Introduction to BQA

BQA Certification Training

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Funded by the Beef Checkoff

Beef Quality Assurance Program

- NCBA BQA Mission Statement:
- "*The Beef Quality Assurance Program's mission is to guide producers toward continuous improvement using science-based production practices that assure cattle well-being, beef quality and safety".*

Beef Quality Assurance Certification

- Program is based on the honor system
- Program will only be as good as producers make it
- Producers must be committed to following guidelines on every single animal
- Facilities must permit following BQA guidelines
- The program is voluntary !!!!

Beef Quality Assurance Certification

Standardized with National BQA

BQA Certified Producers will receive a national BQA number from NCBA that allows access to the national BQA education platform

BQA Certification renewal will be required every three years and require 3 hours of continuing education over the certification period.

Program certifies the individual is committed to follow the principles of the NM BQA

BQA Principles
Introduction to BQA

Total Quality Management

Assure consumers beef is healthy, wholesome & safe

Thoughtful & responsible cattle management

BQA Goals & Objectives

1. Set production standards

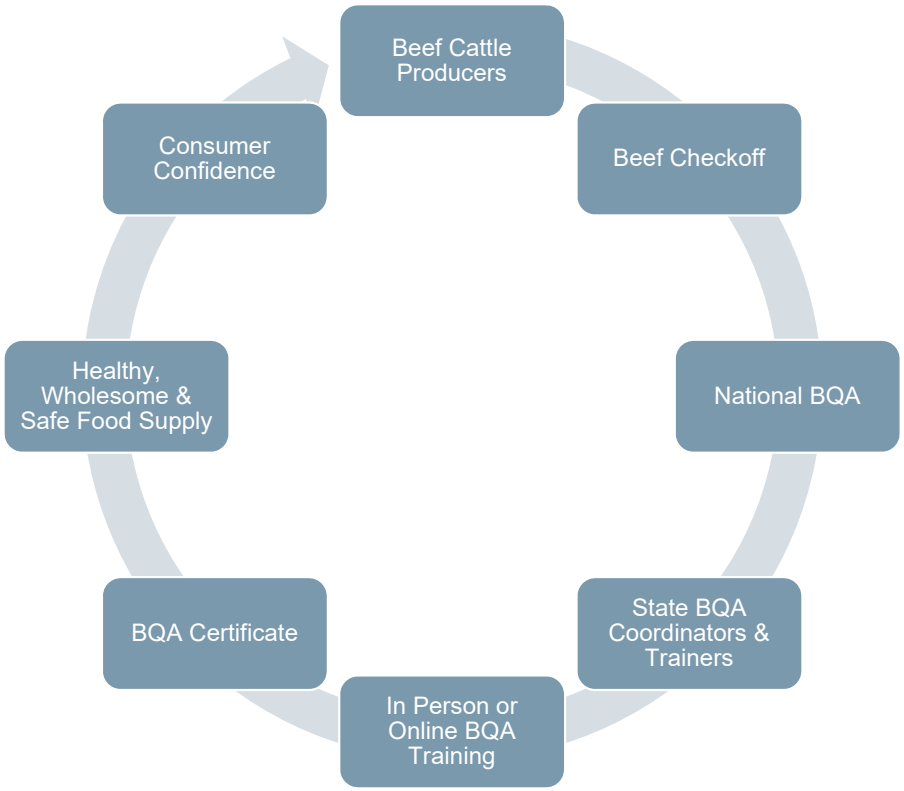
2. Establish data retention and record keeping systems

3. Provide hands on training and education

4. Provide technical assistance

5. Provide a foundation for sharing responsible cattle management

Beef Checkoff & Producer Education



Animal Care Partners & Programs

HACCP

Hazard Analysis Critical Control Points

1. Identifying what can go wrong
2. Determining how to prevent the issue
3. Documenting your procedures
4. Creating a plan to deal with issues

HACCP

Hazard Analysis Critical Control Points

HACCP builds practices that allow checking, verifying and documenting that all individuals involved in the industry are accomplishing what they intended to do.

For a deeper dive into the specific examples of the 7 HACCP principles, please see the following slides.

HACCP-like Considerations

Introduction to BQA

Principles	Examples
Review all management programs to identify production practices that affect food safety, quality and the environment.	For example, instructing everyone involved in working cattle to avoid giving intramuscular injections anywhere but the neck area.
Identify the control points where potential problems can occur, be prevented and/or controlled.	For example, storage of feed and/or chemical products is a control point.
Establish corrective actions necessary to implement if a problem occurs.	For example, corrective actions for a drug residue violation might include improving recordkeeping and employee training.
Establish critical limits associated with each control point.	For example, identify the proper withdrawal time associated with a drug treatment.

HACCP-like Considerations

Introduction to BQA

Principles	Examples
Establish effective recordkeeping procedures that document that a system is working properly.	For example, using a processing map to record where each injection was given, how much was given, how it was given and what the injection was.
Establish control point monitoring requirements to ensure that each control point stays within its limit.	For example, maintaining pesticide use records so that you can check grazing restrictions on a particular field or pasture before turning cattle out.
Establish procedures for verifying that the system is working properly.	For example, a periodic review of your animal treatment records, production practices, critical limits, treatment protocols, etc. is a way to help verify that management strategies are occurring according to an operation's management plan.

National Beef Quality Audit

- This is a scorecard for the industry
- Completed every 5-7 years

- Data is collected from
  - Face to Face Interviews with Big Buyers of Beef
  - Transportation & Cattle Mobility
  - Live Animal Evaluations
  - Harvest Floor Assessments
    - Hide-On
    - Hide-Off
  - Cooler Assessments

Information provided by the National Beef Quality Audit

National Beef Quality Audit

Quality Challenges – Ranked according to priority					
1991	1995	2000	2005	2011	2016
-External Fat -Seam Fat -Overall Palatability -Tenderness -Overall Cutability -Marbling	-Overall Uniformity -Overall Palatability -Marbling -Tenderness -External & Seam Fat -Cut Weights	-Overall Uniformity -Carcass Weights -Tenderness -Marbling -Reduced Quality Due to Use of Implants -External Fat	-Traceability -Overall Uniformity -Instrument Grading -Market Signals -Segmentation -Carcass Weights	-Food Safety -Eating Satisfaction -How and Where Cattle were Raised -Lean Fat & Bone -Weight & Size -Cattle Genetics	-Food Safety -Eating Satisfaction -Lean Fat & Bone -Weight & Size -How & Where Cattle were Raised -Visual Characteristics

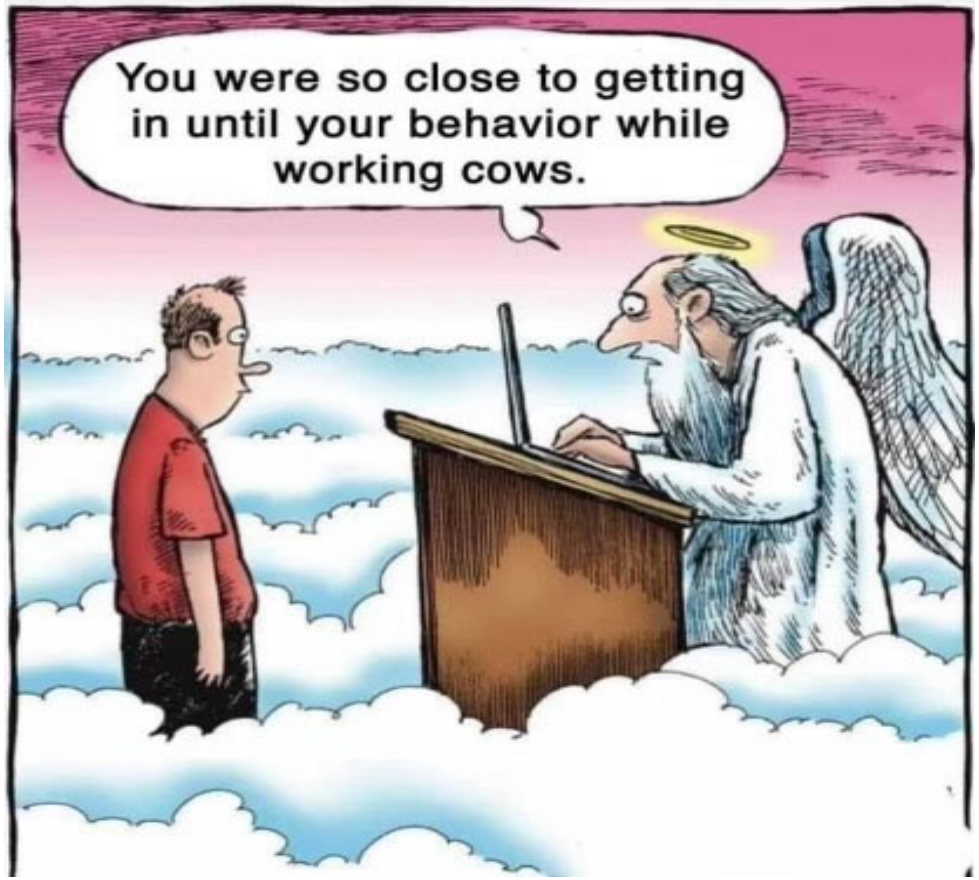
Information provided by the National Beef Quality Audit

Lost Opportunities

Quality Issue	Reason	Loss in 2016
Bruising	Improper Handling	$62 million
Dark Cutters	Chronic Stress prior to slaughter	$131 million
Shrink Loss	Excessive stress during shipping of cattle	$325 million
Injection Site Lesions	Intramuscular Injections	$2.42 million
Liver Condemnations	Defects	$2.56 million
Total Meat Quality Defects		$521 million

Information provided by the National Beef Quality Audit

Behavior and Handling


You were so close to getting in until your behavior while working cows.

Cattle Behavior Is Influenced By

Experiences that develop conditioned learning

Innate instincts

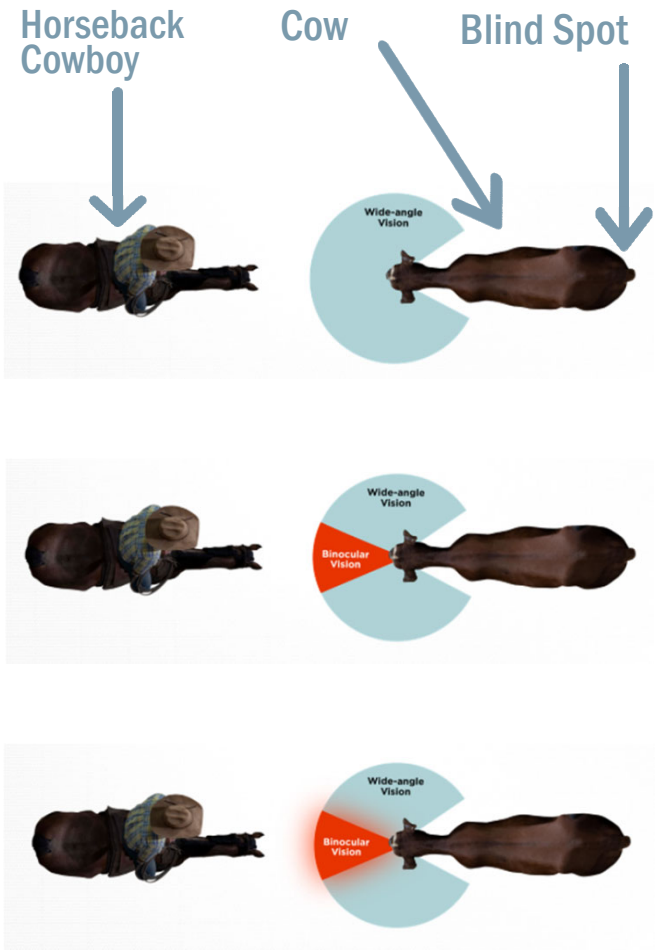
Sensory perceptions

Cattle Behavior

1. Routine based animals
   - May be distressed by changes in environment
2. Herd Instincts
   - Like to remain in physical and visual contact with herd
3. Prey animals
   - Rely on senses to react to predators
   - Humans are sometimes considered predators

Cattle Vision

- Cattle have wide angle vision of more than 300 degrees
- When both eyes are focused in front their binocular vision is 20-50 degrees
- Depth perception, distance, and speed is most accurate in binocular vision zone

