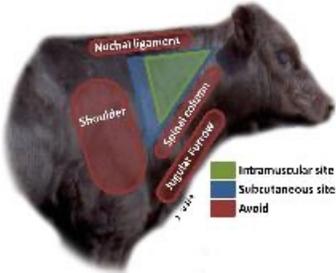
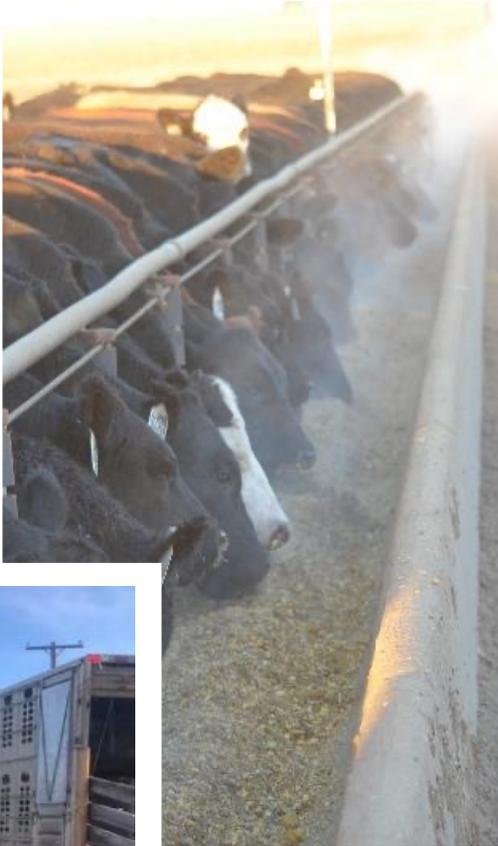
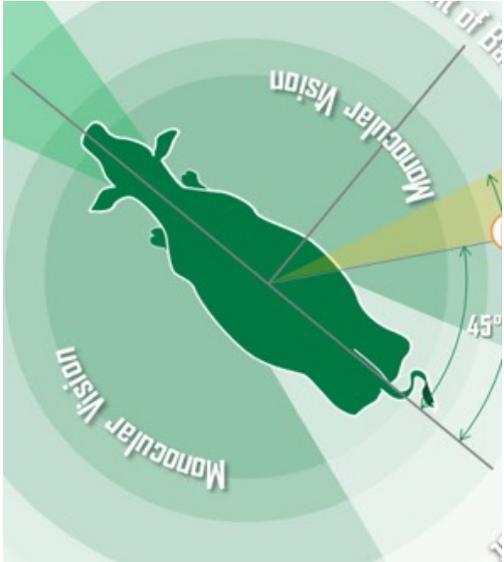


Beef Quality Assurance

Libby Bigler
Colorado State University
libby.bigler@colostate.edu
www.cobqa.org



WHAT IS BQA?





BEEF QUALITY ASSURANCE IS...



- Voluntary
- Producer driven
- Funded by the Beef Checkoff
- Quality control program – based on HACCP principles
- Educational training to build producer awareness
- Based on recommended national guidelines and research

Protecting consumer confidence in beef



BQA Mission Statement



To guide producers towards continuous improvement using science-based production practices that assure cattle well-being, beef quality and safety



Cattlemen concerned about governmental regulation and began investigating ways to ensure production practices were safe and would pass scrutiny of consumers.

Same 3 feed lots certified as "Verified Production Control Feedlots" by FSIS and became the backbone for today's BQA.

First National Beef Quality Audit



USDA-FSIS worked with beef industry to develop Pre-Harvest Safety Production Program.
3 feedlots worked with FSIS to evaluate production practices and assess residue risks.

National BQA

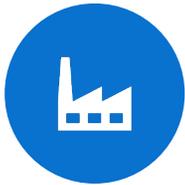
1st State BQA programs

BQA Timeline

Today, BQA programs are active in 46 states!



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



Why is BQA Important?

1. Demonstrates commitment to food safety and quality
2. Safeguards the public image of the beef and dairy industry
3. Upholds consumer confidence
4. Protects from governmental regulation
5. Improves sale value
6. Enhances herd profitability



Forbes

BREAKING

Antibiotics Use In Farm Animals Is Growing—Here's Why It Could Pose A Danger To Humans

Robert Hart Forbes Staff
I cover breaking news.

[Follow](#)

Feb 1, 2023, 02:00pm EST

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CELEBRITIES | ROYALTY | FASHION | LIFESTYLE | BEAUTY | TV & FILM | KINDNESS | SHOPPING | FASHION

Food

Veganuary: 13 brilliant celebrity tips for going vegan in 2023

From beating sugar cravings to maintaining muscle - Venus Williams, Liam Hemsworth and Duchess Meghan spill the beans!

First Action of the year, Stock show / Rodeo Protest!

This is an open page for all non-human animal rights activities (including online), volunteer opportunities, petitions and posts in and out. See more

- Public: Anyone can see who's in the group and what they post.
- Visible: Anyone can find this group.
- Colorado

[Learn more](#)

Popular topics in this group

- #smithfieldDeathstar Pinned by somin · 3 posts
- #earthquake 5 posts
- #turkey 20 posts

[See all](#)

Kimito Sakata added 15 photos and a video to the album: DxE Rodeo Protest 01/06/23

GREELEY/COW SAVE

DEC 22 JBS Slaughterhouse Vigil/Protest
Public · Hosted by Greeley Cow Save

[Interested](#) [Going](#)





"Cargill will also increase to 90 percent the Beef Quality Assurance (BQA) certified feed yards that supply it cattle by 2018..."



"By 2019, we will only source beef from cattle feeders who are Beef Quality Assurance (BQA) certified ..."



"- 50 percent of cattle sourced from feedyards in the NCBA Feedyard Assessment Database by Jan. 1, 2020
- 25 percent of our cattle supply third-party verified in accordance to BQA Feedyard Assessment by Jan. 1, 2020"



Animal Health & Well-Being

- Cow-calf: Are BQA or similar program principles incorporated in management of farm or ranch?
- Feedyard: Are employees trained and BQA principles being implemented at the feedyard?



- BQA Certification Required by January 1, 2019
- BQA Transportation Certification Required by January 1, 2020

BEEF QUALITY OVERVIEW



What is Beef Quality?

In order to meet and exceed consumer expectations, we must have:

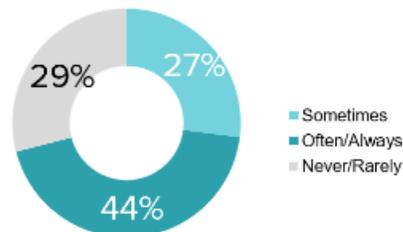
- Product Integrity
 - Food safety, where cattle were raised, animal health, care, handling and wellbeing
- Eating Satisfaction
 - Flavor profile, tenderness and juiciness

Only 27% of consumers self-identify as being familiar with how cattle are raised, yet 71% consider how their food was raised/grown when making purchasing decisions.

Familiarity with How Cattle are Raised



Consider How Food Was Raised/Grown





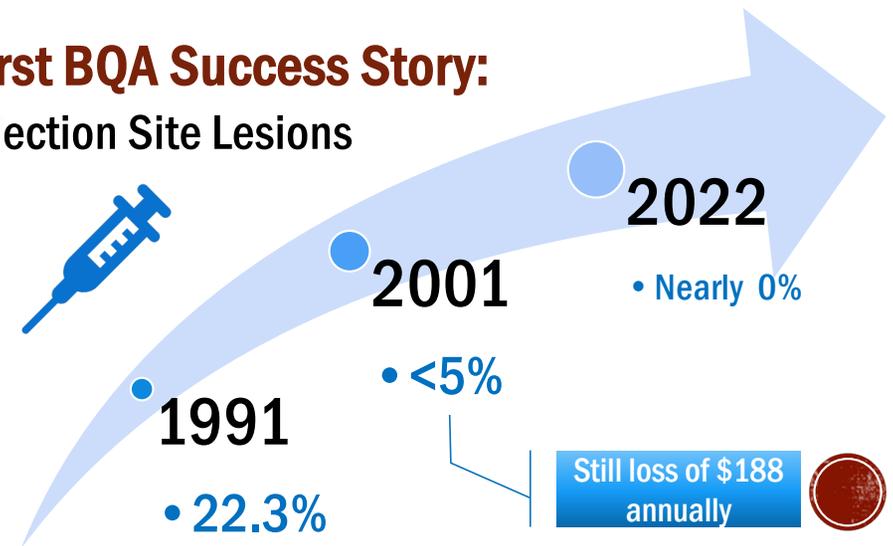
Measuring Quality: National Beef Quality Audits

Every 5 years National Beef Quality Audit (NBQA) is conducted

- Measure to manage
- Benchmark to provide direction to improve quality
- Identify shortfalls to allow greater profit through increasing demand

First BQA Success Story:

