

NORTH CAROLINA BEEF QUALITY ASSURANCE

2009 UPDATE

BEEF QUALITY AUDITS

The 2005 beef audit showed losses of \$55.68 per head due to quality and yield grades, slaughter weight and hide and offal losses. Most of these can be affected by management decisions made in the breeding herd. Over 14% of cattle harvested had yield grades of 4 and 5. The next most frequent contributors to carcass loss were weight and standard or lower quality grades, while over 77% of cattle harvested had no defects. This shows improvement is being made in the nation's beef herd, but that there is still plenty of room for improvement.

When we look at future needs for BQA we see different challenges than in the past. In 2005 there were less hot iron brands, side brands, horns and bruising on cattle than in any of the previous audits. While injection site lesions are still a major concern, this particular defect has dropped off the list of the top ten quality challenges. Excess external fat, inadequate tenderness, insufficient marbling, and excess carcass/cut weights are areas of concern that have appeared in all four beef quality audits, while hide problems and inconsistent uniformity have appeared in the last three audits. Areas that were new to the 2005 audit that can be impacted by the cow-calf producer are the lack of traceability, and the need for better communication between sectors of the industry and better market signals.

A growth area in beef production identified by the 2005 audit was the expected increase in demand for "natural beef". This marketing and management system is expected to double in the next ten years both nationally and internationally. There are many niches in this area including organic, grass fed and hormone free with different production challenges. Another growth area is the demand for locally raised beef, while this did not make the survey the demand for it is on the rise.

Lost Opportunities (per head)	
Due To:	
Quality Grade	-\$26.81
Yield Grade	-\$20.92
Weight	-\$4.94
Hide and Offal	-\$3.01
Total	-\$55.68

2005 Beef Quality Audit

Contributors to lost Opportunities: Carcass	
YG 4 & 5	14.1%
Carcass weight	5.5%
Standard & lower	5.4%
Dark cutters	1.9%
C-E maturity	1.5%
> 30 months	0.8%
Blood splash	0.6%
Yellow fat	0.3%
Callous	0.1%
No defects	77.5%

2005 Beef Quality Audit

Comparison of Past Audits: Brands, Horns, and Bruises

Audit	No hot Iron brands	No side brands	No horns	No bruises
1991	55	86	69	61
1995	48	83	68	52
2000	49	86	77	53
2005	62	92	78	65

2005 Beef Quality Audit

Market cow and bull audit update

The beef industry conducted its first market cow and bull audit in 1994; further audits were conducted in 1999, and 2007. These audits have illustrated where improvements in beef quality can be made in market cows and bulls. This is important as market cows and bulls represent 15-20% of the nations total beef supply. Ground beef is a major product from market cows and bulls but not the only one. Tenderloins, rib eyes, and strip loins from market cows and bulls are utilized in steakhouses throughout the country.

In the new audit of market cows and bulls released in 2007 it appears that significant improvements have been achieved. Since 1999 we have seen reduction in the total number of non-fed cattle marketed with horns, with 77% not having horns in 1999 and 83% not having horns in 2007. Similarly the number of cattle with brands has been reduced from 46% in 1999 to 24% in 2007. We see fewer cattle with side and multiple brands than eight years ago. In this time period the percentage of light muscled cows has also been decreased from 44% to 14% for beef cows. The number of cattle without bruising was also improved in this eight year span with 11.8% not having bruising in 1999 compared to 36.6% in 2007. All of these factors influence the value of the carcass. A major concern is the number of cattle with body condition scores (BCS) of less than five, more than 50% of the beef cows surveyed had BCS of less than five. The lower BCS on these cows can lead to increased bruising and lower retail product yield.

