around Labor Day represents an inflection point towards weaker prices into the fall. As around 75% of the nation's beef cow herd calves in the spring and weans in the fall, a large quantity of cull cows are marketed in the fourth quarter. At the same time, ground beef demand begins to seasonally soften. Over the last 20 years, cull cow prices have declined an average 15%, or \$10/cwt, from August highs to November lows.

Slaughter cow supplies tend to tighten somewhat into the early new year as the industry works past the heavy glut of cows from the fall run. Cull cow prices tend to strengthen modestly in January but



begin to move abruptly higher into February and March as cow supplies continue to tighten and spring grilling demand heats up once again.

As producers consider different strategies for managing their cull cows, ultimately business decisions should be made by comparing the changes in costs and revenues (i.e., a partial budget analysis). If the positive changes outweigh the negative, then the proposal has net gain and further considerations can be made regarding non-cash factors such as potential risks and operational constraints.

Marketing

Most cull cows make their way through auction barns on their way to slaughter. The marketing and other services provided by auction markets may provide value in connecting sellers with the right buyers. In other instances, some producers may benefit from direct marketing of cull cows to a packer. Direct marketing may also be a consideration if mobility is challenged as it simply reduces the loading, unloading, and sorting activity for those animals.

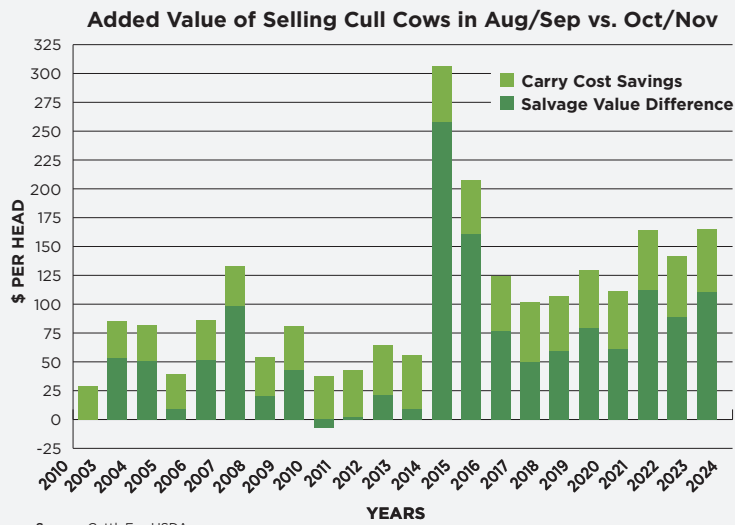
RR Early-Season Culling

One option for spring-calving producers to maximize cull cow value is in trying to beat the seasonal fall weakness. Increased salvage value is the obvious benefit, but it is important to keep in mind potential cost savings from forage consumption and carrying cost.

Let's assume an older cow would gain 30 pounds of body weight from late summer into fall, although this may be too conservative, or too generous, under different scenarios. Even accounting for the added weight gain, salvage value would have been higher in August or September during 19 of the last 20 years compared to October/November. On average, that would have been an 8%, or \$66/head, advantage. If those cows would have not gained any weight, every year in the last 20 would have returned higher salvage values in the late summer, averaging 11%, or \$83/head, of added value. Keep in mind, the per-head advantages will generally be larger at the overall higher price levels today compared to these historical averages.

On the cost side of the equation, the nearby illustration uses grazing rates reported by the USDA (\$25.70 monthly rate per cow-calf pair in 2022) and assumes two months of cost reduction by culling early. For different operations, the cost savings may entail actual lease expenses, hay costs, or the opportunity cost of saving grazed forage for other animals. Regardless, cost reductions are important to consider.

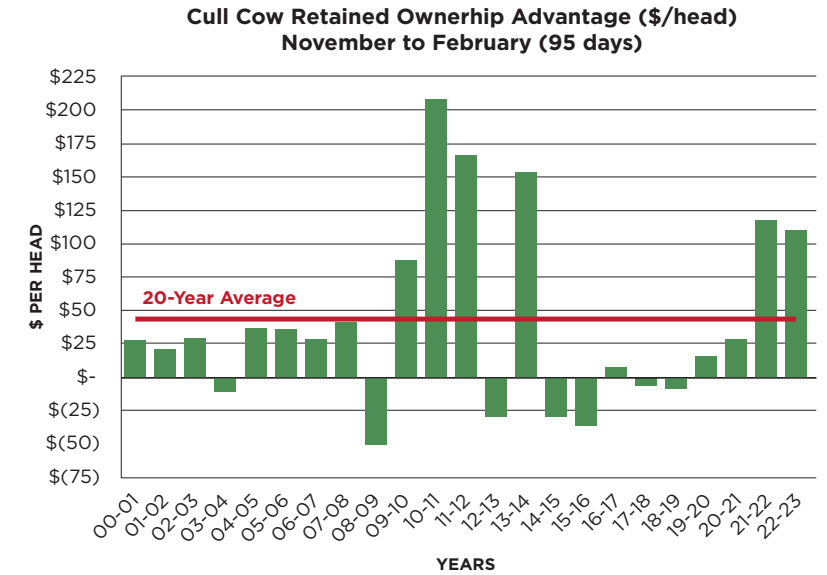
Between added salvage value and cost savings, early culling has averaged a \$108/head positive return over the last 20 years. Historical averages and current market conditions suggest around a \$165/head potential margin in 2024.



Retaining Cows and Adding Weight

The NBQA found that there has been an increase in the percentage of thin and light muscled cows over the years. Opportunities exist for improvement on this while increasing potential revenue from a producer standpoint. It is important that the prospects of adding weight are considered in the lens of costs versus added value.