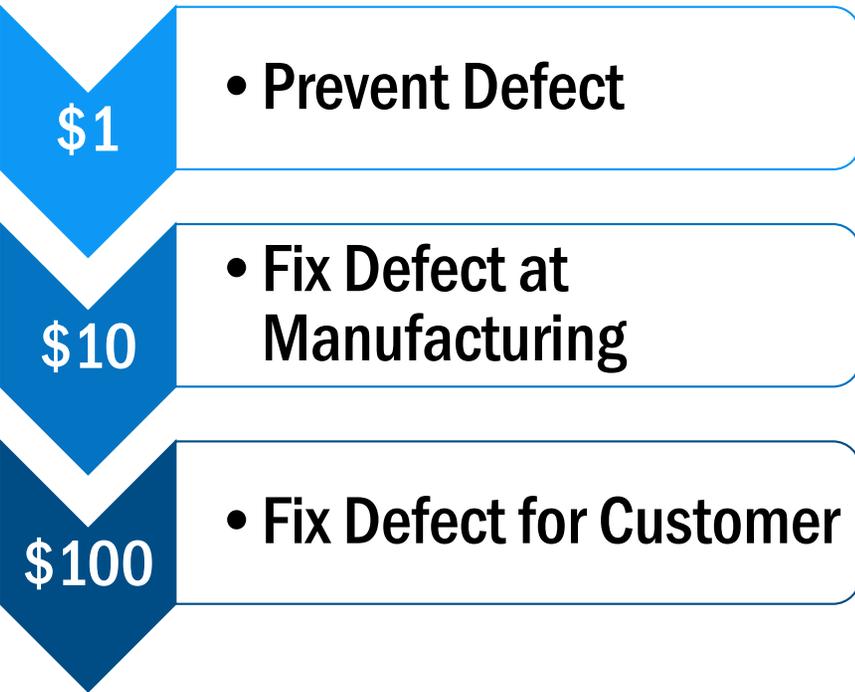
Injection Site Lesions



Quality Defects

We can prevent these by following BQA Guidelines!





Prevention is key to BQA!



Total Quality Management Principles

Adapted from Deb VanOverbeke, 2005



BQA Guidelines

Cattle Care

Biosecurity

Herd Health

Transporting

Record Keeping

Nutrition

Environmental Stewardship

Worker Safety

Emergency Action Planning

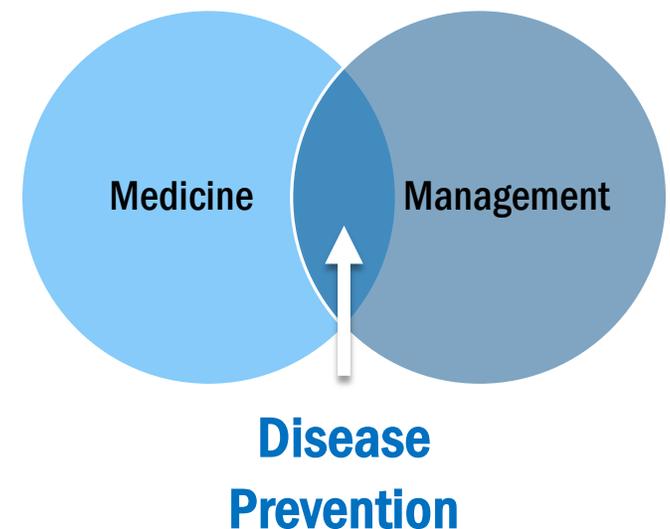




COMPREHENSIVE HERD HEALTH



- Three major factors to keep disease losses to a minimum:
 - Prevent exposure to disease (including biosecurity)
 - Keep disease resistance high (nutrition, management, housing, handling)
 - If disease occurs, prevent it from spreading (segregation, treatment)
- Vaccination is a tool, but not a “cure-all”
- Herd Health Plans need to be tailored to each production situation
- VCPR is key in developing an appropriate Herd Health Plan



VETERINARIAN-CLIENT-PATIENT RELATIONSHIP (VCPR)



- Legally defined & regulated by State and Federal statutes
- Critical to the health of your animals and the profitability of your operation
- Working relationship with veterinarian
- Allows the veterinarian to diagnose and treat animals, prescribe medications, and issue Certificates of Veterinary Inspection (CVIs) or health certificates
- VCPR Required for Rx or ELDU



Animal Health Products



Over the Counter (OTC)

- Approved for use without veterinarian direction, as long as label instructions are followed.

Prescription (Rx)

- Drugs that must be dispensed by or on the written order of a licensed veterinarian with a valid VCPR.

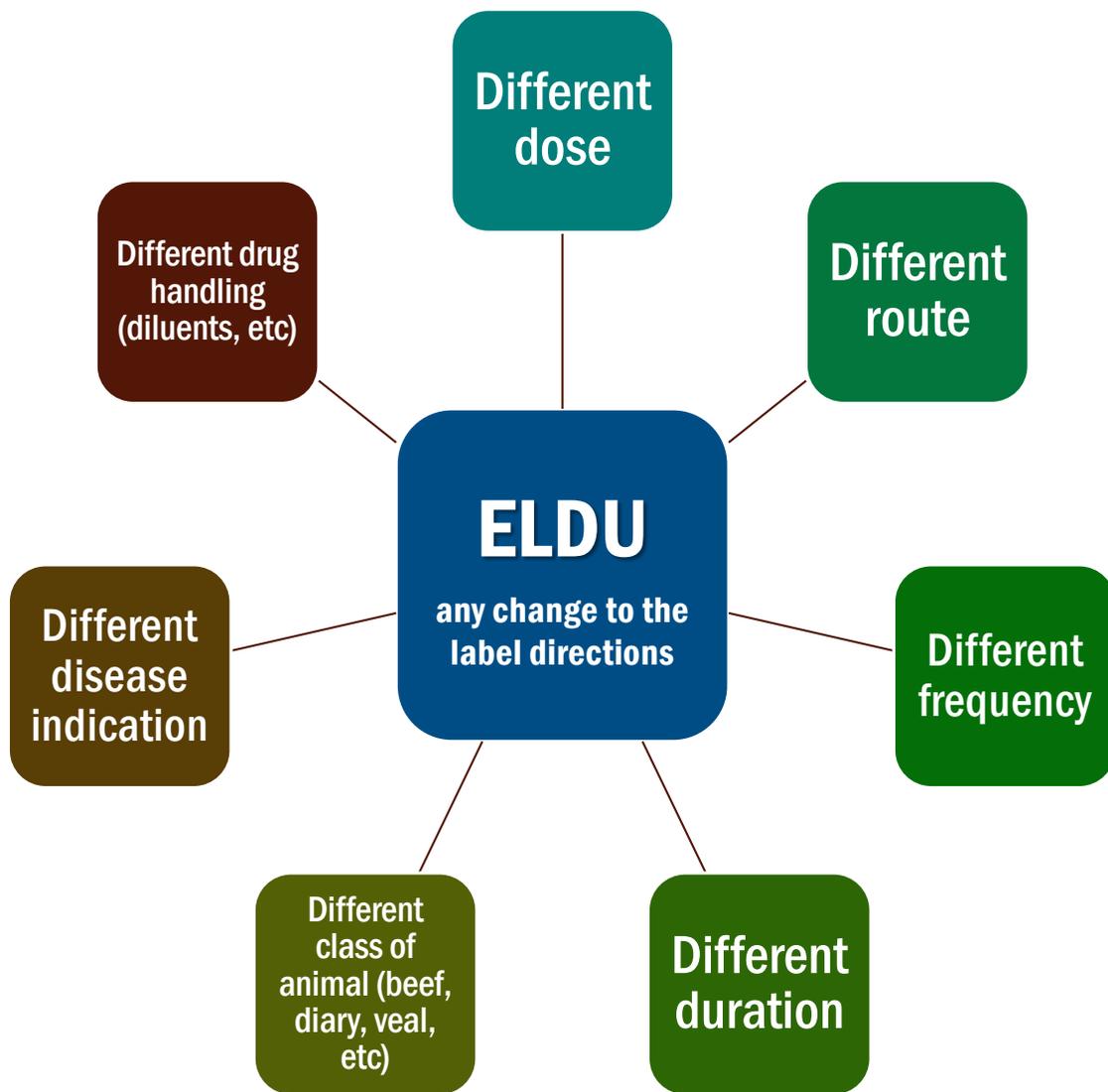
Extra Label Drug Use (ELDU)

- Any use which is not on the FDA approved label. ELDU is prohibited except by order of a licensed veterinarian under a valid VCPR.

Veterinarian:	_____	Phone:	_____
Address:	_____	Date:	_____ Exp: _____
Owner/Farm:	_____	Animal ID:	_____ Species: _____
Active Ingredients/ Concentration:	_____		
Quantity:	_____	Drug Trade Name:	_____
Indications:	_____		
Directions: Give	_____	cc/bolus/oz	_____ times each day for _____ days
Drug Withdrawal Time for Slaughter	_____	days	_____
Test for Residues: Urine	_____	Blood	_____

- ELDU can result in residues or change in efficacy
- ELDU is ONLY permitted under the direction of a veterinarian
- EDLU of certain drugs in food animals is ILLEGAL
- EDLU of feed grade drugs is ILLEGAL





ELDU Examples



Herd Health: Prevention



Vaccines vs. Antibiotics

Vaccine

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

Prevention



Antibiotic

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

Treatment



Vaccines: Prevention tool



Modified Live

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



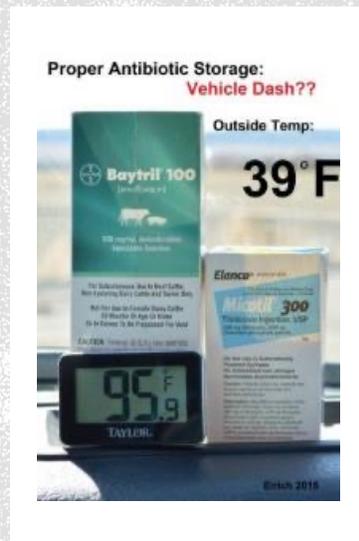
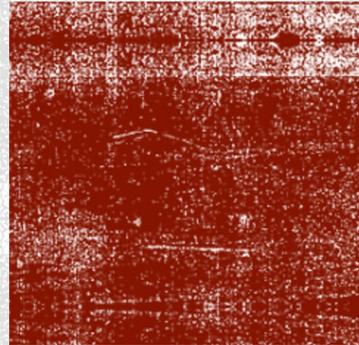
Killed