	1999	2007
	% of beef cows	
Without Horns	77	83
No brands	54	76
Light muscled	44	14
BCS = 5	31	21
No bruises	12	37

Source National Market Cow and Bull Beef Quality Audit-2007

Biological Risk Management

Biological risk management (BRM) has become the new buzz word for the cattle industry. This terminology is replacing the use of biosecurity that has been used for many years. When we hear these words most thoughts turn to foreign animal diseases such as Foot and Mouth Disease. However, the same practices that we use to control these exotic diseases will also help us to control diseases that we deal with daily (e.g. pinkeye, calf scours, pneumonia). BRM is divided into two components which are:

- Biosecurity which is defined as preventing the introduction of pathogens or toxins that may harm the health or productivity of a herd or negatively impact the safety and quality of the food product.
- Biocontainment which is defined as controlling the spread of disease or toxins which are already present in the herd.

To properly control disease, it is imperative that everyone understands how diseases can be spread. The following list describes the primary methods of transmission of most diseases. Also, it is important to remember that many diseases can be transmitted by more than one of the methods listed.

- Aerosol-Disease agents can be easily carried through droplets from sneezing, coughing, sharing of feed or water, etc. Most agents do not survive for long within these aerosol droplets. As a result, close proximity of infected and susceptible animals is required for disease transmission.
- Direct contact-Disease agents can be spread to susceptible animals via direct contact with an infected animal or through a contaminated environment.
- Included in this category would be diseases that are spread through transmission from bull to cow or vice versa (Trichomonas, Vibrio, etc) or from dam to offspring in-utero.
- Fomite-A fomite is any inanimate object that can carry disease from an infected animal to a susceptible animal. Examples of fomites include balling guns, needles, dirty trailer/truck, feed buckets, tractors, etc.
- Oral-Many disease organisms can be spread easily through consumption of contaminated feed, water, or licking/chewing of contaminated environmental objects (e.g. fences, boards, etc)

- Vector borne- Several diseases can be transmitted when an insect acquires a pathogen and spreads it to another animal either through biting or sucking blood (biological vector) or through contamination of their feet and body (mechanical vector).
- Zoonotic-Also it is important to remember that many diseases that impact animals can also cause disease in humans. Elderly, immunocompromised, or young children are typically the most susceptible. Common examples of zoonotic disease include: ringworm, Salmonella, Cryptosporidium, etc.

Identifying areas to minimize transmission of known diseases will also help to prevent the spread of diseases that we are not actively looking for.

Regardless of the terminology that is used, producers and veterinarians typically forget the positive impact that these control measures can have on beef quality. By incorporating these control measures into our daily lives, we can reduce the number of injections that animals receive because fewer animals are sick, fewer antibiotics will be used and less meat will be damaged resulting in a higher quality product delivered to the consumer.

Additional information can be found at this website. <http://www.cfsph.iastate.edu/brm/>

Age and Source Identification and MCOOL

A newer concern for many cattlemen is age and source identification and mandatory country of origin labeling (MCOOL); these are separate programs that should not be confused.

There are two types of verification that have been developed by the USDA for age and source identification; Process Verified Programs (PVP's) and Quality System Assessment (QSA). Process verified programs are not intended for individual producers or even cooperative groups. These programs have the highest level of certification and are typically administered by companies that have certified their entire production process or a large part of it. These companies must have detailed record keeping for all parts of the process and it must be auditable. For age and source verification the programs collect and transfer information through a documented auditable procedure.

Currently, there are over 25 USDA PVP companies or organizations. These are made up of processors and information management companies. Obtaining PVP status is time consuming complex, and very expensive. This is not the area that producers should consider setting up.

The USDA QSA programs are similar to USDA PVP programs in many ways, although a QSA generally is made up of a system that may involve several partners. These partners have certified with the USDA a system of record keeping and processing that can verify their claims about their product. In our case it is the age and source of the cattle. The QSA must document how age and source will be verified by the entire production cycle starting with the cow-calf producer all the way to the packer.

In order to be eligible to sell cattle in these programs just stating that they are age and source verified is not longer enough. Documentation of where and when an animal is born will be required to participate in these types of programs. In order to document this we must become better at record keeping.

The biggest concern in these programs is record keeping, which should not come as a surprise to most of us. But what records are required for participation in these programs? The USDA has set up a set of requirements to verify the age of an individual animal. Each animal must have a unique individual identification. Sufficient record keeping must be in place to trace the animal back to its farm of origin. Finally the records from the farm of origin must indicate the actual birth date of the animal and these records must accompany each animal through the process. This may sound like a lot of work, but for herds without a defined calving season it is the only method that will work for age verification.