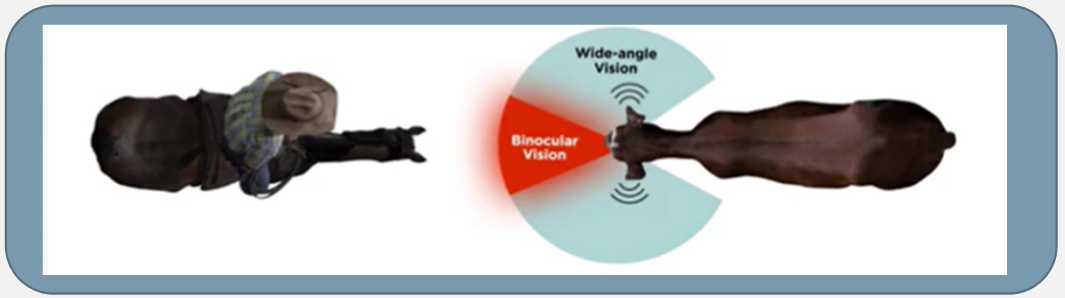


Cattle have a wider range of hearing than humans

Sudden or loud noise may startle cattle

Cattle can't determine source of sounds as well as humans

Cattle are sensitive to high pitch and frequency sounds



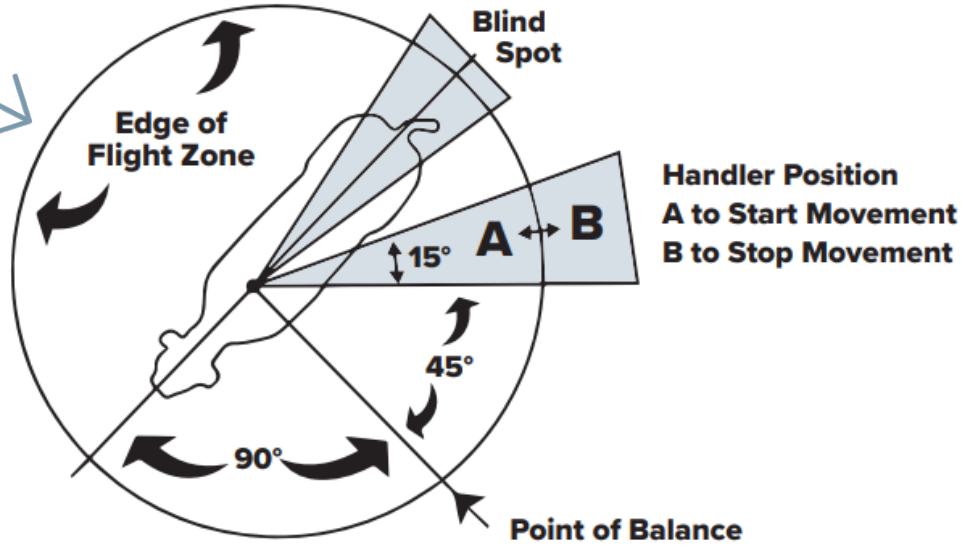
Cattle Hearing

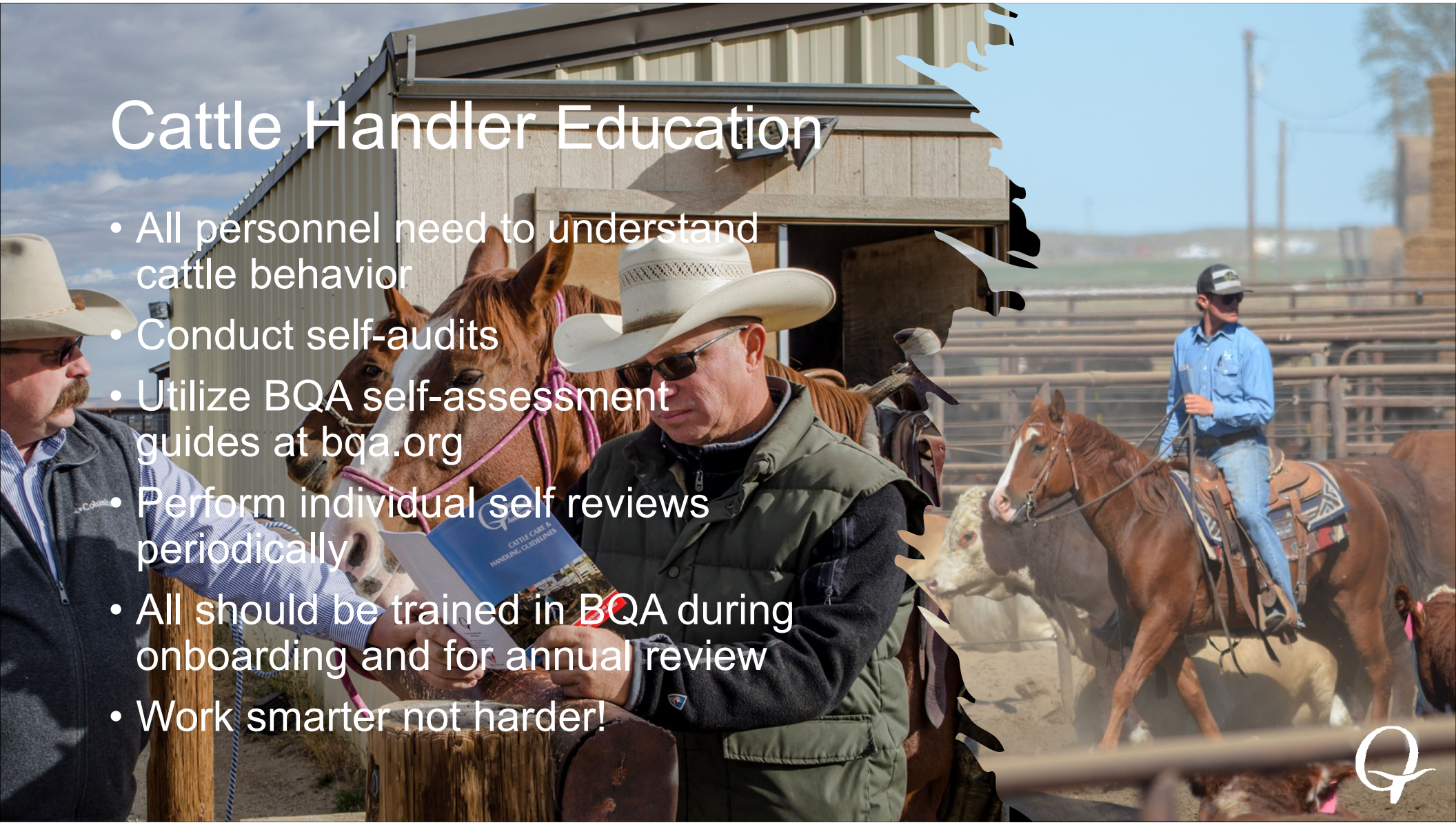
Flight Zone

Flight Zone Tips

Determine & work on the edge of the flight zone

The animal will move away when you have entered their flight zone





Cattle Handler Education

- All personnel need to understand cattle behavior
- Conduct self-audits
- Utilize BQA self-assessment guides at bqa.org
- Perform individual self reviews periodically
- All should be trained in BQA during onboarding and for annual review
- Work smarter not harder!

Utilizing Herd Instinct

Cattle Want To:

1. See you
2. Move around you
3. Be in a group and follow each other
4. Return to the last safe location
5. Avoid fear

Animal Handling

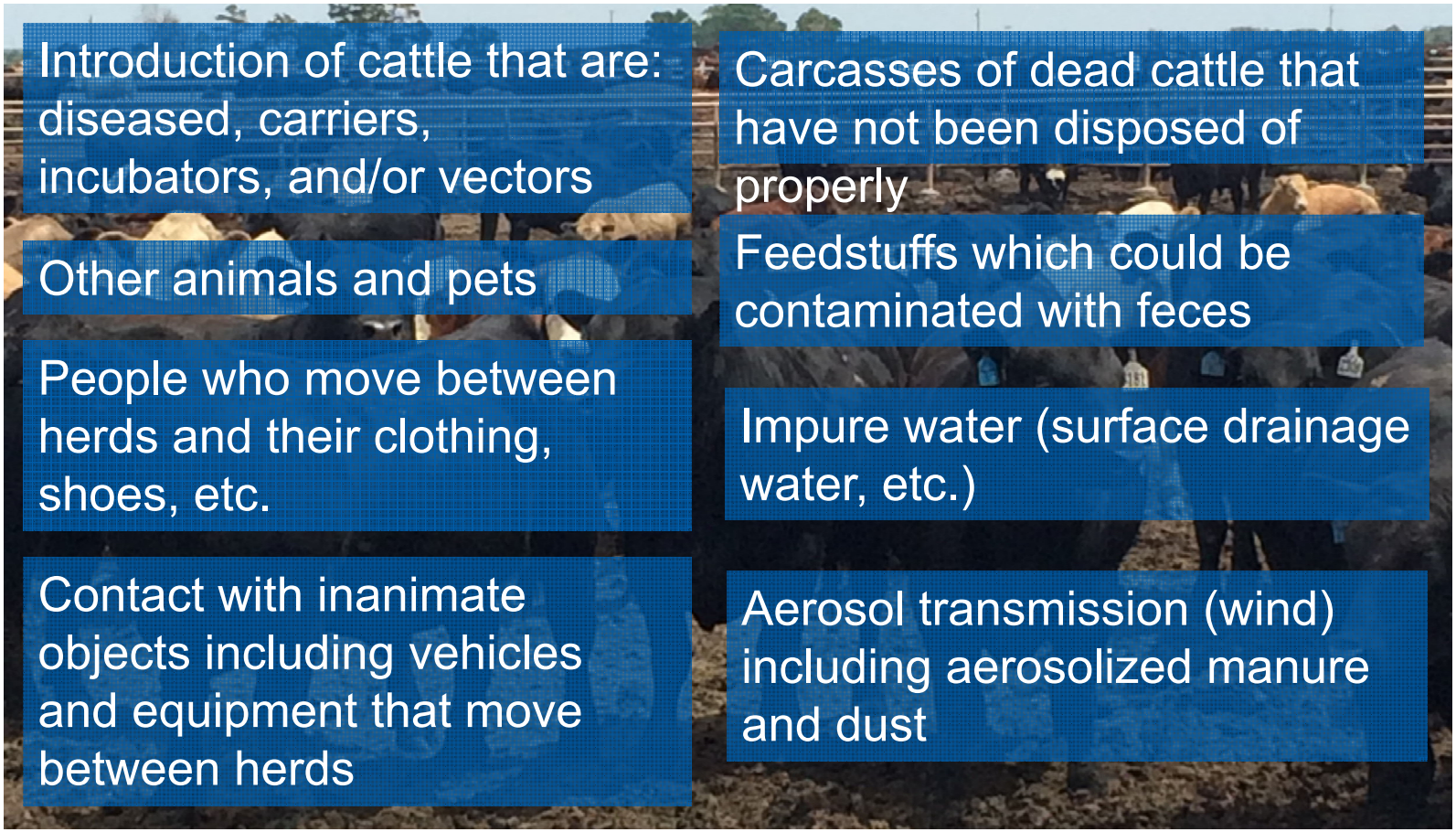
- Quiet
- Slow
- Less people
- Facilities
- Less “tools”

Biosecurity

Goal of Biosecurity

Protect animals from disease by minimizing movement of biologic organisms (such as viruses, bacteria, or parasites) within and onto an operation

Spread of Diseases: BIOSECURITY



Key Practices: BIOSECURITY

- Evaluate the biosecurity risks on your operation
- Recognize and mitigate the biosecurity risks associated with the introduction of new cattle and inter-herd/inter-operation traffic
- Apply basic sanitation practices to equipment, vehicles and clothing
- Prevent manure contamination of feed and feeding equipment
- Quarantine new additions to herd
- BVDVPI test new cattle

Background

- Definitions
  - Biosecurity
    - Keeping diseases out; domestic ar foreign
  - Biocontainment
    - Keeping diseases already on ranc spreading
- Two categories of disease
  - Short-lived
    - Most respiratory disease agents – quarantine works
  - Carriers
    - Anaplasmosis/BVD/Johne's/Trich - test
- Finding that balance
  - What's necessary and practical for eve
  - What's necessary for foreign animal di

General Best Management Practic (BMP)

- Preventing problems is better than correcting problems
  - Improve welfare, profitability, and outcome
- Doing things right the first time is critical to biosecurity
- Have an animal ID system in place
- Track and validate management practices used on cattle

Foot-and-Mouth Disease (FMD)

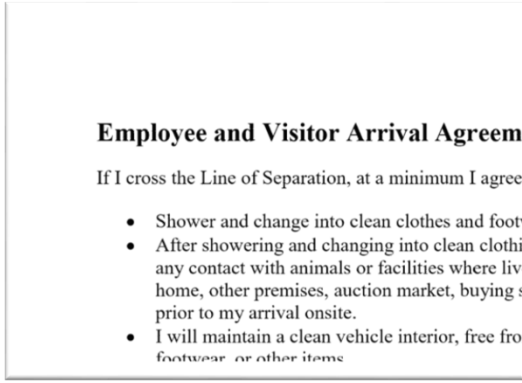
- Most contagious virus of cloven-hoofed livestock
  - Cows, pigs, goats, sheep, wildlife
- Vesicular disease = blisters/vesicles on feet, mouth, teats
- Does NOT affect public health or food safety (meat and milk are safe to consume)
- Could cause $$$ (billions) of losses to agricultural industry and North American economy
- Best way to protect = PREVENTION

Secure Beef Supply

- Continuity of business plan for cattle operations who are affected by movement restrictions during a Foot and Mouth Disease outbreak in the United States
  - Includes stopping animal movement in the areas around infected animals
- SBS Plan provides guidance for cattle operations BEFORE outbreak occurs
  - Prepares operations for animal movement by evaluating and documenting biosecurity practices