- The pathogen for the target disease is contained in the vaccine but **is no longer living**



Vaccine Handling

- Animal health products (especially vaccines) are **FRAGILE** & must be stored and handled properly to **ensure they will work!**
- Purchase from a reputable source
- Only purchase the amount needed
- Check the expiration date! Don't use outdated drugs
- Use same day (MLV must be used within 2 hours of mixing)



**Most Vaccines Stored at
35-45°F**



Chute Side Vaccine Handling



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





Prevention: Nutrition



- Consult with a [nutritionist](#) to ensure cattle have access appropriate nutrition
- Ensure cattle always have access to adequate water supply
- Avoid feed/water interruption longer than 24 hrs
- Ensure quality of feedstuffs (monitor, sample, test)
- Do not feed ruminant derived protein products per FDA regulations
- Only feed FDA approved additives





Prevention: Weaning & Preconditioning

Weaning

- High Stress
- 100-205 days
- Creep feed 30 days prior to weaning
 - Increase gain in calves
 - Improve BCS in cows
 - Early adoption of calf bunk feeding
 - Reduces stress

Preconditioning

- Vaccinated, dewormed, broke to feed bunks and waterers, acclimated to group before moving to grass or a feedyard
- **45 day period recommended**
- Increases calf's ability to deal with future stressors and pathogens



Prevention: Management Practices

- **Dehorning/Disbudding**
 - Should be performed while in the “bud” stage – 0-4 months of age or at first handling opportunity
 - Seek guidance from veterinarian on analgesia/anesthesia
 - Selection on polled cattle is an alternative
- **Castration**
 - Should be performed at the youngest possible age prior to grazing or feeding
 - Seek guidance from veterinarian on analgesia/anesthesia
- **Branding**
 - Form of identification (ownership) that supports BQA record keeping guidelines
 - Hot iron and freeze branding should be performed quickly, expertly and with proper equipment
 - Do not brand on face or jaw – hip area recommended



Herd Health: Treatment





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**
- Follow **WITHDRAWAL** periods
- Practice judicious use



Drug Withdrawal Times

Period of time that must pass between last treatment and the time an animal is harvested or milk can be sold

- Unacceptable levels will result in traceback, quarantine, and fines
 - USDA FSIS Repeat Violator List, FDA Warning Letters
- Food Animal Residue Avoidance Databank (FARAD)
 - Can search for withdrawal times for approved food animal drugs

1. Establish minimum withdrawal time for newly processed animals
2. Create a residue screening program for non-performing animals
 - Animals recovering from illness or “chronics” may require additional time to clear w/d

CAUTION:

When administered to cattle, muscle discoloration may necessitate trimming of the injection site(s) and surrounding tissues during the dressing procedure.

WARNINGS:

Discontinue treatment at least 28 days prior to slaughter of cattle and swine. Milk taken from animals during treatment and for 96 hours after the last treatment must not be used for food.

PRECAUTIONS:

Exceeding the highest recommended level of drug per lb of body weight per day, administering more than the recommended number of treatments, and/or exceeding 10 mL intramuscularly or subcutaneously per injection site in adult beef and dairy cattle, and 5 mL intramuscularly per injection site in adult swine, may result in antibiotic residues beyond the withdrawal period.

FSN Food Safety News

Breaking news for everyone's consumption

Home Outbreaks Recalls Directory Events About Us Media Kit Contact Us

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.





Reading Labels

Select products that are administered SQ

Check for side effects

Note withdrawal time

Select products with low dosing

Liquamycin LA-200 (oxytetracycline Injection) is a sterile preconstituted solution of the broad-spectrum antibiotic oxytetracycline. Each mL contains 200 mg of oxytetracycline base of oxytetracycline dihydrate, and on a w/w basis, 40.0% 2-pyrrolidone, 5.0% povidone, 1.8% magnesium oxide, 0.2% sodium formaldehyde sulfoxylate (as a preservative), monoethanolamine and/or hydrochloric acid as required to adjust pH.

Caution: When administered to cattle, muscle discoloration may necessitate trimming of the injection site(s) and surrounding tissues during the dressing procedure.

Warnings: Discontinue treatment at least 24 days prior to slaughter of cattle and swine per the withdrawal period of this product. Milk taken from animals during treatment and for 96 hours after the last treatment must not be used for food.

Precautions: Exceeding the highest recommended level of drug per lb of body weight per day, administering more than the recommended number of treatments, and/or exceeding 10 mL subcutaneously per injection site in adult beef and dairy cattle, and 5 mL intramuscularly per injection site in adult swine, may result in antibiotic residues beyond the withdrawal period.

Dosage:
Cattle: A single dosage of 9 mg of oxytetracycline per lb of body weight (4.5 mL/100 lb) administered subcutaneously is recommended in the treatment of the following conditions: 1) bacterial pneumonia caused by *Pasteurella* spp. (shipping fever) in calves and yearlings, where retreatment is impractical due to husbandry conditions, such as cattle on range, or where repeated restraint is inadvisable; 2) infectious bovine keratoconjunctivitis (pinkeye) caused by *Moraxella bovis*.
Swine: A single dose of 9 mg of oxytetracycline per lb of body weight (4.5 mL/100 lb) administered intramuscularly is recommended in the treatment of bacterial pneumonia caused by *Pasteurella multocida* in swine, where retreatment is impractical due to husbandry conditions or where repeated restraint is inadvisable.

Refer to Package Insert for Complete Directions
Storage: Store at room temperature 15° - 30°C (59° - 86°F). Keep from freezing.
Restricted Drug (California) - Use Only as Directed
Not For Human Use



(oxytetracycline injection)

Antibiotic

Treat only classes of cattle approved on label

Each mL contains 200 mg of oxytetracycline base as oxytetracycline dihydrate.

For the treatment of disease in beef cattle; dairy cattle; calves, including preruminating (veal) calves; and swine.

For animal use only.

Net Contents: 250 mL

NADA # 113-232, Approved by FDA

056028Z0





Residue Avoidance Strategy

- ID all animals treated
- Record
 - Treatment date
 - Drug & dose administered
 - Product serial/lot number
 - Approximate weight of animal
 - Route & location of administration
 - Earliest date the animal would clear withdrawal period
- Select drugs with short withdrawal time when antibiotic choice is equivalent
- No more than 10cc per injection site
- Never mix antibiotics and/or anti-inflammatories in same syringe
- Check ALL records before marketing
- Extend the withdrawal time to the longest withdrawal period of all products given
- Cattle with a compromised health status may require additional time beyond the labeled withdrawal time to metabolize animal health products
 - Consult a veterinarian to assess violative residue risk in these situations

Practice JUDICIOUS use!



Medicated Feed Guidelines



Only feed FDA approved additives

Feed only at recommended rates

No ELDU allowed for medicated feed additives

Ensure all additives are withdrawn at the proper time.

ID treated animals or groups

Keep records indicating:

- Additive used, date run, ration name or number, name of person adding the additive, and amount produced

Larger beef operations may be required to register with FDA – FDA 1900 permit

Ruminant Feed Ban:
Prohibits use of ruminant derived animal protein (meat and bone meal) in any feed fed to cattle



Herd Health: Biosecurity



BIOSECURITY VS. BIOCONTAINMENT

Biosecurity

- Prevent intentional **induction** of pathogens into an operation
 - Post security signs
 - Establish buffer zone or perimeter fence
 - Secure gates and access points

Biocontainment

- Prevent the **spread** of disease on an operation
 - Cross contamination – animal to animal, animal to feed, animal to equipment
 - Fluids (feces, urine, saliva, etc)