A second set of requirements was established by the USDA for group age verification. Like individual animal verification each animal within a group and born during the same birthing season must be individually identified. When using group age verification the actual date of birth for the first calf born is used. The age of all calves within the group is then derived from the actual date of birth of the first calf born in the group. Records that show the date when the bulls are put in with the cows may be used as a supplemental record to help verify the age of the oldest calf. If you operate with both a spring and fall calving season or multiple calving seasons you must implement some means of identification that is used to manage, identify, trace and control calves from each season.

What records and practices should you conduct in order to participate in a QSA or PVP program?

- 1) Tag all cows and calves with a unique number in your herd. Tag calves at or near birth.
- 2) Put a permanent back up ID on cows (freeze brand, tattoo, or small metal tag).
- 3) Keep detailed calving records in a calf book specially designed for this purpose. This includes calf ID, dam ID, calving date, and sex of calf. At the very least,

record the date the first calve was born and the day the last calf was born. Simple calving books are available from a variety of sources including the North Carolina Cattlemen's Association.

- 4) Keep records in a safe, readily accessible location. Transfer calving records to a back-up book or other office reference copy as the calving season progresses in case of loss or damage to the original book.
- 5) Keep records of all cattle sales.
- 6) Become a BQA certified producer.
- 7) Keep BQA records up to date as required. Record all vaccinations, dewormings, implanting, or health treatments.

By following these steps you should be eligible for PVP and QSA programs. These may not be the only records that are required by particular programs. Whichever one you choose to work with will provide you with a more detailed list of required records and practices. If you keep your records on a computer make sure that you have some sort of paper trail showing where the information came from so that if you are audited the auditors will be able to find the source of your information. All records should be kept in an auditable format so that if it comes down to it you have the information the auditors need.

Mandatory country of origin labeling is a program that began in October 2008. The purpose of this program is to label the country that a food product originates from. Some of the proposed benefits are food safety, support of U.S. producers and the belief that U.S. products are of higher quality than imports. For most cow-calf producers selling at weekly markets signing a simple affidavit is all that is required. This same affidavit needs to be signed for private treaty sales as well. Stocker operators will be required to maintain these forms and pass them along at the next point of sale.

Maintaining items such as individual cow ID and calving date records will provide the minimum information needed for MCOOL and Age and Source Verification in most programs. Additional records may be needed for programs that assure certain production practices and standards have been maintained. Records need to be kept for three years after an animal's birth. Producers will need to show the actual records to auditors from the QSA or PVP program if requested. In almost all cases, cattle that are destined for a Source and Age Verification program will need to be tagged with an RFID (electronic) ear tag prior to leaving the point of origin.

Animal Welfare

According to the American Veterinary Medical Association, animal welfare is defined as "A human responsibility that encompasses all aspects of animal well-being, including proper housing, management, nutrition, disease prevention and treatment, responsible care, humane handling, and, when necessary, humane euthanasia." Most animal welfare for livestock is based on wording of "Five Freedoms" <http://www.fawc.org.uk/freedoms.htm>

These freedoms include:

- Freedom from hunger and thirst-easy access to fresh feed and water.
- Freedom from discomfort-providing shelter when necessary and a comfortable area for rest.
- Freedom from pain, injury, or disease-either through prevention or rapid diagnosis and treatment of issues that arise.
- Freedom to express normal behavior-by providing sufficient space and facilities.
- Freedom from fear and anxiety-by ensuring treatment and conditions that minimize or avoid mental suffering.

All individuals (including producers, veterinarians, employees, and others) should be trained in acceptable animal husbandry practices. This training should include such topics as:

- Understanding point of balance and flight zones to move cattle.
- Proper use of handling and restraining devices.
- Proper diagnosis and treatment of common problems and identifying when additional assistance is needed.
- Providing basic feed and nutritional management.
- Provide proper disease prevention and biosecurity measures.