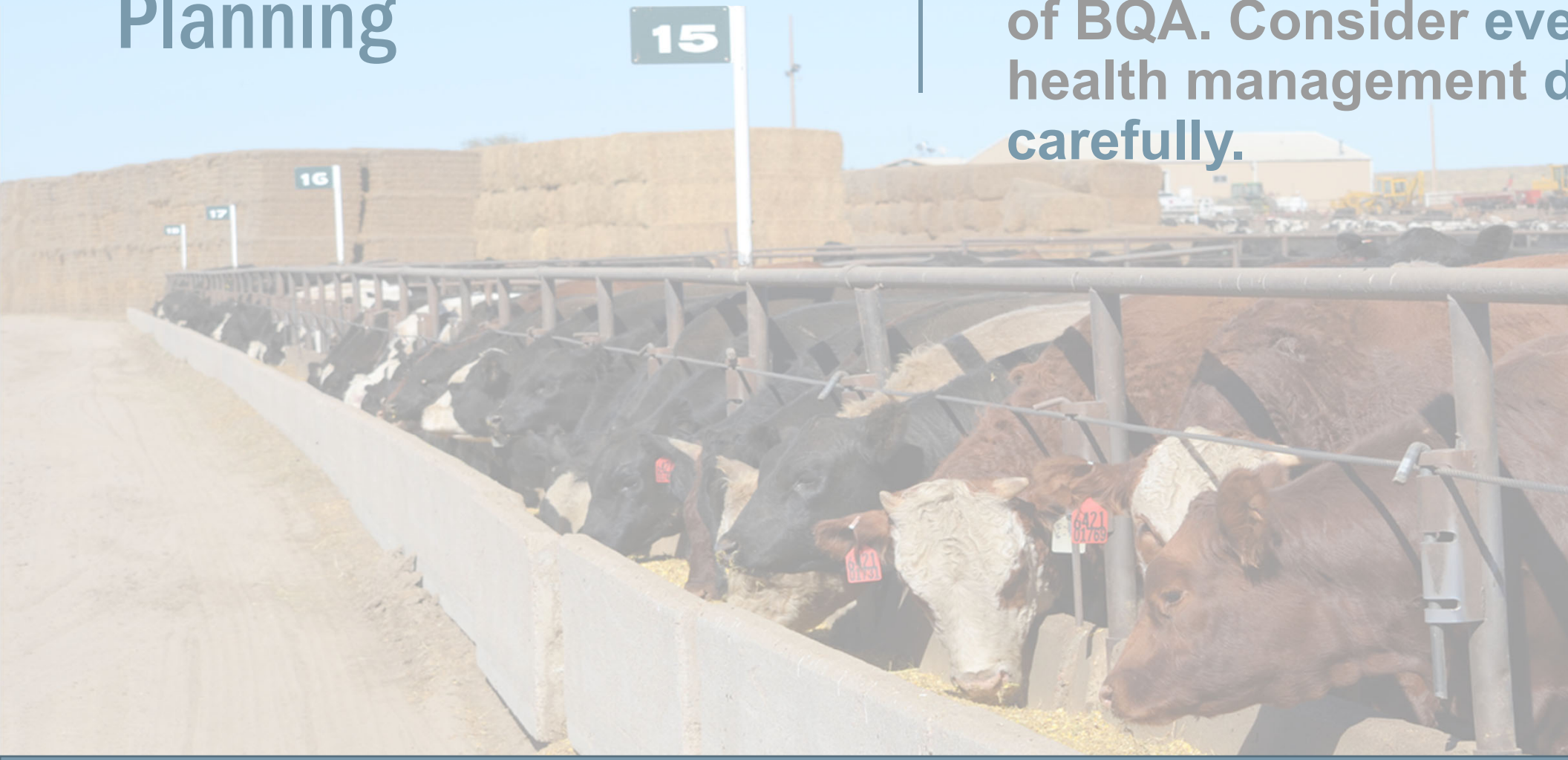
the Center for Food Security & Public Health

www.secure



Herd Health Management

Goal of Herd Health Planning



Thoughtful, responsi
management is a fou
of BQA. Consider eve
health management d
carefully.

Preventative Herd Health Guidelines

- Use management considerations to aid in the prevention reduce the spread of target pathogens and improve anim immune system and response to stressors
- Identify recommended vaccines and/or feed additives
- Use appropriate timing to protect (vaccinate) against targ pathogens
- Identify target pathogens
- Use treatment protocols if prevention fails

When to utilize a veterinarian

- Consulting and establishment of a health plan
  - Develop breeding or vaccinatio protocols
  - Nutrition assessment
  - Establish preconditioning progr
- Annual breeding exams, pregnanc diagnoses, and herd checks
- Biosecurity assessment or outbrea investigations
- Record keeping and self-assessm
- Establish appropriate treatment ar deworming protocols
- During an animal emergency

The Veterinarian/Client/Patient Relationship

The American Veterinary Medical Assn. defines a v
Veterinarian/Client/Patient Relationship to exist wh

- The vet assumes responsibility for making med
  and the need for treatment, and the client agre
  instructions of the vet.
- There is sufficient knowledge of the animals by
  initiate at least a general or preliminary diagnos
  seen and is personally acquainted with the kee
  of the animals).
- The vet is readily available for follow-up in case
  reactions or failure of therapy.

Components of a Herd Health Plan

- Each operation is **unique**
- Each operation should work with their herd veterinarian to develop what is best for your herd's health
- Customize your plan and adapt as needed

Key Areas to Address wit your Veterinarian

- Recommended Vaccine
- Management Protocols
- Parasite Control
- Optional Feed Additives

Beef Cattle Herd Health

- Have a good working relationship with your veterinarian!
  - Vet knows the prevalent disease situation in the neighborhood
  - Vet may be required for certain actions, i.e. brucellosis vaccina health papers for shipping, bull's breeding soundness evaluati
  - Vet is needed for emergencies, and to submit tissue samples diagnostic labs.

Vaccinations and Disease Prevention:

- Identify target pathogen(s)
- Identify recommended vaccine(s) and/or feed additives
- Use appropriate timing to vaccinate
- Prevent or reduce spread of target pathogens
- Use management and treatment protocols if prevention efforts fail

Key Practices:

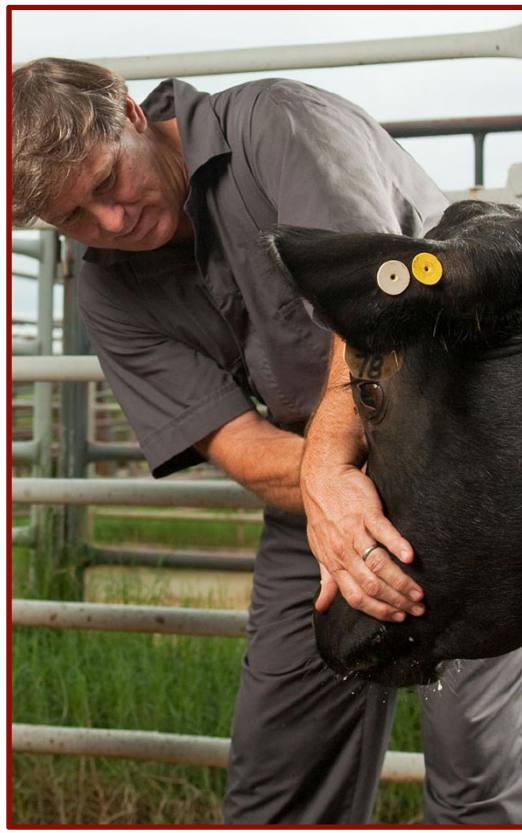
HERD HEALTH MANAGEMENT

- Develop a herd health plan with your veterinarian
- Provide disease prevention practices- (Biosecurity)
- Follow all FDA/USDA/EPA guidelines and label directions
- Use FDA-approved feed additives, including veterinary feed directives in accordance with the FDA use requirements
- Keep extra-label drug use to a minimum and only when prescribed by a veterinarian
- Administer products labeled for subcutaneous (SQ) and intramuscular (IM) administration in the neck region

Key Practices:

HERD HEALTH MANAGEMENT

- Use products labeled for other routes when available rather than administering Intramuscular (IM)
- Never give IV-only products by any other route
- Use injectable products with low dosages
- Administer IM products in the neck, only administer 10 cc per injection site
- Use the proper needle size and never reuse a bent needle
- Treat a broken needle in an animal as an emergency situation, do not market the animal
- Do **NOT** market compromised, terminally ill, adulterated or non-ambulatory cattle
- Humanely euthanize non-ambulatory animals



The Decision to Treat

Know what you are treating for!

The Decision to Treat

- The decision to treat should be based on:
  - Knowing what you are treating
  - The effectiveness of the drug
  - The economics of treatment vs. not treating or culling

Use Only Approved Drugs

- Drugs may be of two types:
  - Over-the-counter (OTC) drugs are those that can be purchased anywh without a veterinarian's prescription.
  - Prescription drugs require a veterinarian's prescription for purchase. M anti-microbials are no longer available as they have been moved to RX
  - All must carry the following label:

"CAUTION: Federal law restricts this drug to use by or on the order of a licensed veterinarian"

Extra-Label Use of Drugs

- Extra-label or off-label use of drugs refers to drug use in a way other than as described on the label and/or package insert.

- **Legally, off-label drug use can only be as prescribed by a licensed veterinarian, and requires a valid *veterinarian/client/patient relationship***

Understanding Drug Labels

- All drugs, whether OTC or Rx, must contain the following information on the label:
  - Name of the drug
  - Active ingredients
  - Instructions for use
  - Quantity of contents
  - Name of manufacturer
  - Some medications are a human health hazard including Lutalyse, Mycotil, and others.

Understanding Drug Labels

- Rx drug also require the following information on the label:
  - Veterinarian's name and address
  - Statement "Caution: Federal law restricts this drug to use by or on the order of a licensed veterinarian."
  - Directions for use
  - Prescribed withdrawal times…even if zero
  - Any other cautionary statements

- "Prescribed extra-label" drugs require the same label information.

Administer Drugs Properly

- Check and follow these instructions on each label:
  - Dosage
  - Timing – how often and how many times
  - Route of administration
  - Warnings or cautionary statements
  - Withdrawal times
  - Storage of drug
  - Disposal of containers
  - Expiration date

Key Point

Read the label and observe withdrawal times before marketing!

Drug Withdrawal Time

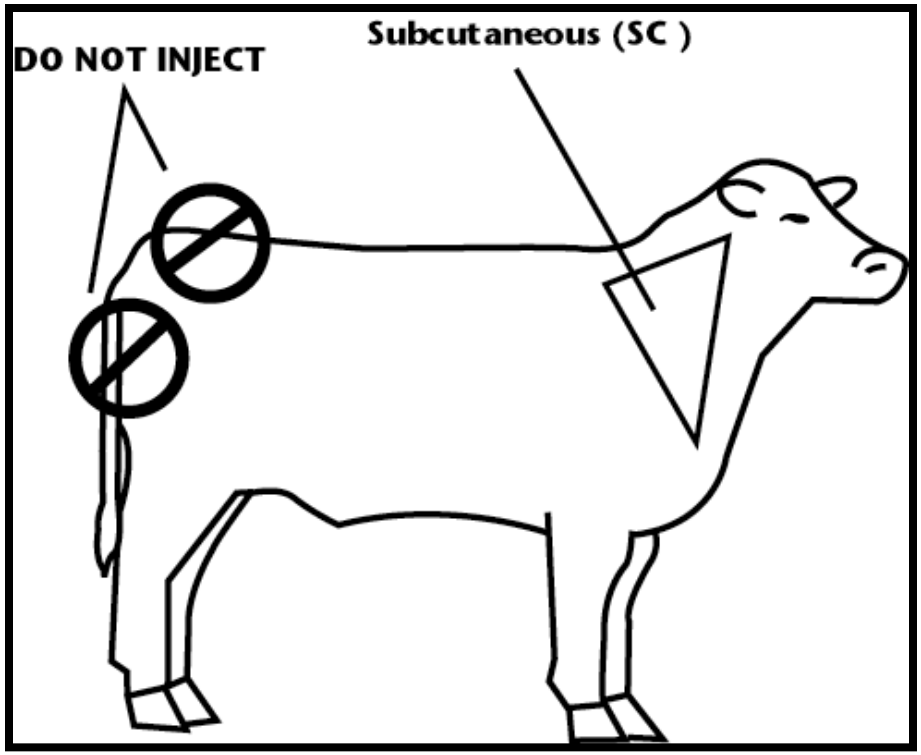
- A withdrawal time should be indicated on the label of medications.
- It is the period of time that must pass between the last treatment until the time the animal can be harvested or m be sold.
- Unacceptable levels of drug residues detected in edible t collected at harvest will result in traceback, quarantine, a potential fines.

Administer Drugs Properly

- If you have a choice between subcutaneous or intramuscular routes . . .
- choose SUBCUTANEOUS !

Administer Drugs Properly

- Give all injections in front of the shoulder:



Remember that the animal has two sides

Never give more than 10 cc of product in an location!

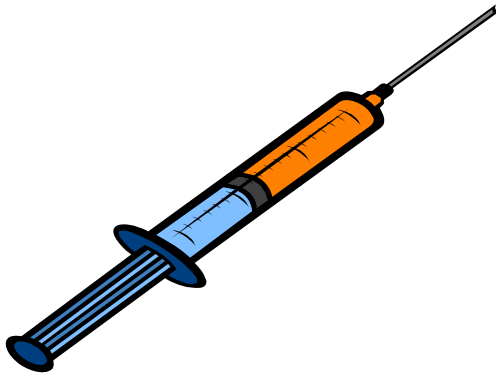
Place injections at le 5 inches apart

Administer Drugs Properly

- The target area for injections is not large!
- Note the location of the neck bones!