Aerosol



Direct Contact



Fomite



Oral



Vector-borne

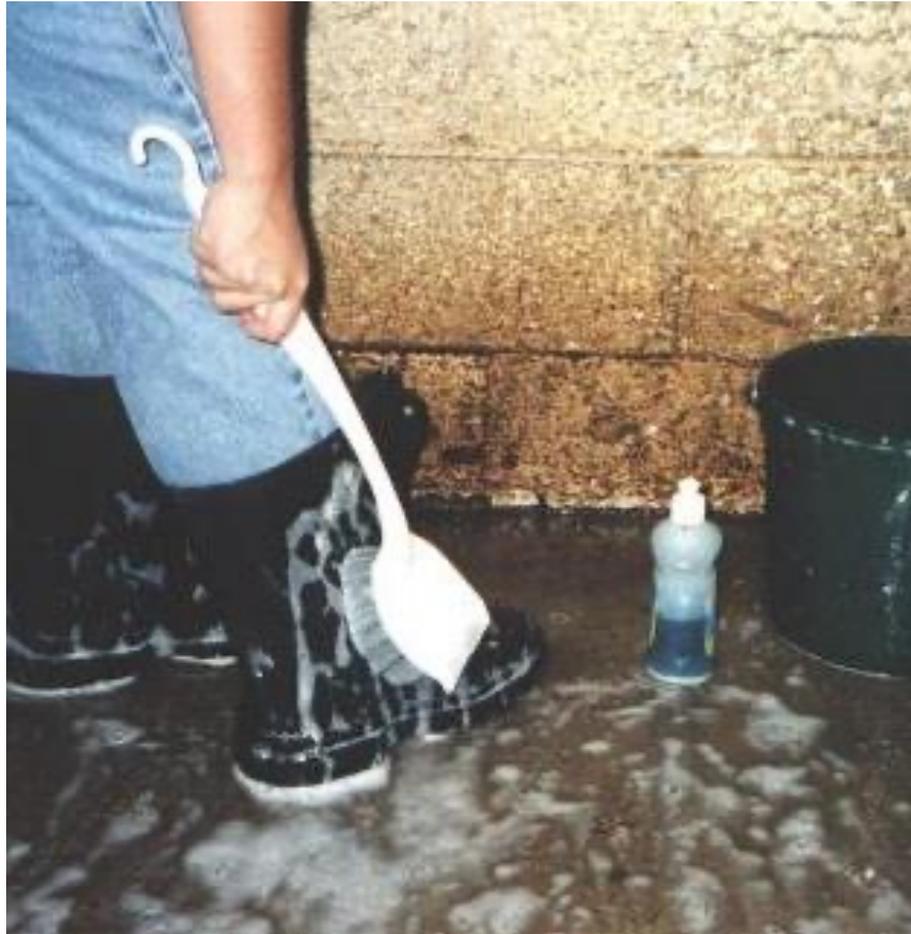


Zoonotic



**How could
disease
spread on
your
operation?**





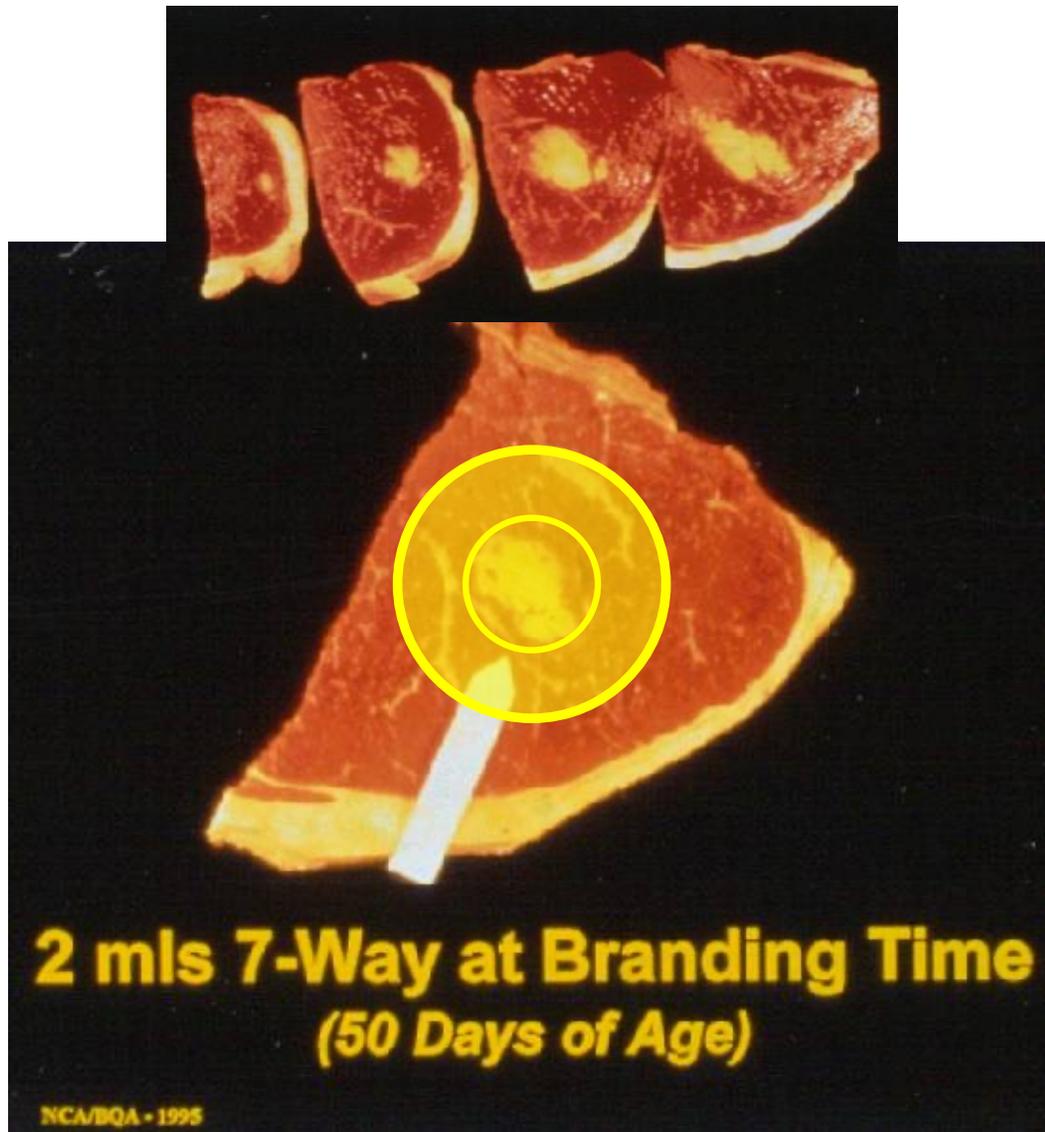
EVERYDAY BIOSECURITY PRACTICES

- Vaccinate, isolate sick animals, minimize fence line contact, keep records
- Quarantine new animals
- Have an insect/rodent control plan in place
- Provide timely manure and dead animal removal
- Clean and disinfect regularly
- Provide visitors with clean clothing and footwear



Herd Health: Injection Management





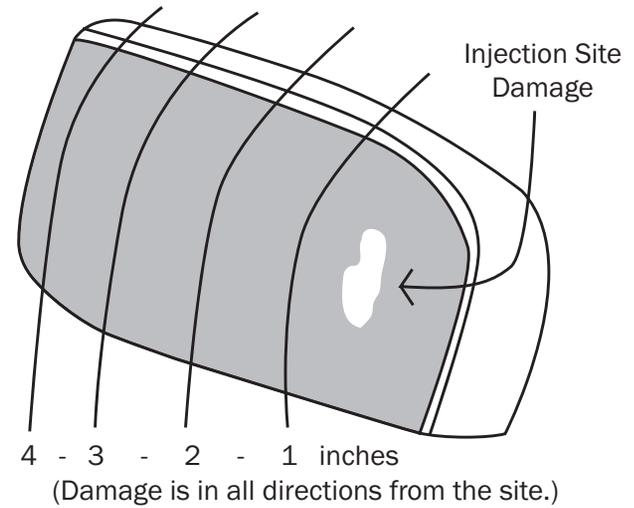
Injection Site Lesions

- Lesions have a negative affect on tenderness.
 - Eating satisfaction
- Lesions will remain with the animal throughout its lifetime



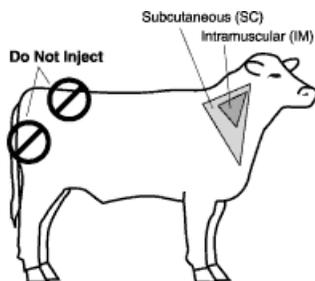
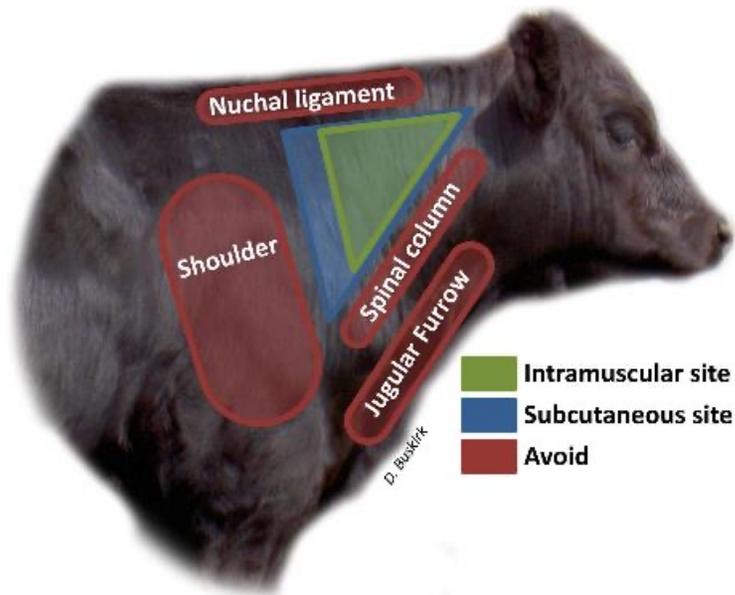


Injection Site Damage Effects On Tenderness









Approved Injection Site

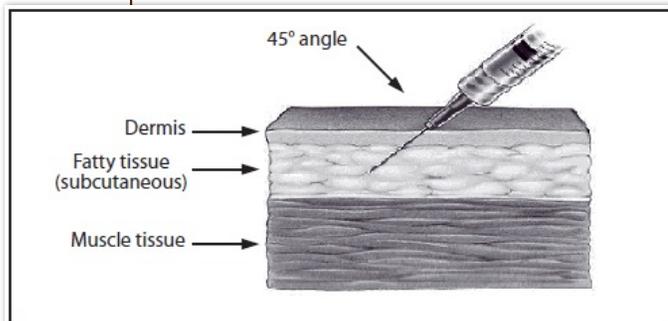
- Only three locations a needle should be inserted into cattle:
 1. Neck (Sub Q, IM)
 2. Jugular Vein (IV)
 3. Ear (Implant)
- Sub Q, IV or Oral are preferred
- No more than 10cc per injection site
- 4 inches between each injection site