For many producers who calve in the spring and cull females in the fall, one consideration is retaining and feeding cull cows for a few months until cow prices improve in the late winter/early spring, adding weight and capitalizing on seasonal price trends.



Historically, the bulk of the seasonal rally from the fall price lows is complete by March so that, beyond this timeframe, market appreciation may no longer offset carrying costs, especially in confinement. The combination of market appreciation and added weight drive increased per-head value at the time of sale. Over the past 20 years, the market has paid an average of \$180/head to feed culls for an extra three months while adding 100 pounds of weight and upgrading a percentage of thin cows from Canner/Cutters in the fall to Utility grade. This implies that if a producer can add 100 pounds for less than \$1.80 per pound (or total cost of \$180/head), retaining culls would, on average, be a profitable venture.

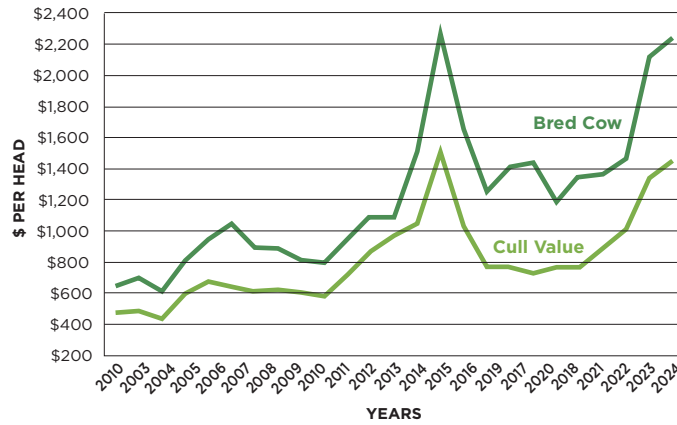
Based on one set of historical estimates, retaining ownership on cull cows into the spring was a profitable strategy in 15 out of the last 20 years, or 75% of the time, for an average profit of \$44 per head. For example, the estimates for the 2022-2023 feeding period assumed a feed cost of \$200/head along with \$18 in interest, marketing, and vet expenses. An additional 100 pounds combined with a \$5.63/cwt increase in selling price led to \$110/head estimated profit.

It's important to evaluate the individual added costs against potential revenue as every operation is unique in their own resource base resulting in varying costs-of-gain. While the scenario above achieved weight gain through winter feeding, other producers may have more success in more minimal weight gains through winter followed by rapid gains during spring grazing.

Further consideration can be made with regards to the selection of which cull cows to retain. By selecting cows based off body condition score, producers have an opportunity to increase net returns by selecting lighter fleshed animal that have greater ability to increase their quality grade. Thinner cows can combine the advantages from increasing weight and price seasonality with the premiums from improving their grade classification. Older cows need to have adequate teeth and mobility as well. Cows that start out with a higher body condition score may be less likely to capture value from jumping quality grades.

Costs and performance associated with retaining cull cows will vary greatly between operations. Northern-located operations can rely more on feeding high-quality hay while those in southern regions can rely more on grazing crop residues. Producers who are able to utilize inexpensive, yet low-quality forage may need to supplement with an additional protein source.

Bred Cow vs. Cull Cow Prices
Q4 Price Comparison, U.S. Averages



Source: USDA, CattleFax
2024 Forecast

head basis. This increased return comes with very little added expense for most producers. Instead, the challenges lie more on the management side of the equation with increased planning serving as the primary requirement. Pregnancy detection that distinguishes long-bred versus short-bred females is necessary to identify the later calving cows that will go to market. Additional management effort is required to market the bred cows and retain the value that has been added back into these cull animals. More aggressive culling based upon pregnancy days has the added benefit of tightening the subsequent calving window resulting in a more uniform calf crop the following year.

Drought Considerations

A key driver of this selection process is the current weather pattern and drought situation. For example, in drought years, the high cost of forage reduces the potential profitability of retaining cull cows for sale in the spring. In severe drought, the best option for most would likely be early weaning of pre-identified cull animals to sell before the cull market drops seasonally while having the added benefit of reducing pressure on the forage resource base.

Conversely, in non-drought years, retained ownership and adding weight to culls has better odds of a positive margin as increased forage supplies decreases the costs associated with feeding and carrying culls into the spring. Additionally, the premium for bred cows over Utility-grade cull cows widens, making the sale of late-bred cows a more profitable consideration.

Selling Late-Bred Cows

Another strategy to increase the value of cull cows is to maintain a longer breeding season with the goal of selling late-bred females. As stated earlier, the primary reason for culling females is a lack of pregnancy. This is often a result of cows slowly falling behind in the 80-day postpartum interval necessary to maintain a yearly calving interval. Leaving the bull out with the herd for an additional 30 days gives cows one more estrous cycle in which to resume cycling and become pregnant.

Over the last 20 years, lower-quality bred cows sold in the fourth quarter have maintained an average \$400 premium to Utility-grade cull cows on a per-



Conclusion

Just as every livestock operation is different in many respects, the best options for adding value to cull cows are also widely varied. The cyclical nature of the beef cattle industry and moisture conditions also means that different strategies might offer greater returns in different years. Consequently, the selection of management strategies for cull cows is a process that needs to be evaluated every year. A simple comparison of expected costs and revenues as well as flexibility goes a long way. Ultimately, cull cow management and marketing is an important part of the business that deserves attention, rather than just serving as a byproduct from raising calves. Intentional cull animal management can result in positive outcomes for animal welfare, increased beef production, improved operation profitability, increased consumer confidence and ultimately better sustainability outcomes for the cattle industry.



**RIGHT WAY.
RIGHT TIME.**

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