Administer Drugs Properly

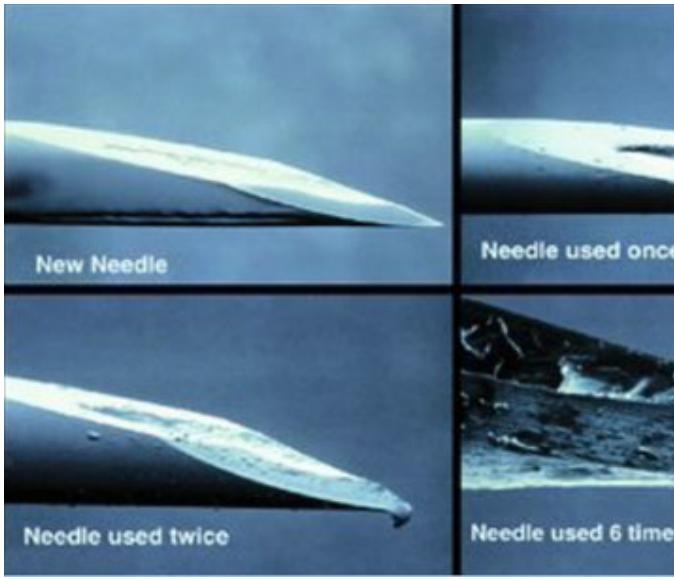
- Do not use the same syringes for modified live vaccines and bacterins or killed products.
- Traces of bacterin left in a syringe can destroy the modified live virus if mixed!



Label syringes to avoid mixing

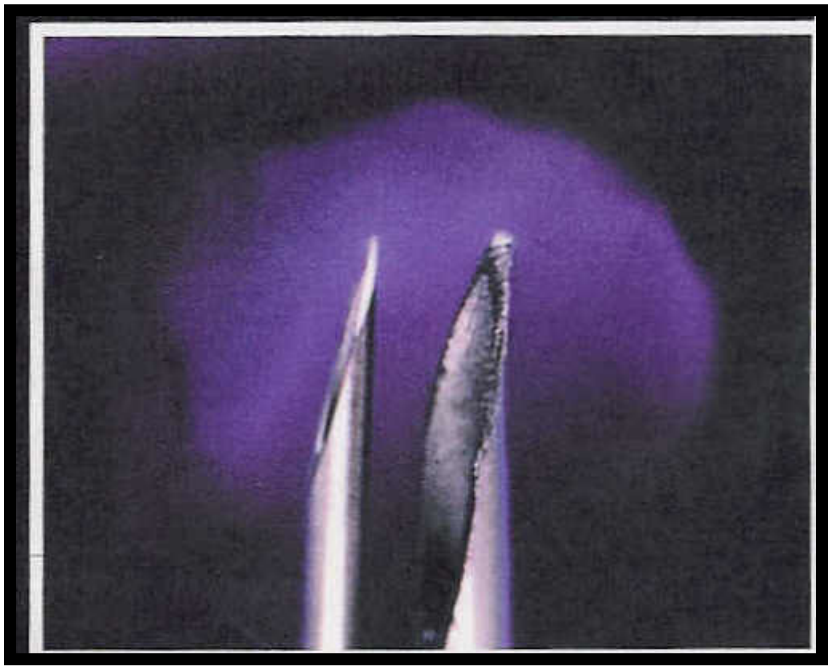
Vaccination 101

- DO
  - Keep Vaccines Cold & In The Dark
  - Read all labels before use
  - LABEL each vaccine gun clearly
  - Change needles frequently (every 10-15 animals or every syringe fill)
  - Animals with broken needles should not be sold or sent to a packer!

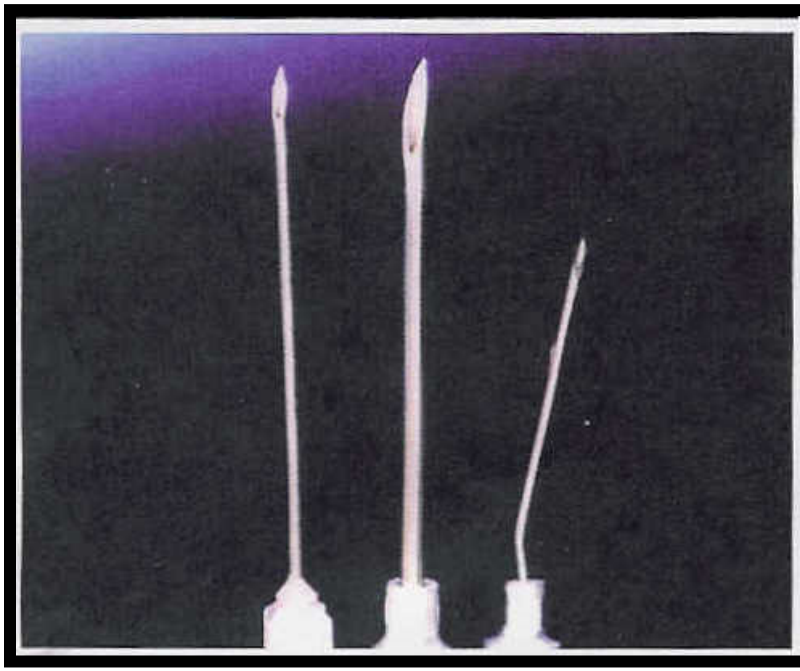


Selecting the Proper Needle Size

Never use damaged or dull needles!



Barbed ends



Dull and bent

Selecting the Proper Needle Size

Primary considerations in needle selection include route of administration.

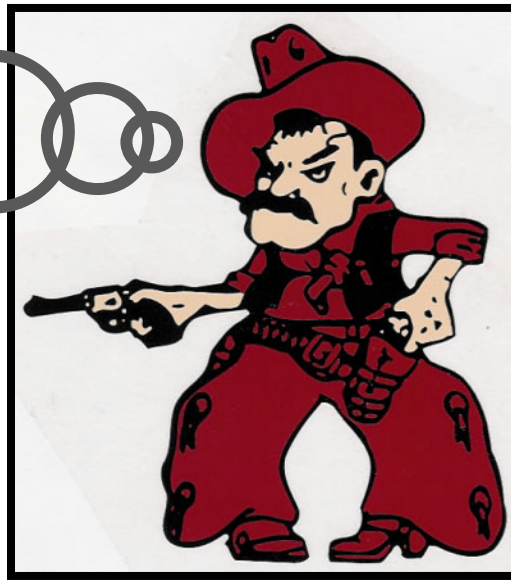
- Size of the animal
- Viscosity of the fluid
- Volume injected
- Should never be larger than necessary to adequately perform the injection.

Selecting the Proper Needle Size

- Choose the correct needle size
  - Subcutaneous injections:
    - 18 – 16 gauge ½ to ¾ inches long
    - seldom will a longer needle be needed
  - Intramuscular injections:
    - 18 - 16 gauge 1 to 1½ inches long

Key Point

Mixing different products in a syringe is not acceptable!



Key Point

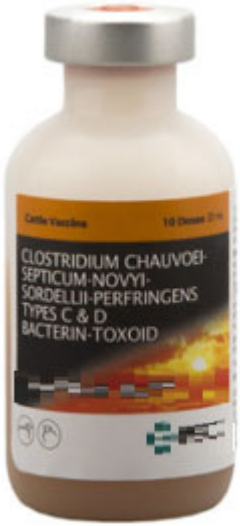
Avoid intramuscular injections if possible!

Vaccines vs. Antibiotics

Vaccine

a substance that is usually injected into a person or animal to protect against a particular disease

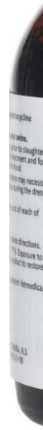
- Commonly used for prevention



Antibiotic

a drug that is used to kill harmful bacteria and to cure infections

- Could be used for control or treatment



Vaccinating Cattle

- Vaccination vs. Immunization
- Not all cattle will respond- 65-75% if all goes well…..
- Our responsibility as cow calf producers to develop the ir system in the calves we send off the ranch
- Starts will development of the replacement heifer and he
- Annual vaccinations for breeding herd absolutely necess
- Consult with your herd veterinarian to develop an annual vaccination program for your operation
- Our Goal is to always immunize as many as possible

Vaccines

Modified Live

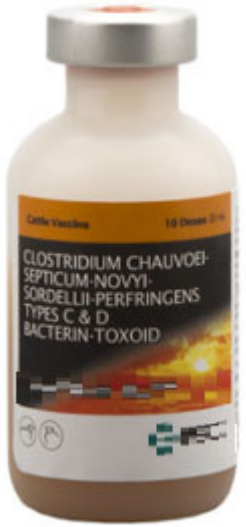
The vaccine contains a **live pathogen** for the target disease **that has been altered** to reduce its ability to cause disease.

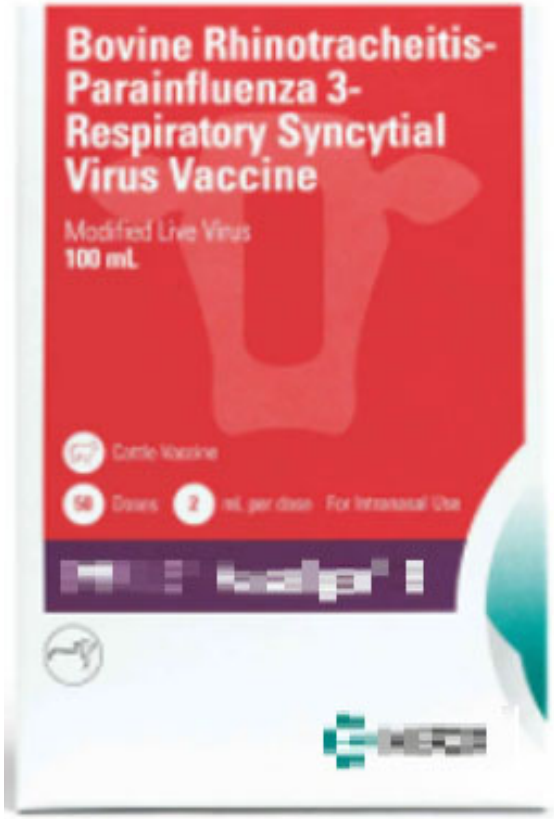
Killed

The pathogen for the
disease is contained i
vaccine but is **no lon**
living.

Killed Vaccines

- Can be stored in refrigerator for short periods of time after initial use
- Should not be kept if anything other than a sterile needle entered the bottle during use
- Never vigorously shake or expose to direct sunlight or temperatures outside the range listed on the label as this will inactivate the vaccine
- Do not freeze – dangerous and deadly toxins will form
- These are generally oil based and do not need mixing





Modified L
Vaccines

- Both Modified Li
  Chemically Alter
  products must b
  with a sterile dilu
  being
- Never mix MLV
  before they are
- Mix only enough
  administered wit
  because product
  stored
- Never vigorously
  expose to direct
  or temperatures
  range listed on t
  will inactivate the

- Information needed to meet handling and administration requirements should be on the product container label
  - ➢ Check the expiration date
  - ➢ Only buy quantities to be used at one time
    - ✓ Mix only enough vaccine for one hour
    - ✓ Don’t save unused vaccine

Chute Side Handling

- Keep in an insulated container
  - Avoid sunlight
  - Avoid freezing
- Use quickly, don’t mix the amount needed
- Don’t combine products
- Avoid contamination
- Use sterile/new syringes where practical

- Collect used needles in a rigid plastic container and dispose of them by presenting them to a sanitary landfill representative or by returning them to your veterinarian

  - ✓ Used needles, scalpels, etc., are considered medical waste and must be handled and disposed of in accordance with medical waste regulations

Antimicrobial Stewardship

- Responsible antimicrobial stewardship is important to ensure animal health technologies remain viable options for better disease management
- Utilize both antibiotics and anthelmintics (dewormers) **appropriately** and **not overusing** so producers can still use these products when needed in the **future**

Food Safety and Public Health come first!

Aminoglycosides

- BQA program does not allow the injectable ELDU use of aminoglycosides
  - Extremely long withdrawal period of *over two years* and the potential for a violative residue
  - FDA recommends against aminoglycoside residue in cattle

Compounding

- Using compound medicat strictly regulated and sho be rare in food-producing animals
- **Only veterinarians can decide if compounded medications are needed**
- Extended withdrawal time necessary

Prevent Antimicrobial Resistance

- Excessive or inappropriate use of antimicrobials in human or animal health can contribute to the emergence of resistant bacteria which do not respond to antibiotic treatment
- Preventing resistance in the animal health realm applies to:
  - Antimicrobial (medicines used to prevent and treat infections in humans, animals and plants)
    - Example: Antibiotics or antifungals
  - Antiparasitic (medicines used to treat parasites)
    - Example: Dewormers
- **Antimicrobial resistance is a serious, complex, and costly public health problem that we all can help with**