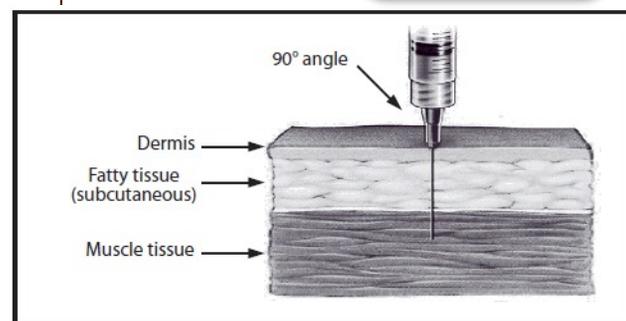
Routes of Administration - Injections



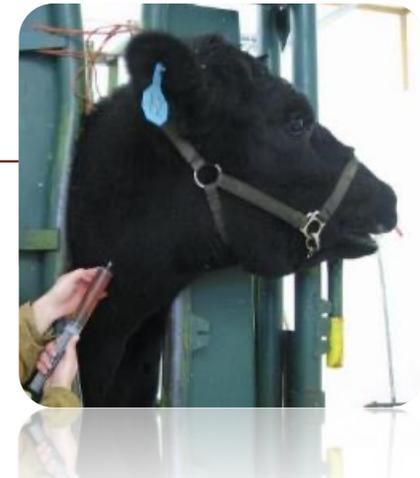
Subcutaneous (SubQ)



Intramuscular (IM)



Intravenous (IV)



Other Routes of Administration



Oral



Intranasal



Topical





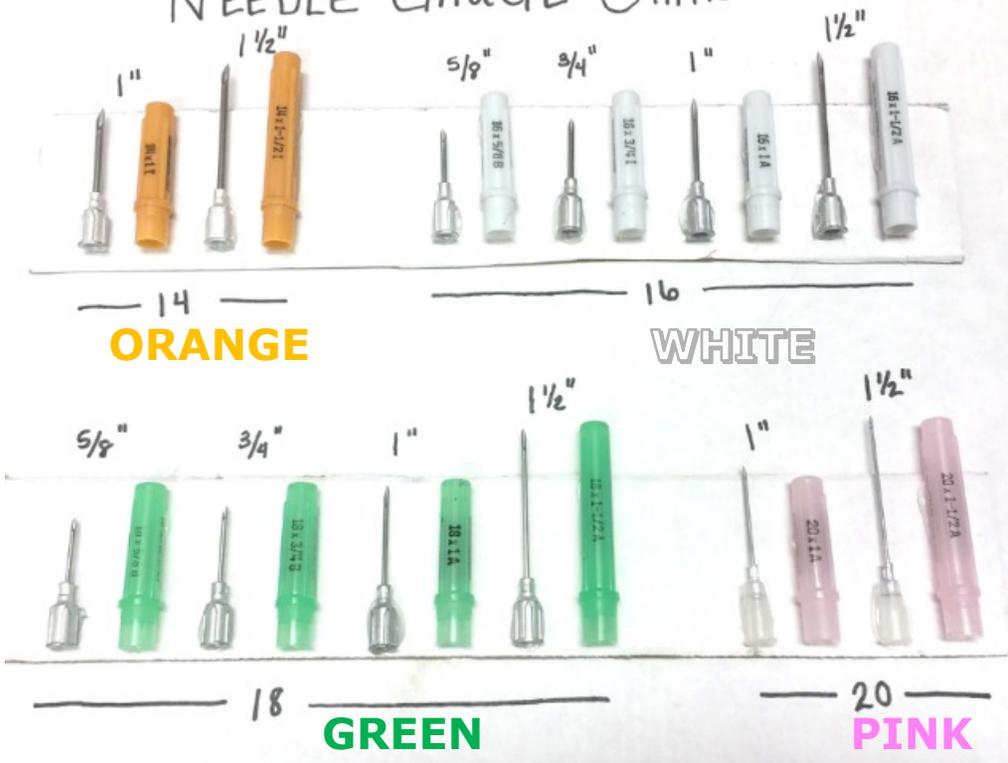
Needle Selection

- Route of administration labeled for product
- Size of the animal
- Viscosity of the fluid
- Volume/Amount injected

Never larger than necessary to adequately perform the injection!



NEEDLE GAUGE CHART



Route of Administration

Injectable Viscosity	SQ (1/2 to 3/4 inch needle)			IM (3/4 to 1 inch needle)			IV (1 to 1 1/2 inch needle)		
	Cattle Weight			Cattle Weight			Cattle Weight		
	< 300	300-700	> 700	< 300	300-700	> 700	< 300	300-700	> 700
Thin Example: Most Vaccines	18 gauge	18-16 gauge	16 gauge	20 -18 gauge	18-16 gauge	18-16 gauge	18-16 gauge	18-16 gauge	16-14 gauge
Thick Example: Thick Antibiotics	18-16 gauge	18-16 gauge	16-14 gauge	18-16 gauge	18-16 gauge	16 gauge	18-16 gauge	18-16 gauge	16-14 gauge

SELECT THE NEEDLE TO FIT THE CATTLE SIZE (USE THE SMALLEST PRACTICAL SIZE WITHOUT FEAR OF BENDING)

DG2015



Needle Use & Handling



Clean injection site

Single use needle preferred

- Do not clean with disinfectant and reuse (especially for vaccinations)

Contents of bottle sterile

Don't store needle and syringe in top of bottle

Don't put needle back into bottle once it has been used

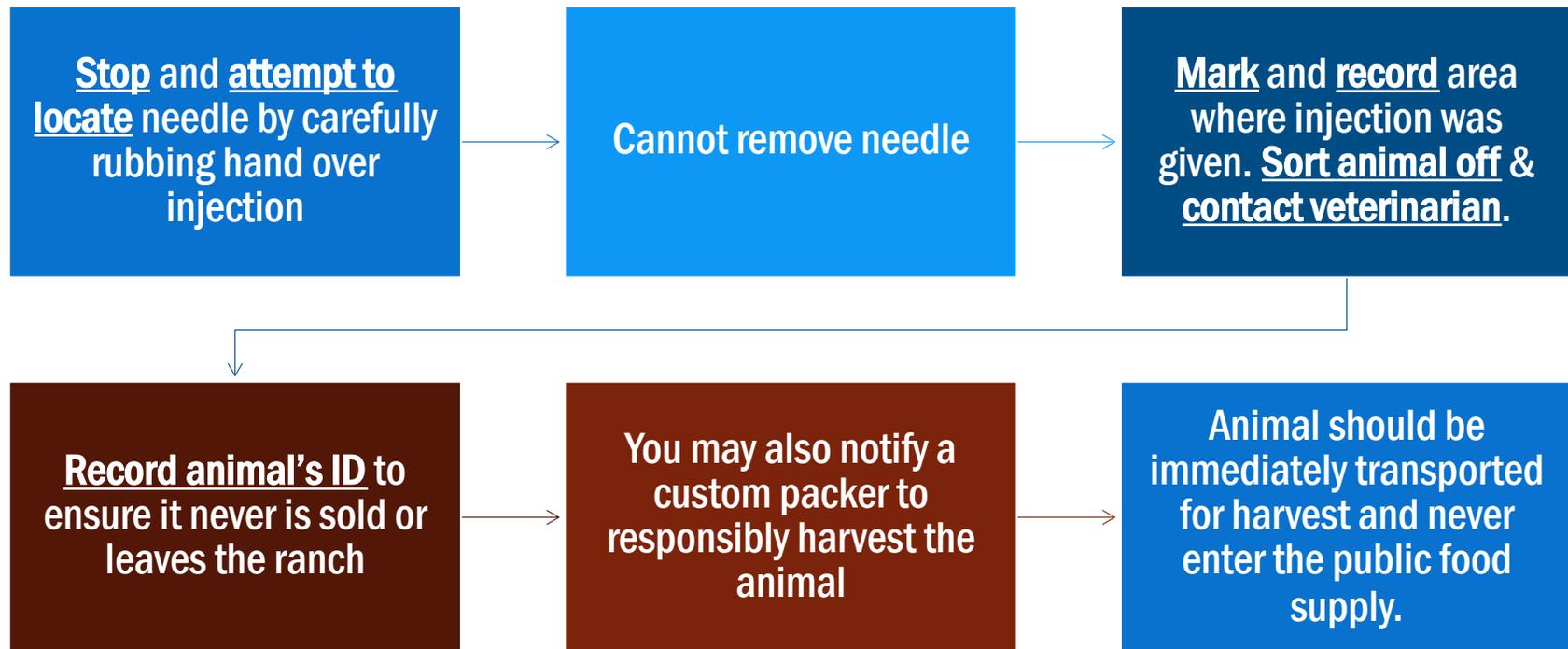


Changing Needles

- Change needle every **10-15** head
 - With every automatic syringe refill
 - Anytime a needle is bent
 - Anytime a needle becomes contaminated
 - If the point becomes burred
- Purchase high quality needles

Do not sell or send animals with a broken needle to packer!