- Identifying and using proper euthanasia practices for sick, injured or debilitated animals.
- Transporting animals via methods that will minimize stress by avoiding overcrowding, long transit time, or improper loading/unloading procedures.
- DO NOT ALLOW any willful mistreatment of animals.
- Handling of highly excited or aggressive individuals.
- Remaining updated on industry changes that improve animal well-being, biosecurity, and/or food safety.

Cattle can become non-ambulatory (commonly referred to as “downers”) for several reasons, and decisions need to be made whether animals are to be humanely euthanized or will respond to additional care. Signs of a more favorable prognosis include the ability to sit up unaided, eating, and drinking. Downer animals should be treated in a humane manner. Using slings or rolling an animal on to a pallet or sheet of plywood before moving them with a tractor are encouraged. These practices will provide the least amount of stress on cattle compared with other methods.

Care for non-ambulatory cattle is the responsibility of livestock owners and caretakers, who must make every effort to provide proper care. Non-ambulatory cattle should be provided with adequate shade or shelter and access to water and feed in a location that provides good footing. They need to be rolled from side to side at least once a day, but preferably every 4 to 6 hours. This helps prevent nerve damage from constant pressure in one particular location.

Cattle that are non-ambulatory cannot be sent to a livestock market or to a processing facility. If the prognosis is unfavorable or the animal has not responded to veterinary care after one week, it should be humanely euthanized.

Euthanasia

Euthanasia is humane death without pain and suffering. The producer may need to perform on-farm euthanasia because a veterinarian may not be immediately available to perform the service. The person performing the procedure should be knowledgeable of the available methods and have the necessary skill to safely perform humane euthanasia; if not, a veterinarian must be contacted.

When euthanasia is necessary, an excellent reference is the Practical Euthanasia of Cattle guidelines, which is provided at the end of this chapter. These guidelines were developed and published by the Animal Welfare Committee of the American Association of Bovine

Practitioners. Additional resources including desk cards and wall charts for posting are offered by the University Of Florida Department Of Veterinary Medicine at <http://www.vetmed.ufl.edu/extension/Dairy/HumaneEuthanasia/>

Disposal

Producers should also use proper methods of carcass disposal in accordance with federal, state, and local regulations. If utilizing a rendering service, keep deceased livestock in a screened area away from public view but close to the farm entrance for biosecurity purposes.

Many issues and concerns surround voluntary and mandatory identification programs. While these issues are being resolved, states are issuing premise ID numbers and developing satellite mapping to prepare emergency response plans in the event of a disease outbreak or chemical exposure. As stated in the strategic plan by the USDA, “The goal of the NAIS is to be able to identify all animals and premises that have had contact with a foreign or domestic animal disease of concern (i.e., foot-and-mouth or BSE) within 48 hours after discovery.”

In addition to safeguarding food safety and animal health, the goals of the NAIS plan protect beef and dairy producers by limiting the potential for devastating economic losses in the event of a disease outbreak.

Animal Health Product Management

Most animal health products have specific recommendations for storage. This information is clearly stated on the label; and to maximize effectiveness of the product, these guidelines should be followed. Temperature requirements for products vary from strict refrigeration (35 to 45°F) to storage at room temperature (68 to 77°F). Regardless of temperature storage requirements, all products should be stored in a clean place that prevents the product from becoming dirty or otherwise contaminated.

When refrigeration is required, it is important that the refrigerator be maintained in a clean area that is observed frequently by farm personnel. Refrigerators, like all equipment, will eventually break-down, and it is important to identify this problem prior to using an ineffective product on the cattle. Also, products recommended for refrigeration should not be stored in the doors due to temperature fluctuations that occur in this area.

If lactating dairy animals are present, ALL products must be stored and labeled separately from non-lactating dairy cattle to avoid any risk of illegal milk or meat residues. This restriction applies to both refrigerated and non-refrigerated products.

Storage of partially used bottles of vaccines is discouraged due to enhanced risk of contamination of remainder of contents that may result in tissue reactions or ineffectiveness of the product.

Unless products are labeled for use in feed, animal health products should not be stored in areas where feed mixing occurs due to risk of contamination of injectable products or accidental inclusion of pesticide into feed.