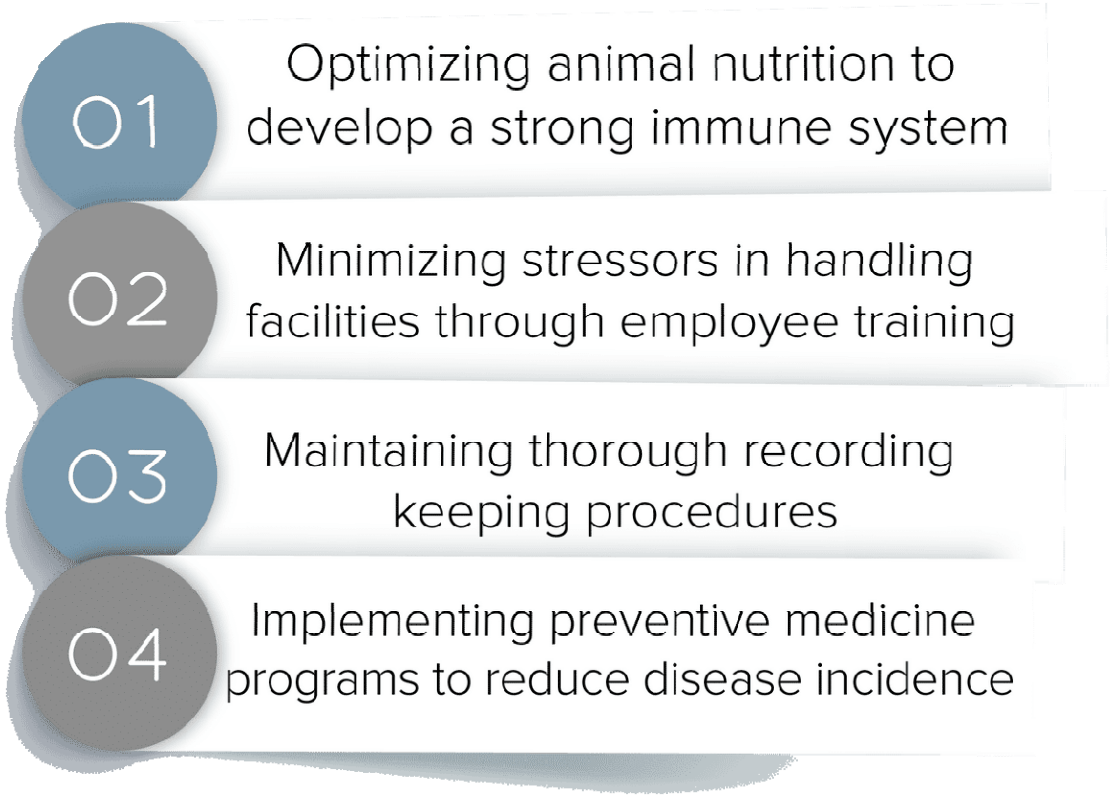
Judicious Use of Antibiotics

- Antibiotics are a tool to keep animals healthy, but can easily be misused
- Utilize VCPR to minimize use of antibiotics and guidance on using appropriately

A Beef Producer's Guide for Judicious Use of Antibiotics in Cattle

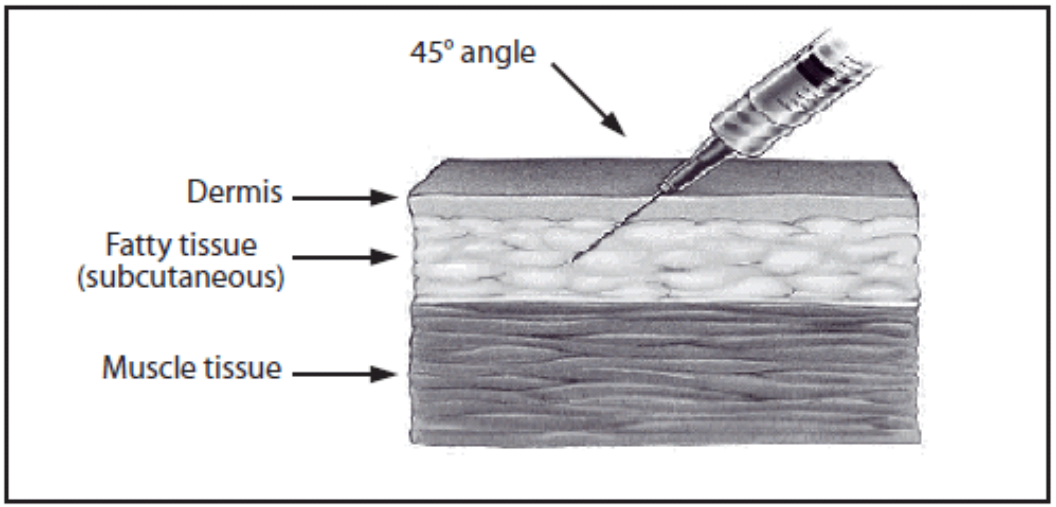
1) Prevent problems	8) Treat the fewest number of animals
2) Adhere to FDA guidance	9) Treat for the recommended time per
3) Select and use antibiotics carefully	10) Avoid environmental contamination antibiotics
4) Use the laboratory to help you select antibiotics	11) Keep records of antibiotic use
5) Combination antibiotic therapy is discouraged unless there is clear evidence the specific practice is beneficial	12) Follow label directions
6) Avoid inappropriate antibiotic use	13) Extra label antibiotic use must follo regulations
7) Treatment programs should reflect best use principles	14) Medically important antibiotic use s limited to treat, prevent, or control dise

Producers can minimize antimicrobial risk by minimizing disease risk

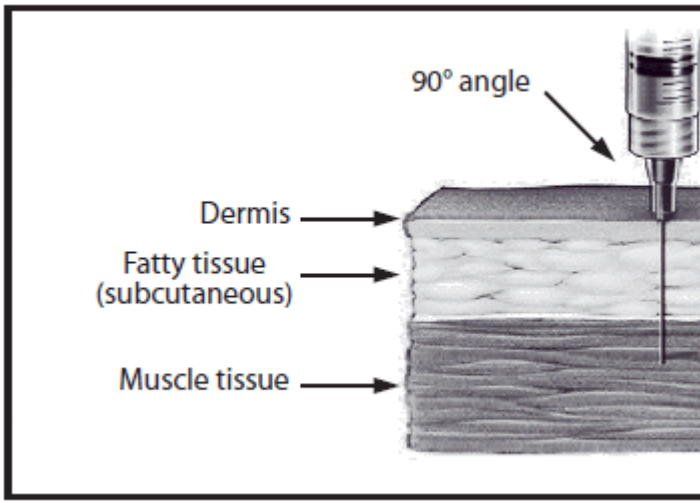


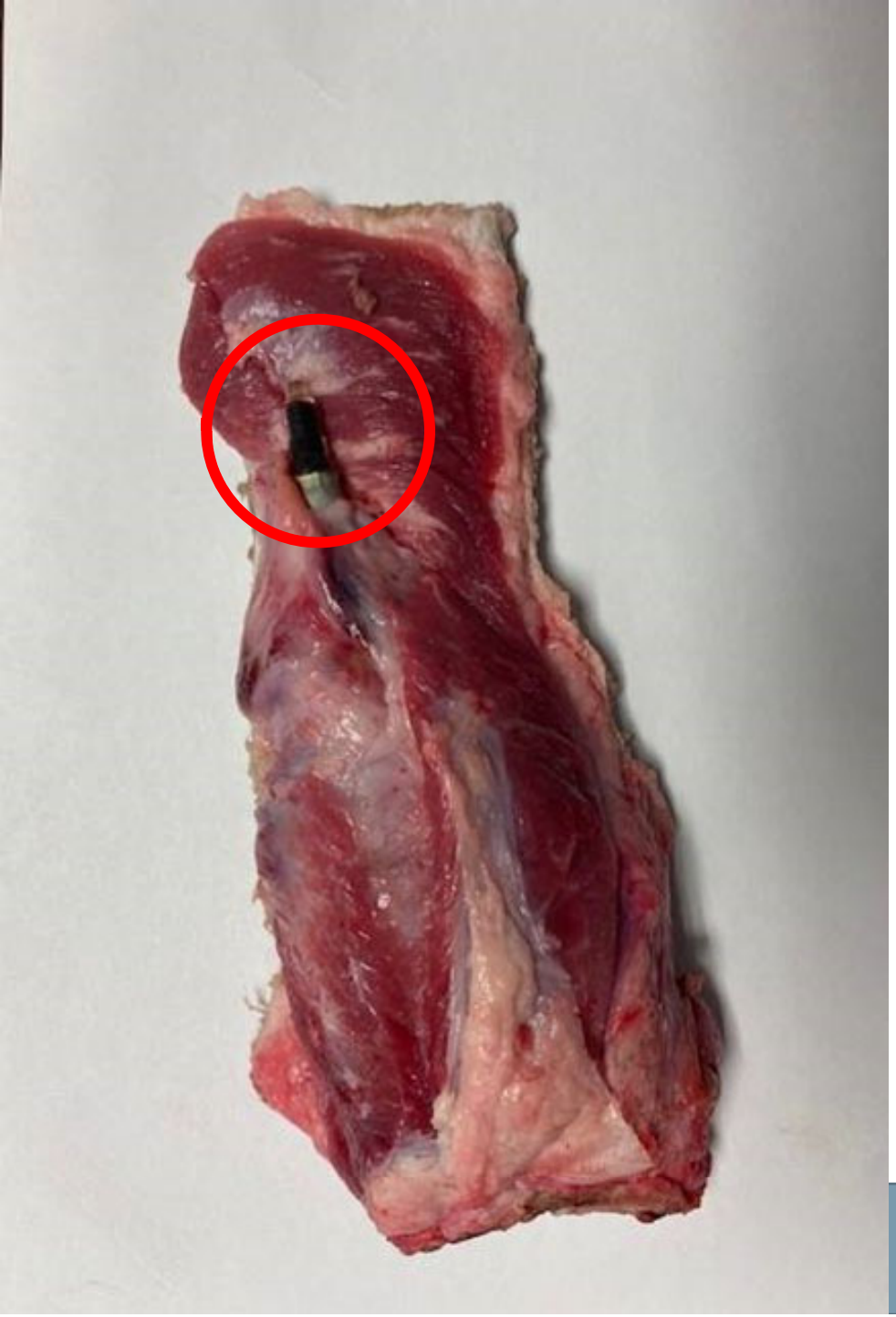
Routes of Administration

SubQ



IM



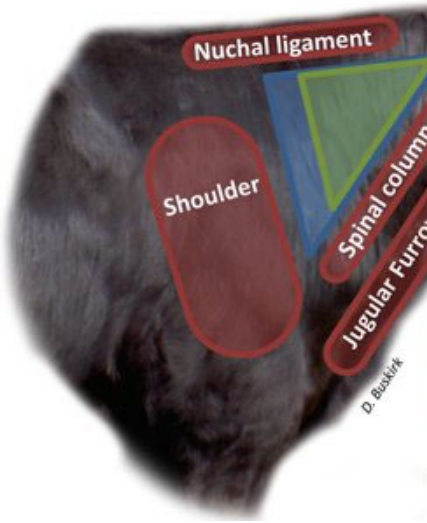


Remote Delivery Devices (D

- BQA strongly discourages using darts for medicati
- Only one dart manufacture offers a ½" dart needle potentially could meet the BQA and FDA requirem medications requiring SQ administration
- Research shows that medication delivery and abs highly variable
  - Poor drug efficacy
  - High potential for violative residues
  - Difficult to ensure proper BQA location
  - Animal welfare consideration for embedded d
- Should not be a replacement for poor/no facilities management

Route of Administration and Dosage

- Deliver subcutaneous (SQ) when possible
- Never administer more than 10 cc per IM injection site
- Limit volume of SQ injections to less than 15 mL per site or as indicated on label
  - Treatment exceptions include fluids for rehydration or calcium supplementation
- Always follow label instructions



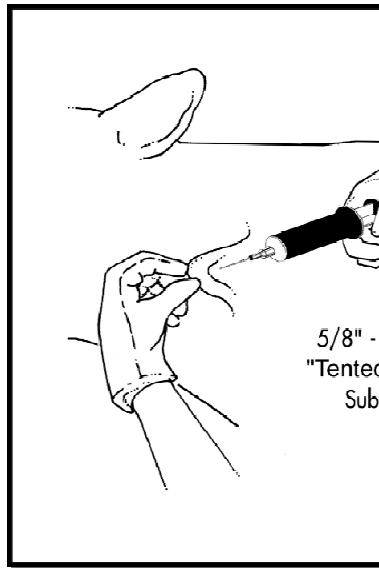


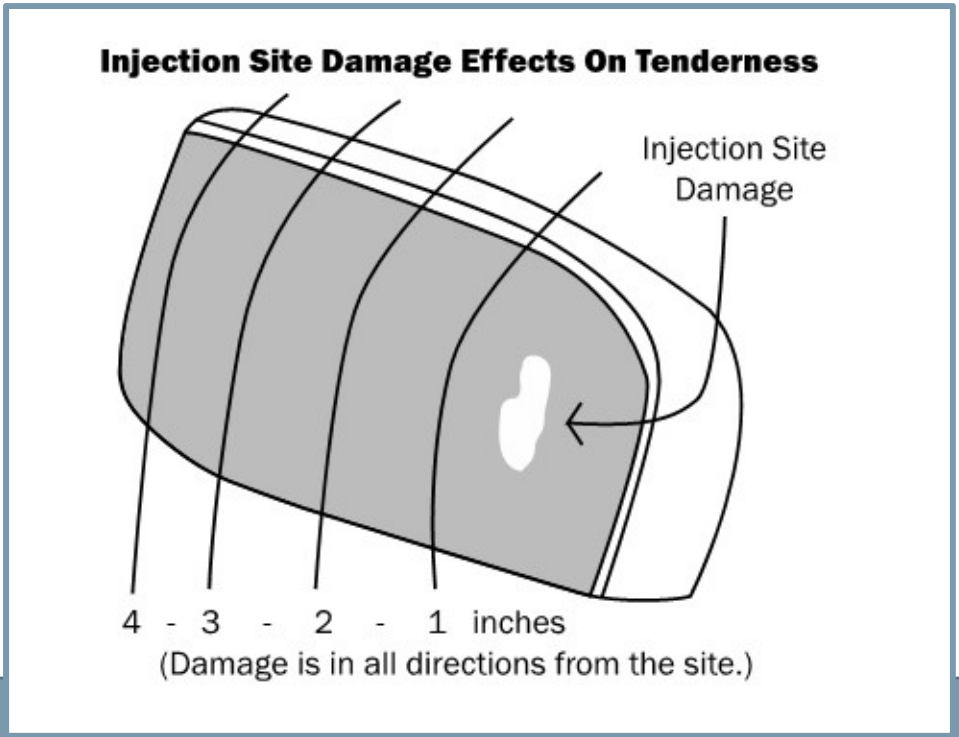
Table 3. Blemish Incidence (I.M. Injections)