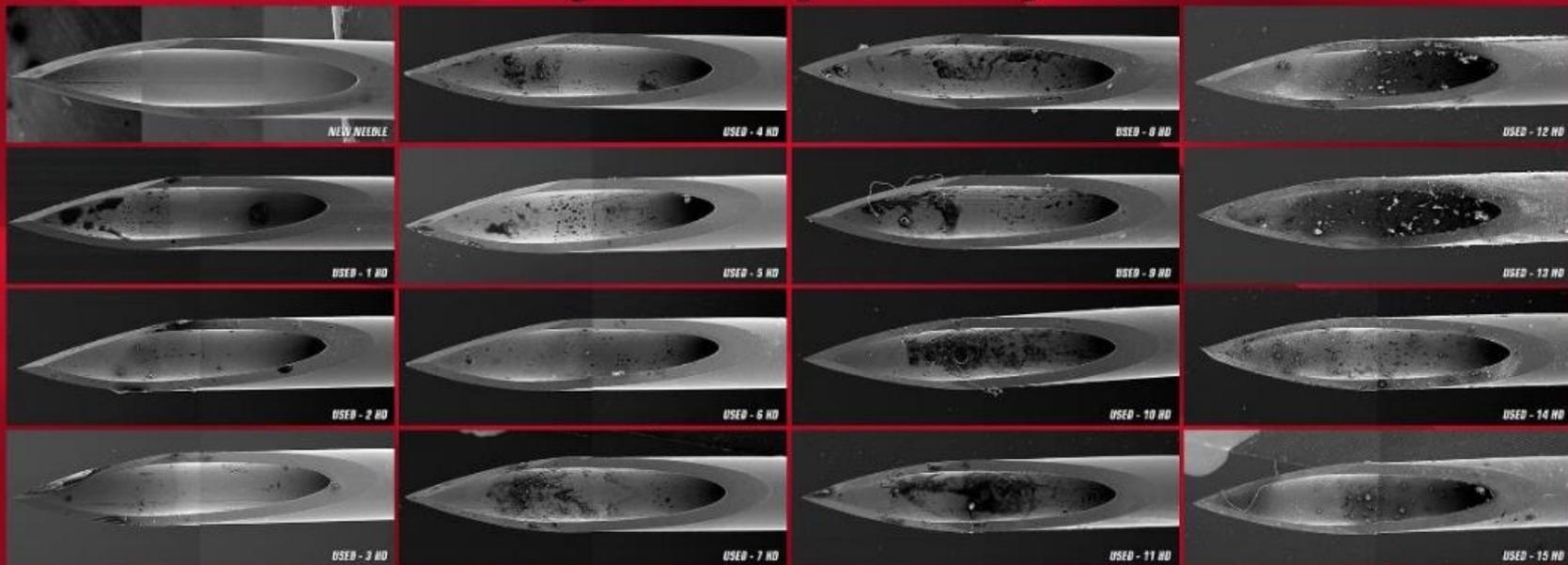




Broken Needle Procedure



How often do you replace your needles?



Proudly Producing Safe, Wholesome and Healthy Beef





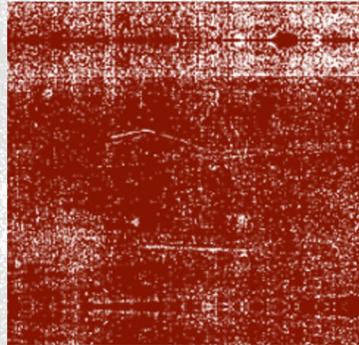
Needle Disposal

- Sharps container
- Local, state and federal EPA guidelines for sharps
 - Seal and dispose of in landfill





Cleaning Equipment



- Use disposable needles and syringes
- Heat-sterilize reusable equipment by boiling
- Do not contaminate modified live virus products with disinfectants (such as rubbing alcohol)



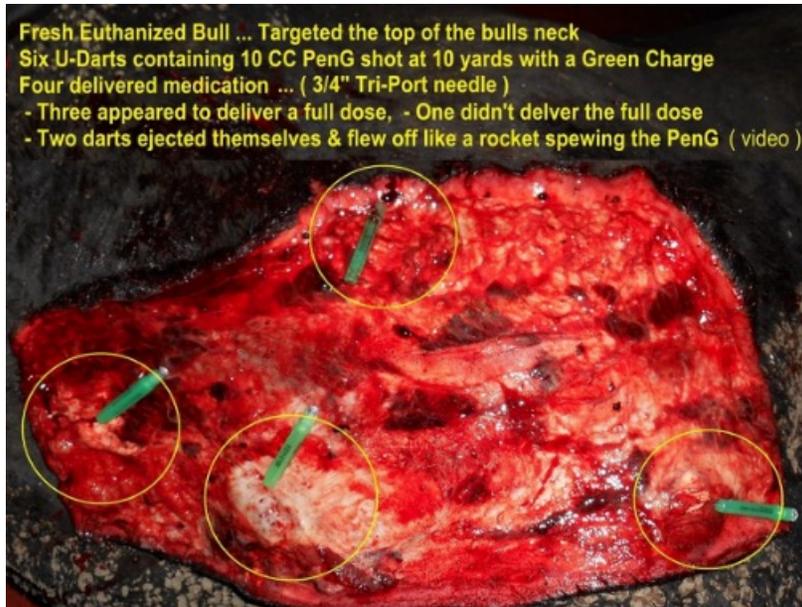


Remote Delivery Systems

Dart Guns - BQA Approved?



Remote Delivery Systems – Dart Guns



■ BQA Concerns

- Proper Injection Site
- Correct Route of Administration
- Correct Dosage
- Broken Needles in Muscle/Carcass
- Welfare of the Animal

One tool in your toolbox, but must be used responsibly!

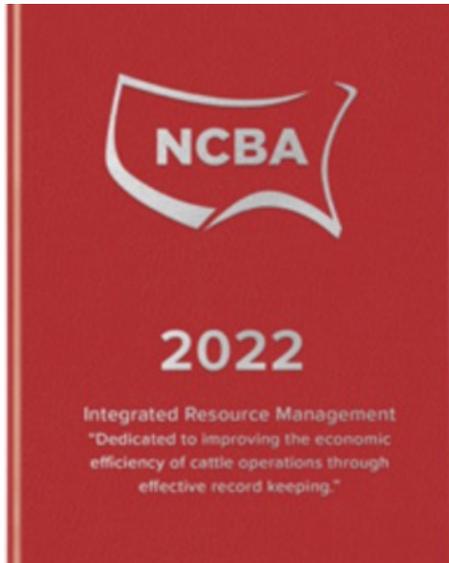






RECORD KEEPING





Types of Records



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



Cattle Identification



- Individual or Group ID
- Permanent ID
 - Branding
 - Ear Notching
- Temporary ID
 - Ear-tagging
 - Radio Frequency ID devices (RFID)
- Strongly discouraged: wattling, ear splitting and other surgical alterations



Health/Treatment Records

- Date
- Animal or Group ID
- Weight or group average weight
- Product administered
- Product lot/serial number
- Earliest date animal could clear withdrawal time
- Dose
- Route of Administration
- Location of Injection
- Name of person who administered treatment

Maintain all records

2 years

from the date of transfer or sale!



Feed and Water Analyses

Feed ration formulation and sampling protocol should be developed in consultation with a ruminant nutritionist. Analyses of feedstuffs and complete mixed rations is the means of quality control for the nutritional program. Timely, proper sampling is key. Frequency of sampling and analyses of feed commodities will depend, among other things, on the varied origins of commodities, frequency of delivery of commodities to the operation, and stability (i.e. moisture content) of the commodities. Frequency of sampling complete diets will depend on how often ingredients change, stability of ingredients, and confidence in ration mixing and delivery procedures. Additional sampling guidelines can be found in the Appendix.

Water is also a key nutrient. Periodic sampling to monitor water quality can reveal possible issues with mineral levels, nitrates, and other factors that can influence consumption, nutrient absorption and performance.

Sampling and Analyses

Harvested and purchased hay

Hay sources are sampled at harvest at delivery when utilized
Hay sources are sampled once only repeated, if so please describe

Analyses include: moisture crude protein fiber energy minerals
 Other, please list _____

Harvested and purchased silage

Silage sources are sampled at harvest at delivery when utilized
Silage sources are sampled once only repeated, if so please describe

Analyses include: moisture crude protein fiber energy minerals
 Other, please list _____

Concentrated feed commodities

Grain commodities are sampled at harvest at delivery when utilized
Grain commodities are sampled once only repeated, if so please describe

By-product feeds

Analyses include: moisture crude protein fiber energy minerals
 Other, please list _____

By-product feeds are sampled: at delivery when utilized
 once only repeated, if so please describe

Analyses include: moisture crude protein fiber energy minerals
 Other, please list _____

Supplements rely on manufacturer's specifications
 sample and analyze, if so, once only repeated, if so please describe

Total mixed rations

Mixed rations are sampled at mixer from the bunk
Mixed rations are sampled daily weekly other, please describe

Analyses include: moisture crude protein fiber starch energy minerals
 additive assays Other, please list _____

Cattle Water

Water sources sampled monthly semiannually annually
 other, please describe _____

Analyses include: TDS/Conductivity sulfates nitrates salt
 Other, please list _____

Feed Records



- Dates and sources of deliveries
- Keep all feed records for at least 2 years
- Require an invoice that includes
 - Date
 - Lot/batch number
 - Signature person who delivered product
 - Signature of person receiving person
- Obtain valid VFD for each product before offering cattle feed additives that require a VFD