Product Type	Dose	Blemish Incidence When Injected at:	
		50 Days of Age *	200 Days o Age
Clostridial	2 ml	73%	46%
Clostridial	5 ml	93%	80%
Vitamin ADE	1 ml	5%	10%
Antibiotics	4.5 ml/100 lb.	51%	92%

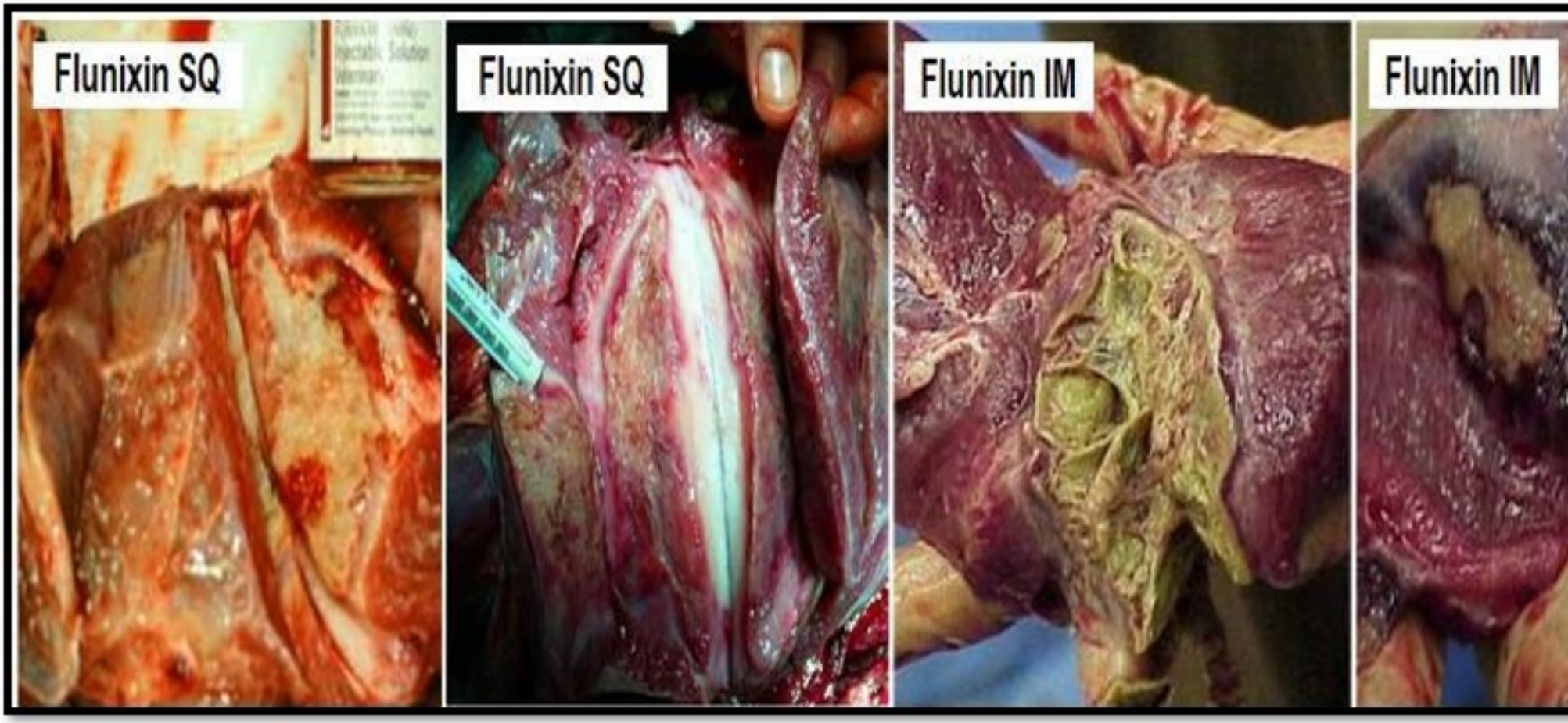
* Calves were harvested 350 days after injections.

Injection Site Lesions

- Lesions will remain with the animal throughout its lifetime
- Anytime a needle is inserted IM it causes muscle tissue damage by creating pus throughout muscle fibers, so ch SubQ if the option is available



SubQ vs. IM





Reason for slaughter or euthanasia

Concerned about maintaining animal welfare (if additional treatment options will not be affective or suffering will be extended without euthanasia)

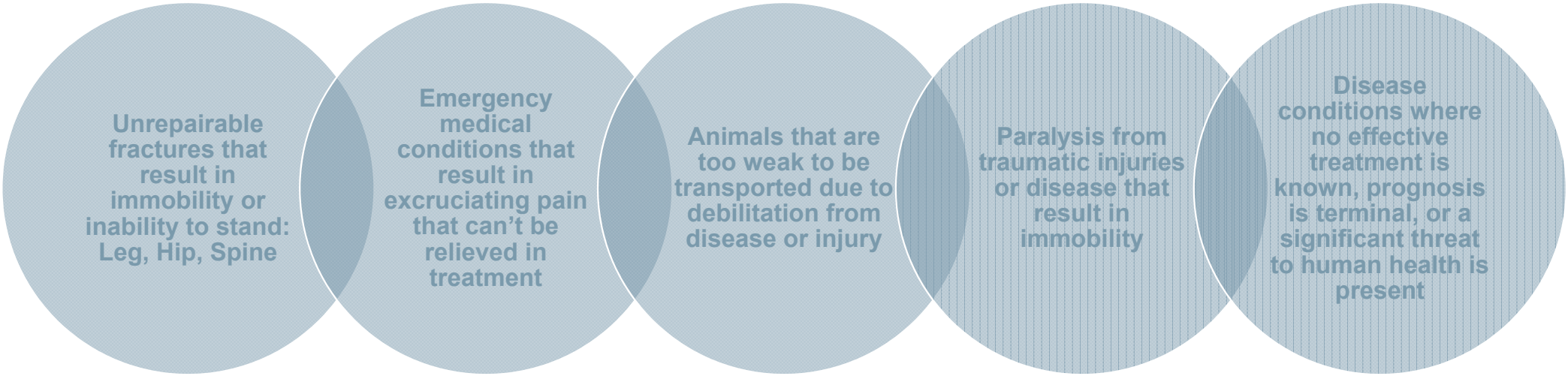
Loss of productive function due to disease or injury in livestock

When considering treatment vs. euthanasia options, assess the following:

- Pain & distress of animal
- Likelihood of recovery
- Ability to get feed and water
- Freely able to stand and walk
- Capable of transportation
- Recent treatment and withdrawal periods
- Economic considerations

When to euthanize

- Death induced by methods that do not cause pain or distress to an animal



Gunshot Method of Euthanasia in Cattle

- Most common method for on farm euthanasia
- Effectiveness depends on
  - Caliber of firearm
  - Type of bullet or shot/shell
  - Accuracy of aim
- Never select a hollow point or other fragmenting bullet for euthanasia

EUTHANASIA METHOD GUIDELINES

Animal/Firearm	Handgun	Rifle	Shotgun
Calves	 .32 to .45 caliber Solid-point bullet (within 1-3 feet)[2,3]	 .22 LR caliber or larger Solid-point bullet	 .410 to 12 gauge #4-6 bird shot or slug (within 3-6 feet)[2,3]
Adult	 .38 to .45 caliber Solid-point bullet (within 1-3 feet)[2,3]	 .22 magnum or higher caliber[1] Solid-point bullet[4]	 20 to 12 gauge #4-6 bird shot or slug (within 3-6 feet)[2,3]

**When possible, properly restrain animal before euthanasia is carried out[3]*

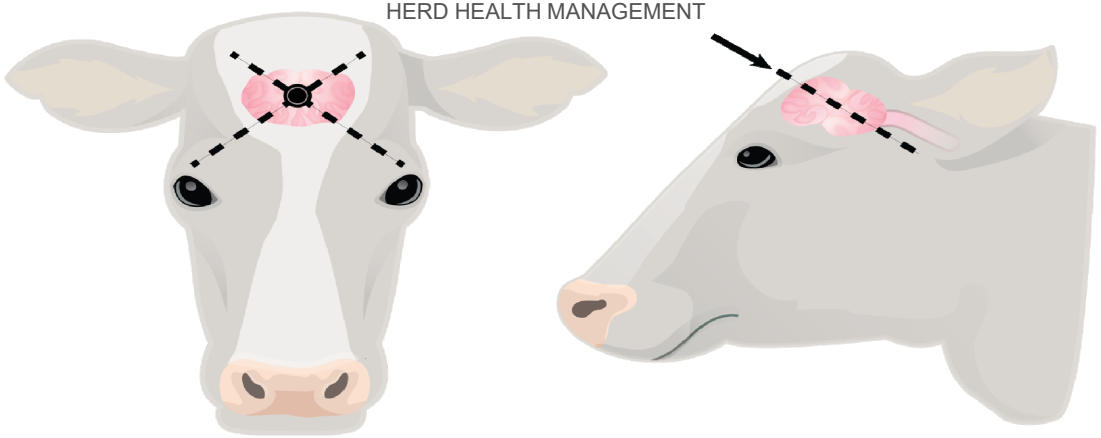
1. 22 LR is discouraged for use in euthanasia of adult cattle because it lacks sufficient ballistic energy to yield consistent results. Higher caliber rifles should be avoided as bullets may exit the body and place by-standers in danger.
2. 2022. AVMA Guidelines for the Euthanasia of Animals: 2020 Edition | American Veterinary Medical Association. [online] Available at: https://www.avma.org/resources-tools/avma-policies/avma-guidelines-euthanasia-animals
3. Shearer, J., Griffin, D., Cotton, S. (2018). Humane euthansia and carcass disposal. Veterinary Clinics of North America: Food Animal Practice, 34(2), 355-374. https://doi.org/10.1016/j.cvfa.2018.03.004
4. Thomson, D. U., Wileman, B. W., Rezac, D. J., Miesner, M. D., Johnson-Neitman, J. L., Biller, D. S. (2013). Computed tomographic evaluation to determine efficacy of euthanasia of yearling feedlot cattle by use of various firearm-ammunition combinations. American Journal of Veterinary Research, 74(11), 1385-1391. https://doi.org/10.2460/ajvr.74.11.1385

Beef Quality Assurance

BEEF

Funded by the Beef Checkoff

Landmarks for Euthanasia



Accepted Techniques:

- Gunshot
- Captive Bolt
- Exsanguination
- Barbiturate Injection
  - Use of a Veterinarian
  - No rendering of the animal
  - Wildlife exposure considerations

Indications of Unconsciousness:

- Animal collapses
- Body and muscles become rigid
- An absence of vocalization and eye reflexes
- Eyelids remain open, facing straight forward
- Immediate and sustained cessation of rhythmic breathing

Confirmation of Death

Criteria	
Lack of pulse	Lack of breathing
Lack of corneal reflex	Lack of response to firm toe pinch (as with hoof tester)
Failure to detect/hear respiratory sounds or heartbeat by use of a stethoscope	Graying of the mucuous membranes
Rigor mortis	
**When situations arise that are not addressed in the guidelines, the well-being of the animal should be evaluation and appropriate actions should be taken.	

- Other than rigor mortis, none of these signs are reliable indications of death
- After initial confirmation of death, recheck the animal for these signs after a 20-minute period

Carcass Disposal

- Must be handled and disposed of in accordance with **local, state, and federal regulations**
- Options may include
  - Rendering
  - Burial
  - Composting
  - Incineration
  - Landfill
- Cattle euthanized using an injectable euthanasia drug overdose CANNOT be accepted by federal regulations for rendering
  - Appropriate disposal of the carcass prevents scavenging and potential toxicity issues among wildlife
  - If possible, ask you veterinarian to complete a euthanasia method without risk of environmental residues

Transportation

Fitness for Transport:

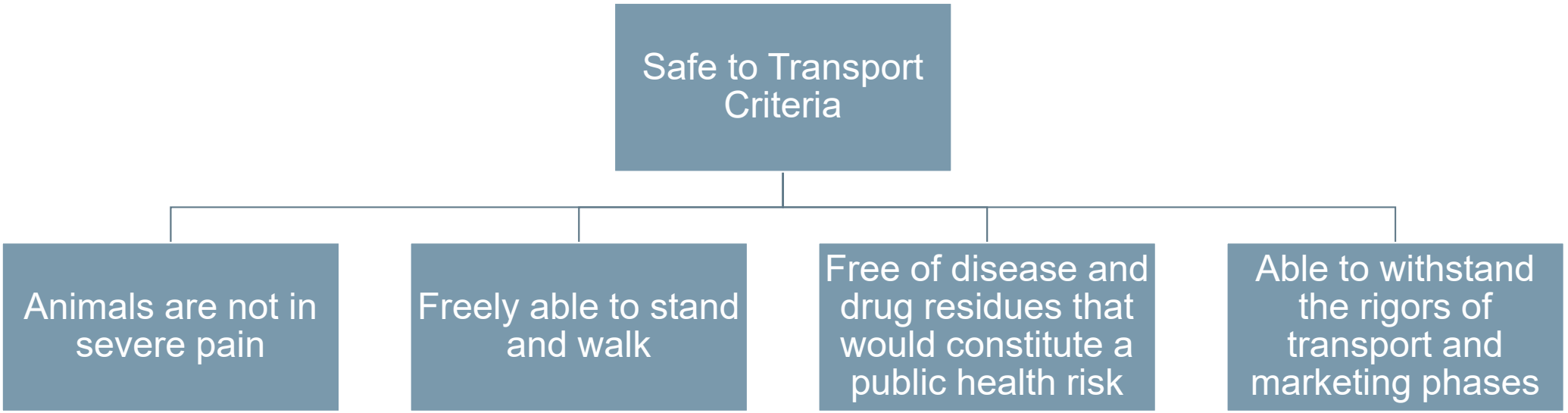
1) Determine if cattle are fit for transport
2) If transport should be postponed to allow for treatment
3) or if euthanasia should be carried out instead

Fitness for Transport:

DO NOT			
Move non-ambulatory cattle to market under any circumstances	Transport cattle or dairy with a BCS of less than 2	Transport cattle that require mechanical assistance to rise and walk except for veterinary treatment	Transport cattle with conditions that will not pass pre-slaughter inspection
Transport cattle to a packing facility until all proper treatment withdrawal times have been followed	Transport heifers or cows where calving is imminent and likely to occur during the transportation or marketing process	Transport cattle with bone fractures of the limbs or injuries to the spine	

DO
Make the decision to treat, cull, or euthanize promptly
Delay transport of any cattle that appear to be exhausted or dehydrated until the animal is rested, fed, and hydrated
Use a BQAT certified transport company that is knowledgeable about your cattle care expectations

Safe to Transport Criteria



DO NOT
market or transport……

- Animals who are or could become non-ambulatory during transit
- Animals with a poor body condition score of less than 2
- Heifers or cows when calving is imminent and likely to occur during transportation or marketing
- Animals that require mechanical assistance to rise and walk
- Animals with bone fractures of the limbs or spine
- Animals with conditions that will not pass pre-slaughter inspection at a packing or processing facility
- Animals that have not met proper treatment withdrawal times

BQAT

For further information on this topic, please refer to the BQA Transportation Certification

- Farmers & Ranchers
- Professional Driver

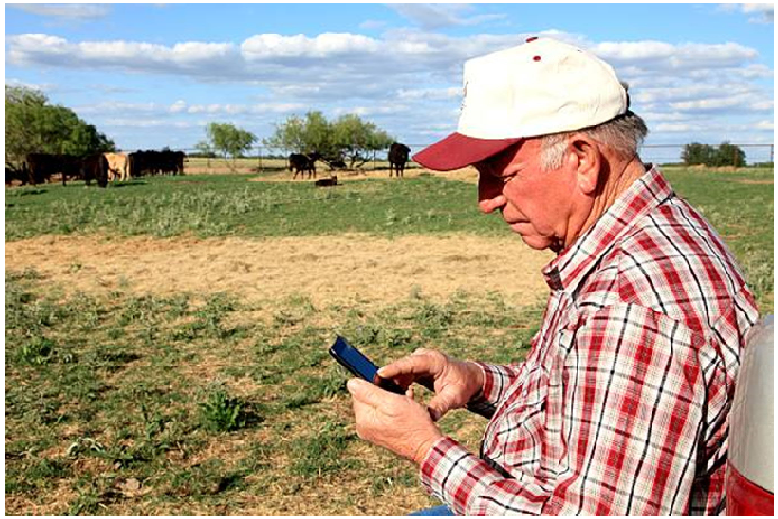
Beef Quality Assurance

TRANSPORTATION

Record Keeping

Types of Records

- Cattle identification
- Health/treatment
- Animal movement
- Feed
- Chemical
- Vehicle/equipment entry and delivery
- Visitor log
- Biosecurity plan

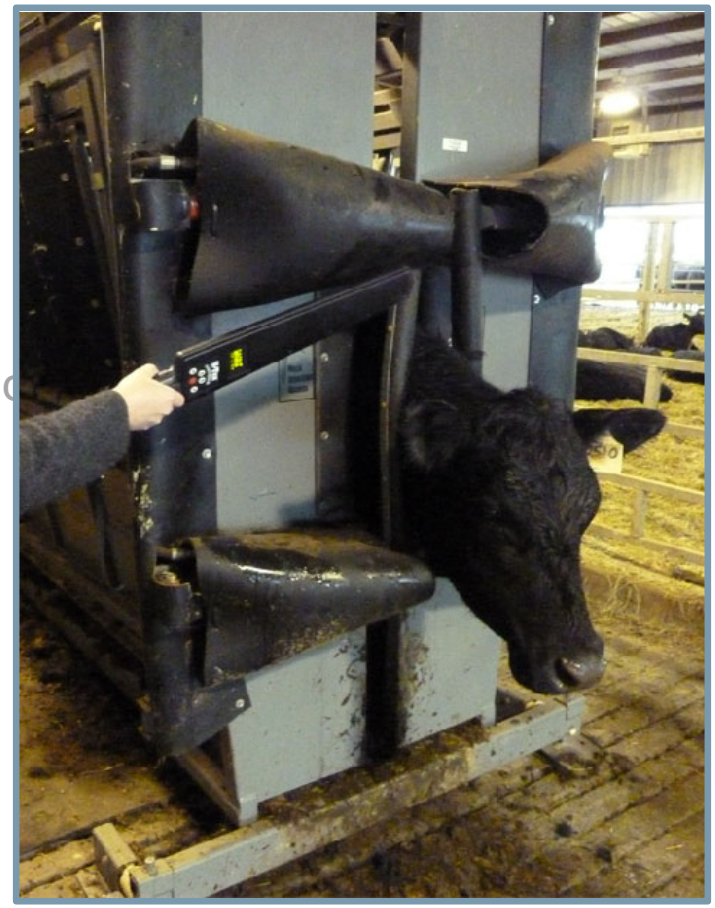


Cattle Identification

- Individual and Group ID
- Permanent ID
- Temporary ID
- Discouraged Methods
  - Wattling, Ear splitting, surgical alterations
- Common methods of identifying cattle
  - Branding
  - Ear-tagging
  - Ear-notching
  - Tattooing
  - Radio frequency identification devices (RFID)

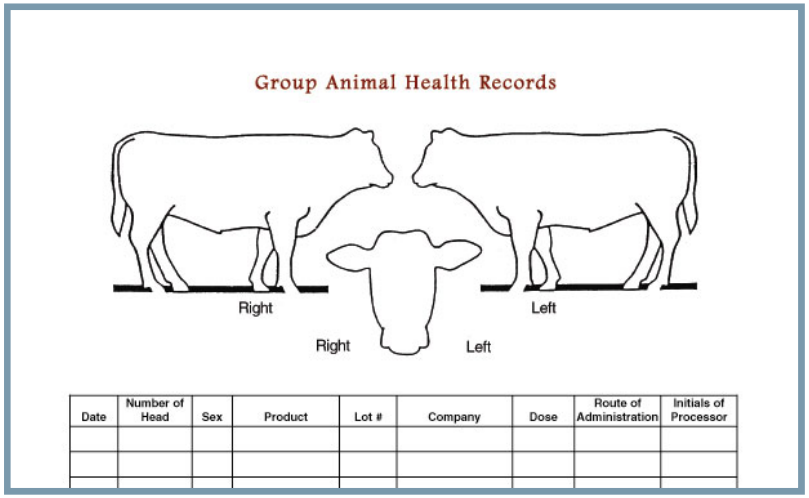
RFID

- Place the tag within the first quarter (from the head) of the animal's ear between the rises in cartilage
- Securely close the tag
- Use compatible front and back tags



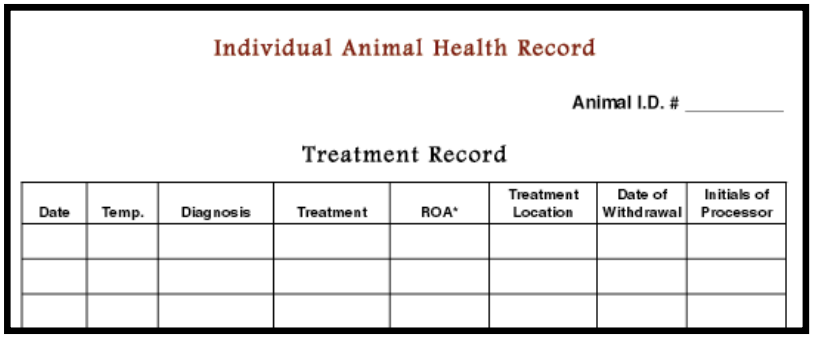
Treatment records should contain the following information:

- Treatment date
- Animal identification
- Withdrawal time to slaughter
- Drug used
- Dosage given
- Route of administration
- Individual who administered the drug



Group Animal Health Records

Date	Number of Head	Sex	Product	Lot #	Company	Dose	Route of Administration	Initials of Processor



Individual Animal Health Record

Animal I.D. # _____

Treatment Record

Date	Temp.	Diagnosis	Treatment	ROA*	Treatment Location	Date of Withdrawal	Initials of Processor

What happens in the plant?

1. Animal arrives at plant
2. UDSA visually inspects for compromised animals
3. Random tests are taken from carcasses
4. If violative residues are found
    1. 1st offense: Warning letter from USDA
    2. 2nd offense: Feedyard can no longer sell to plant and placed on public list of violators

Meeting Withdrawal Times to Avoid Violative Residues

- Withdrawal Time
  - Period of time that must pass between the last treatment and the time an animal is harvested or milk can be sold
  - Each withdrawal time is a full 24 hours after the last treatment
- Violative Residue
  - Presence of veterinary drugs or pesticides in meat
- Read the Labels!

RESIDUE WARNINGS: Cattle must not be slaughtered for human consumption within 8 days of the last treatment. Not for use in female dairy cattle 20 months of age or older, including dry dairy cows; use in these cattle may cause drug residues in milk and/or in calves born to these cows or heifers. Not for use in suckling beef calves, dairy calves, and veal calves. A withdrawal period has not been established for this product in pre-ruminating calves.

Consequences of Violative Residues

- Producers who market animals that test positive for chemical residues more than a single time are placed on a publicly available USDA FSIS Residue Repeat Violator List
- FSIS maintains this list of names and addresses of producers who have more than one meat residue violation in a 12-month period in animals presented for slaughter.

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Cow had 8,000% the legal limit of drug in edible tissue

By News Desk on July 24, 2017

A beef cow-calf operation is on notice from the Food and Drug Administration because of the presence of three drugs in edible tissue samples collected by the U.S. Department of Agriculture. Testing showed residue of one drug at more than 8,000 percent the amount allowed by law.

The Veterinary Feed Directive

- What is the “duration of use” and how does it relate to the "expiration date"?
- The VFD expiration date defines the period of time for which the authorization to feed an animal feed containing a VFD drug is lawful. This period of time may be specified in the approved labeling of a given VFD drug or, if not specified in the labeling, the veterinarian must specify an expiration date for the VFD that does not exceed 6 months (21 CFR 558.6(b)(3)(v)). The duration of use is a separate concept from the expiration date, and determines the length of time, established as part of the approval, conditional approval, or index listing process, that the animal feed containing the VFD drug is allowed to be fed to the animals. This period of time is specified in the labeling of the VFD drug. For example, the currently approved VFD drug tilmicosin has an expiration date of 45 days and a duration of use of 21 days. This means that when the VFD is issued, the client has 45 days to obtain the VFD feed and complete the 21 day course of therapy. It is unlawful to feed the VFD feed to animals after the VFD expiration date (21 CFR 558.6(a)(2)).

The Veterinary Feed Directive- OTC to VFD

- **This would include virtually all feed drugs except dewormers, carbadox, bambermycins, ionophores, bacitracin and a few others**
- Summary- If Ag does not show judicious and accountable use of antimicrobials now, then antimicrobials labeled for prevention and control may be targeted.