BEHAVIOR & HANDLING



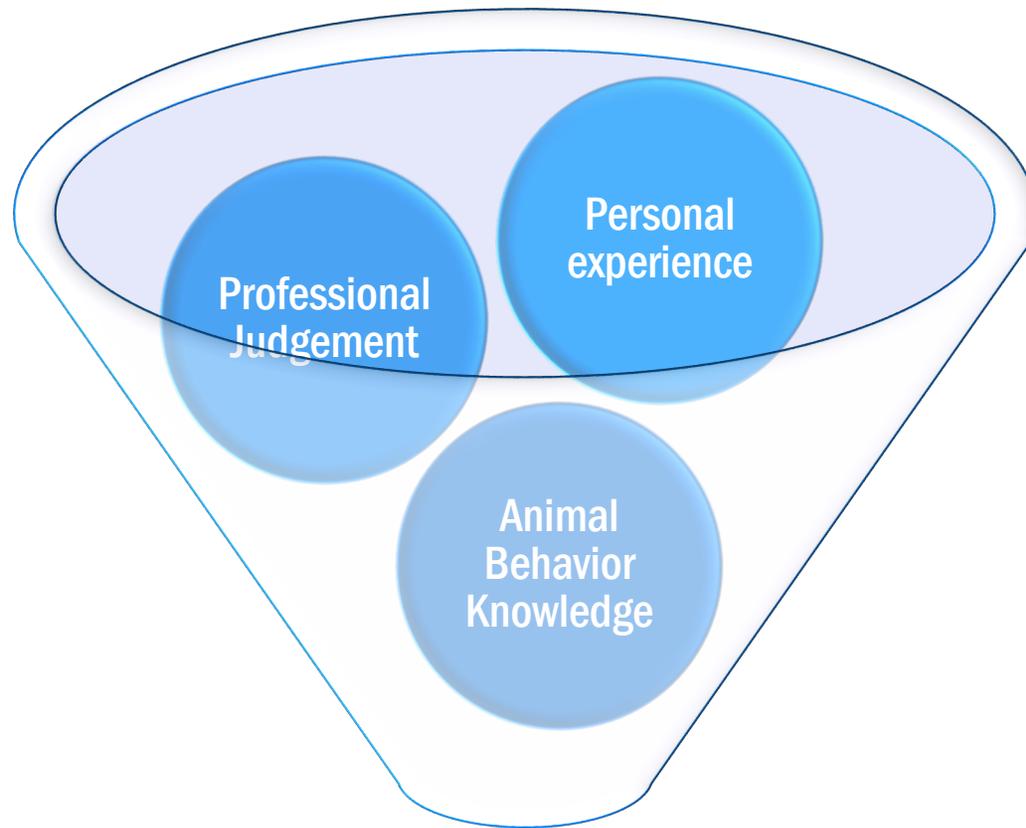
Cattle Handling

Stress reduces immune function

**Bruising has cost the industry
\$35 million+ in carcass trim**

Emphasize low stress handling!





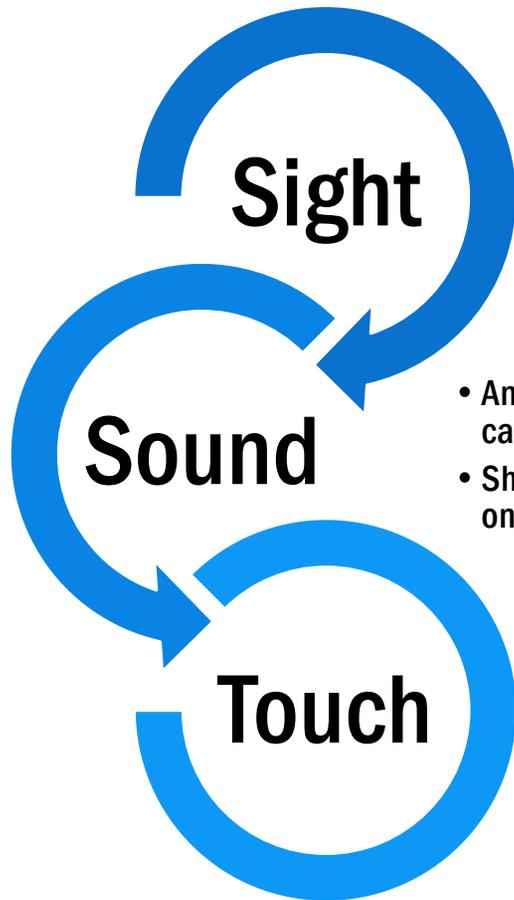
Outcomes benefit **BOTH**
Handlers & Livestock



Principles of Cattle Behavior



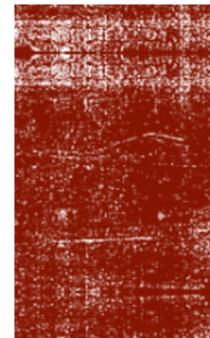
Communicating with Cattle

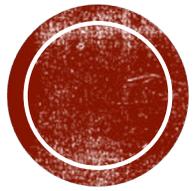


- Preferred by cattle

- Any sound can be stressful to cattle
- Should be a secondary method, only when sight is not adequate

- Useful in confined situations and additional stimulus is needed
- Not electric prods





5 Principles of Cattle Behavior

01

Cattle want to see you

02

Cattle want to go around you

03

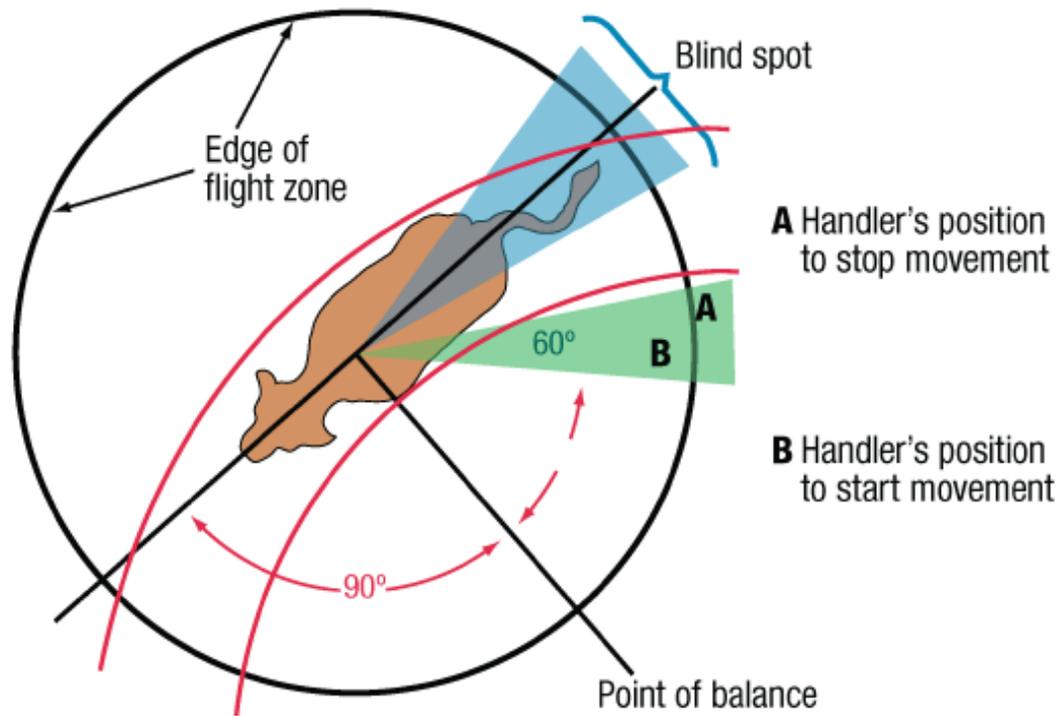
Cattle want to be with and go to other cattle

04

Cattle want to return to where they have been

05

Cattle can only process one main thought at a time



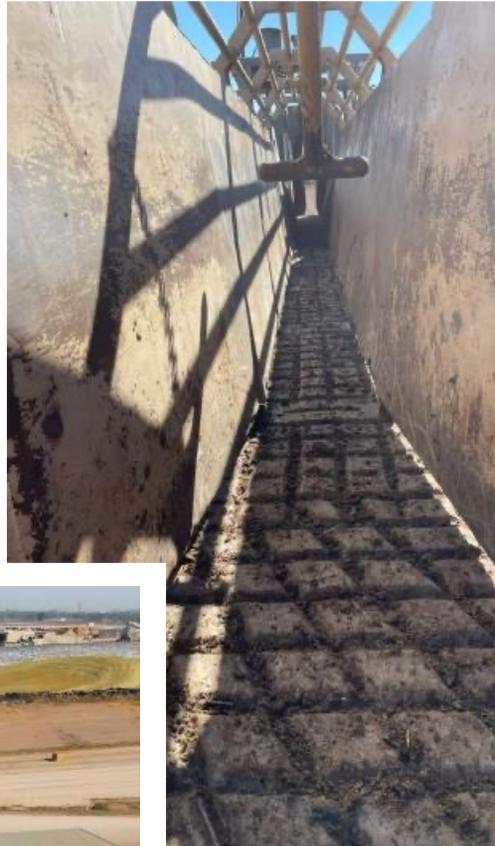


Cattle Handlers Should....