Nutrition

1 - Emaciated

- Animal is severely emaciated
- Physically weak
- All ribs and bones structure easily visible
- Extremely rare to see
- Usually affected with a disease or parasitism

2 - Emaciated

- Animal appears emaciated, similar to BCS 1, but not weakened
- Muscle tissue appears severely depleted through the hindquarters and shoulder

3 - Thin

- Animal is very thin
- No fat cover on ribs or in brisket
- Backbone is easily visible
- Some muscle depletion appears evident through the shoulder and hindquarters

Body Condition Scoring

4 - Thin

- Animal appears thin
- No ribs easily visible
- Backbone showing
- Spinous processes (along edge of loin) still sharp but barely visible
- Muscle tissue is not depleted through shoulders and hindquarters

5 – Ideal for Mature Animal

- Animal may be described as moderate to thin
- Last two ribs may be seen
- Little evidence of fat present in brisket, over ribs, or tail head
- No muscle depletion is seen in hindquarter or shoulder area
- Transverse spinous processes are now smooth and no longer identifiable

6 – Ideal for Mature Animal

- Animal has a good smooth appearance throughout
- Some fat deposition is present in the brisket and over the tail head
- Back appears rounded and fat can be palpated over ribs and pin bones

Body Condition Scoring

7 – In Good Flesh

- Animal is in very good flesh
- Brisket is full
- Tail head shows pockets of fat
- Back appears square because of fat
- Ribs are very smooth and covered with fat

8 & 9 – Obese to Very Obese

- Animal is obese
- Neck is thick and short
- Back appears very square because of excessive fat
- Brisket is distended
- Has heavy pockets of fat around tail head
- Have a heavy deposition of udder fat

Body Condition Scoring

Nutrition Basics

- It is easier to maintain body condition than it is to recover body condition
- Start supplementation early rather than late
- Rule of thumb- a cow needs at least 1 # protein daily just to stay alive
- Growth, reproduction are luxuries that will not happen unless extra protein, energy are in diet

Environmental and Quality Control Points

Grazing Plans

- Develop an inventory of grazing resources available
  - Forage amounts & distribution
  - Use inventory to direct management decisions
- Consider personal priorities & other business objectives when making operation level goals
  - Ex) Wildlife habitat preservation
  - Ex) Birdwatching
  - Ex) Growing trophy deer for hunts while also raising cattle

Grazing Management

- Identify periods of grazing, deferment, and rest for each unit
- Balance the stocking density with the targeted forage residual stubble height
- Graze an area for shorter periods and more often
- More and smaller pastures increase management flexibility

Grazing Management

A properly implemented grazing management plan can have significant positive effects including:

1. Increased plant life and diversity
2. Reduced erosion
3. Increased water infiltration and retention
4. Improved soil health and ecological function
5. Improved wildlife habitat
6. Manage invasive species
7. Protect and improve riparian areas
8. Increased carbon sequestration
9. Improved animal health and economics through improved and more abundant forage

Source: NRCS National Range and Pasture Handbook

Pesticide Use Guidelines

- Keep records of all products used
- Use only approved products for targeted application
- **Follow label directions**
- Prevent contamination of feedstuffs, water, and soil
- Use an Integrated Pest Management approach
- Properly store all products
- Triple rinse all containers before disposal

Worker Safety

Why Worker Safety is Important

- Any operation handling live animals can be a dangerous work environment
- *Above all else, human safety is most important*
- Training employees frequently can add value through professional development and improve safety
- Regular training updates should be provided for all employees
- **You** are responsible for the health and safety of your employees and animals while at work
    - Training can reduce liability

Potential Worker Safety Trainings

- Animal Health Product Application
  - How to properly handle, store, and transport vaccines
  - How to appropriately administer medication
  - Thoroughly wash hands after use or wear gloves to prevent absorption
- Biosecurity Plan
  - Understanding each employees' role in ensuring proper biosecurity practices
- Cattle Handling
  - Ensure anyone handling cattle have proper training on animal behavior
  - Utilize herd instinct
- Personal Protective Equipment
  - Ensuring employees understand what PPE is appropriate for the circumstance

Example:
Worker Safety when Processing Cattle

- Ensure workers have gone through a basic animal handling course and understand natural instincts of cattle
- Preparing for treatment or processing of cattle
  - Identifying roles and responsible for each employee
  - Ensuring facilities/equipment are working properly
  - Proper needle handling
  - Proper PPE for employees
  - Identifying post emergency contact information
- During an injection
  - Beware of finger and hand location
  - Stay focused
  - Report all accidental injections immediately
  - Seek medical help if accidental ingestion occurs
- After finishing processing cattle
  - Proper storage/disposal of used medical equipment
  - Wash hands upon completion


Emergency Action Plan (EAP)

Why EAPs are Important

- The threat of emergencies always exists in agriculture
- Emergencies can exist in many forms
  - Human
  - Animal
  - Weather
  - The public
  - Disease
  - Accidents
- EAPs should be posted and easy to locate for all employees
  - Glove compartment of vehicles or equipment

Maintaining EAPs

- It is essential to review EAPs at least on a yearly basis
  - Update contact information for important parties
- Urgency of each incident should be determined for appropriate response
- EAPs can be customized to specific situations
- Utilize your resource team that could include your veterinarian, operation's supervisors, nutritionist, extension specialist, suppliers, BQA state coordinators, state vet, local first responders, NRCS, etc.

Animal Health Emergencies

- Have your herd veterinarian and state veterinarian's contact information readily available
- Train personnel to identify signs of illness and who to report to
- Fill out a BQA Daily Biosecurity Plan for your operation and review annually
- Visit securebeef.org for more information on identifying foreign animal diseases and what to do in the event of an outbreak

Market Cow and Bull Audit

- Market cattle make up 25% of the total U.S. Beef consumption
- The income from market cattle make up that same 15-20% of producer revenues from cattle, making care and marketing of cull cattle important to the overall strategy
- Ground Beef is an important product of market cattle and accounts for 43% of the total beef consumed
- While ground beef is the most common market cattle product, tenderloins, ribeyes, and strip loins are also merchandised from some market cattle
- Market cattle are part of the food system and should be viewed as such!

Key Point

Take care of cull defects early!

Managing to Improve Quality of Market Cows and Bulls

% Plants	Primal Cut
100	Ribs
100	Loin
85.7	Round
85.7	Flank
57.1	Chuck
14	Brisket

Dr. Keith Belk- CSU

Managing to Improve Quality of Market Cows and Bulls

Table 1. Relative importance of quality attributes for cows and bulls

•Trait	Packer	Retailer	Foodservice	Further Processor	GTO1
•Food Safety	56.3%	52.3%	66.4%	62.7%	39.0%
•Lean, Fat and Bone	13.4%	21.2%	11.1%	11.7%	14.0%
•Eating Satisfaction	8.4%	15.9%	8.4%	8.2%	13.0%
•Visual Characteristics	7.8%	6.1%	4.9%	5.3%	10.6%
•Weight and Size	5.4%	1.8%	4.2%	4.9%	9.2%
•How and Where Cattle were Raised	4.5%	1.5%	2.9%	4.4%	7.2%
•Cattle Genetics	4.1%	1.1%	2.1%	2.7%	7.1%

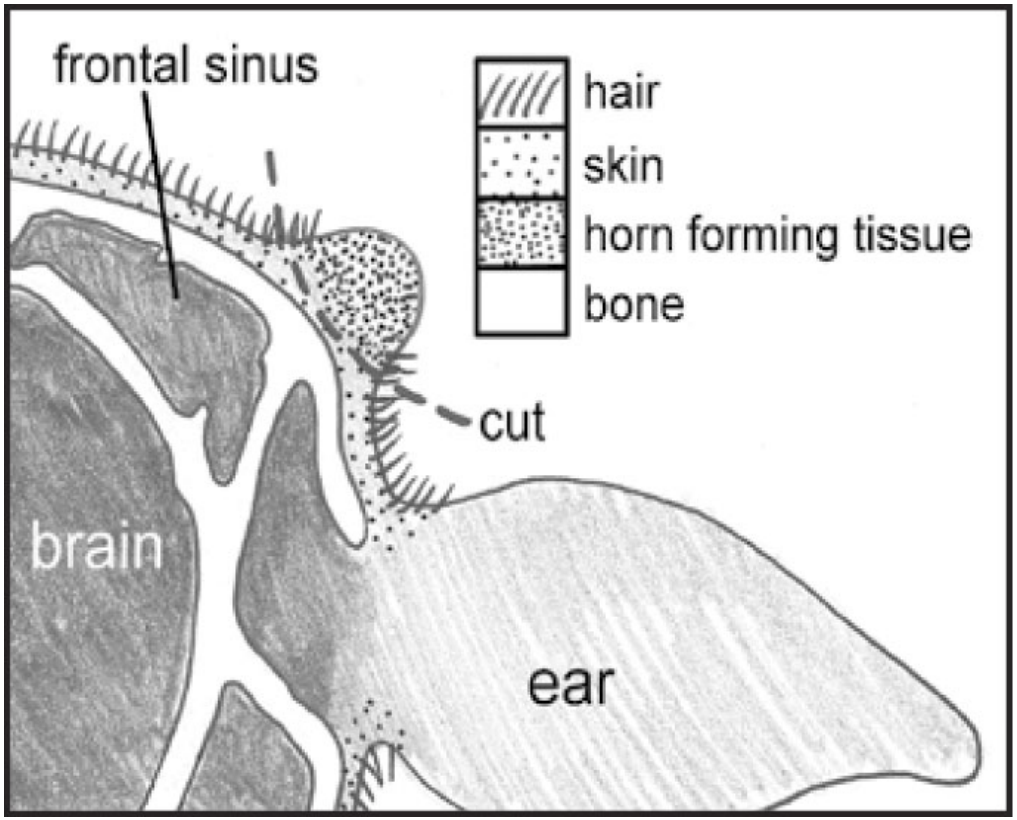
Horns...

Bruising and carcass damage is a major source of financial loss to slaughterhouses in the United States, approximately $46 million per annum.

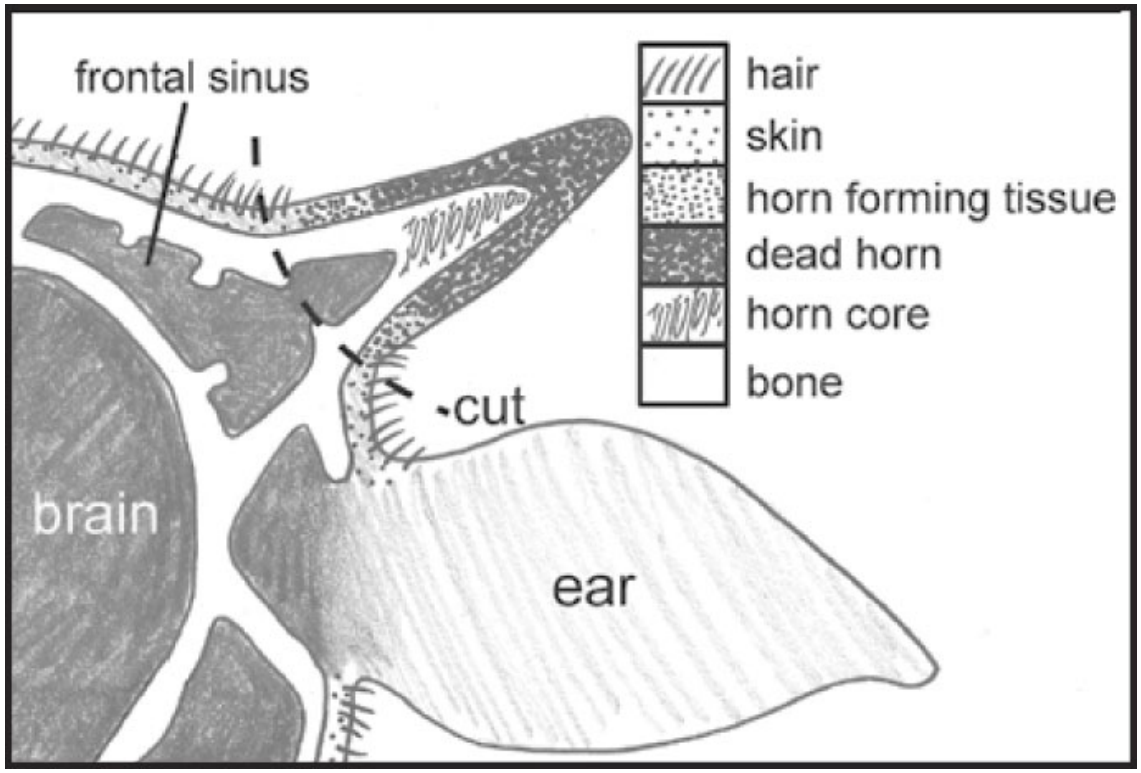
- Temple Grandin

- ✓ Require more bunk space
- ✓ Require more trailer space

DEHORNING – Preferred Time



DEHORNING OLDER ANIMALS



Managing to Improve Quality of Market Cows and Bulls

- Bruise size key
- Minimal < 1 lb surface trim loss
- Major 1-10 lb trim loss
- Critical > 10 lb trim loss
- Extreme Entire Primal

Managing to Improve Quality of Market Cows and Bulls

- Table 5. Frequency of carcass bruise severity over the past twenty-two years in cows.

	1994	1999	2007	2016	2022
COWS					
No bruise	20.3	11.8	36.6	35.9	33.3
Minimal (<1#)	51.5	77.2	36.7	67.3	50.5
Major (1-10#)	53.9	41.7	30.9	45.1	57.2
Critical (> 10#)	30.7	21.6	12.4	4.9	8.1
Extreme (Primal)		2.4	5.4	1.4	1.6

Managing to Improve Quality of Market Cows and Bulls

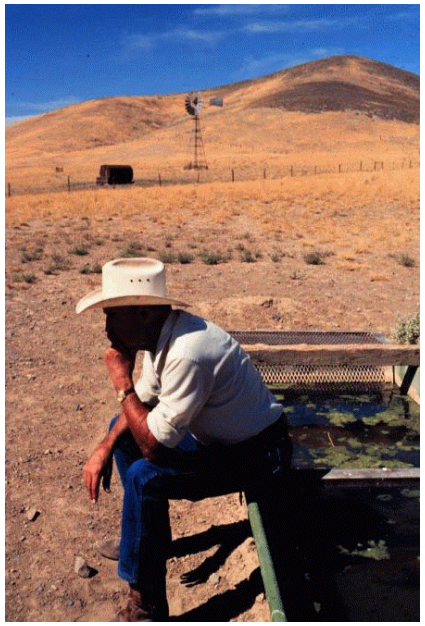
Foreign Objects	**% Plants Reporting**
Buckshot/ birdshot	100
Bullets	18.8
Needles	18.8
Wire	18.8
Darts	18.8
Other	12.5

Managing to Improve Quality of Market Cows and Bulls

We can Do BETTER!!

- Control the things we can….
- Slow down
- Train those handling your cattle
- Teach the future generations correct principles

The End



THINK ABOUT IT!
WOULD YOU EAT WHAT YOU PRODUCE ???