1. Work slowly – “The fastest way to work cattle is slow.”
2. Avoid shouting, running and waving their hands
3. Avoid working cattle on slippery surfaces
4. Appropriate use of handling devices– minimize use of electric prods, extension of one’s arm
5. Rely on knowledge of cattle behavior – flight zone and point of balance

Abuse of cattle is not acceptable under any circumstances!





Consider Your Facilities



- **Crowding Pen or “Tub”**
 - Circular with solid or open sides works best
 - Don’t use as a holding pen
 - Never fill more than half full or the amount that will fit into the “snake”
- **“Snake” or Alley**
 - Solid or open sided
- **Squeeze chute**
 - No wider than 28 in
 - Only trained personnel should operate
- **Non-slip flooring**



Mature Cattle Hauling Loading Density Guidelines						
 	Mature Cattle Weight (lbs.)					
	800	1,000	1,200	1,400	1,600	
	Sq/Ft Per Animal (Polled)					
	10.4 ft ²	13 ft ²	15.6 ft ²	18.2 ft ²	20.8 ft ²	
Trailer/Compartment Size	Square Feet	Number of Head				
14 ft x 6 ft	84	8	6	5	5	4
16 ft x 6 ft	96	9	7	6	5	4
18 ft x 6 ft	108	10	8	7	6	5
20 ft x 6 ft	120	11	9	7	6	5
22 ft x 6 ft	132	13	10	8	7	6
24 ft x 6 ft	144	13	11	9	7	6
26 ft x 6 ft	156	15	12	10	9	8
30 ft x 6 ft	180	17	14	12	10	9
10 ft x 7 ft	70	7	5	4	4	3
12 ft x 7 ft	84	8	6	5	5	4
16 ft x 7 ft	112	11	9	7	6	5
20 ft x 7 ft	140	13	10	9	7	6
24 ft x 7 ft	168	16	13	10	9	8
28 ft x 7 ft	196	19	15	13	11	9
32 ft x 7 ft	224	21	17	14	12	10

Transporting Cattle

- Major cause of stress, injury & bruising
 - Excessive handling
 - Changing weather
 - Unfamiliar environment
- Trailer safety and regular inspections
- Load and unload in safe manner
 - No gaps
 - Non slip in chute and trailer – inspect trailer floor integrity
 - Consider safe loading densities
- Humidity and wind chill indexes



Extreme Weather

Maintaining normal body temperature is essential for cattle health
 Consider conditions when deciding to handle/transport cattle

- **Heat – Work cattle before THI reaches 84**
 - Avoid hauling/processing between 11 am and 4 p.m.
 - Handle gently and patiently
 - Provide water and shade
 - Transport - Make stops as quick as possible, don't put more cattle on the trailer to make loads

- **Cold – Work cattle before WCI drops to 0**
 - Cattle have increased energy requirements
 - Adjust feed and energy rations
 - Provide windbreaks, bedding, shelter
 - Wet cattle are more susceptible to cold stress
 - Transport - Avoid stopping

Beef Cattle Temperature Humidity Index

		Relative Humidity (%)											
		30	35	40	45	50	55	60	65	70	75	80	85
Temperature (° F)	100	84	85	86	87	88	90	91	92	93	94	95	97
	98	83	84	85	86	87	88	89	90	91	93	94	95
	96	81	82	83	85	86	87	88	89	90	91	92	93
	94	80	81	82	83	84	85	86	87	88	89	90	91
	92	79	80	81	82	83	84	85	85	86	87	88	89
	90	78	79	79	80	81	82	83	84	85	86	86	87
	88	76	77	78	79	80	81	81	82	83	84	85	86
	86	75	76	77	78	78	79	80	81	81	82	83	84
	84	74	75	75	76	77	78	78	79	80	80	81	82
	82	73	73	74	75	75	76	77	77	78	79	79	80
	80	72	72	73	73	74	75	75	76	76	77	78	78
78	70	71	71	72	73	73	74	74	75	75	76	76	
76	69	70	70	71	71	72	72	73	73	74	74	75	

Temperature Humidity Index (THI)

Normal <75	Alert 75-78	Danger 79-83	Emergency >84
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Wind Chill Index (WCI)

Wind Speed	Low Temperature °F																		
	-10	-8	-6	-4	-2	0	2	4	6	8	10	12	14	16	18	20	22	24	26
25	-59	-56	-53	-50	-47	-44	-41	-38	-35	-32	-29	-26	-23	-20	-17	-14	-12	-9	-6
23	-57	-54	-51	-48	-45	-42	-39	-36	-33	-30	-28	-25	-22	-19	-16	-13	-10	-7	-4
21	-54	-51	-49	-46	-43	-40	-37	-34	-31	-28	-26	-23	-20	-17	-14	-11	-8	-5	-3
19	-52	-49	-46	-43	-40	-37	-35	-32	-29	-26	-23	-21	-18	-15	-12	-9	-6	-4	-1
17	-48	-46	-43	-40	-37	-35	-32	-29	-26	-24	-21	-18	-15	-13	-10	-7	-4	-2	1
15	-45	-42	-39	-37	-34	-31	-29	-26	-23	-21	-18	-15	-13	-10	-7	-5	-2	1	4
13	-41	-38	-36	-33	-30	-28	-25	-23	-20	-17	-15	-12	-9	-7	-4	-2	1	4	6
11	-36	-33	-31	-28	-26	-23	-21	-18	-16	-13	-11	-8	-6	-3	-1	2	4	7	9
9	-30	-28	-26	-23	-21	-18	-16	-14	-11	-9	-6	-4	-2	1	3	6	8	10	13
7	-24	-21	-19	-17	-15	-12	-10	-8	-5	-3	-1	1	4	6	8	10	13	15	17
5	-15	-13	-11	-9	-7	-5	-3	0	2	4	6	8	10	12	14	16	18	21	23
3	-4	-2	0	2	4	6	7	9	11	13	15	17	19	21	22	24	26	28	30



Compromised Cattle & Fitness For Transport



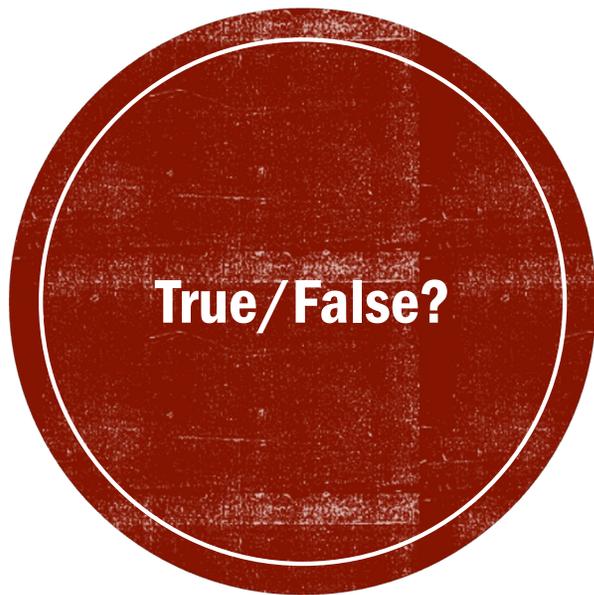


Cows & Bulls Become Beef too!



- Cow Beef Industry accounts for 17 – 22% of US slaughter numbers each yr.
 - ~6 mil head
 - >55 large slaughter facilities nationwide
 - ~80 K metric tons
 - 15 – 25 % of producer income

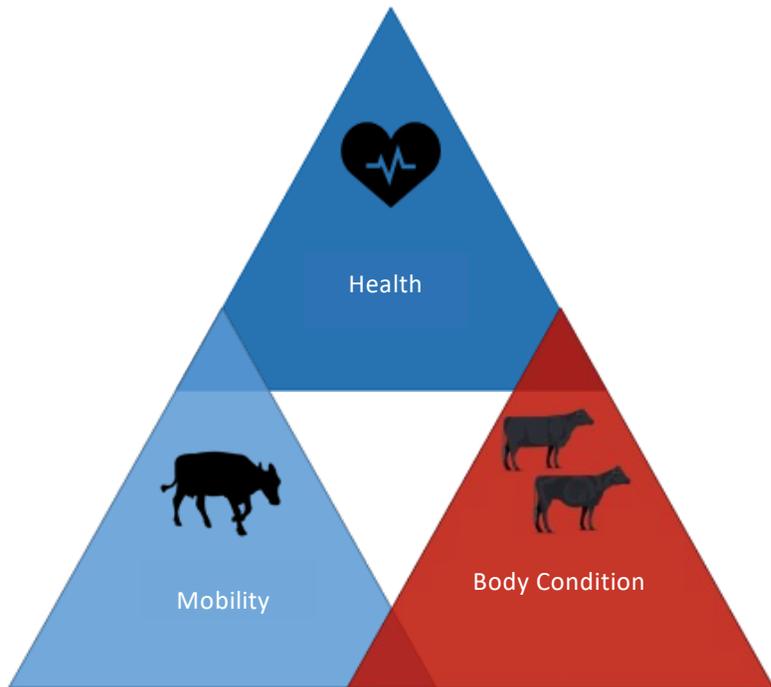




Most beef from cows is used for ground beef.

False

Most all major cow processing facilities are selling whole muscle cuts for steaks, roast beef, jerky and other processed items



DECISION MAKING: FITNESS FOR TRANSPORT



Body Condition Scoring

1-9 Scale for Beef Cattle

1-5 Scale for Dairy Cattle



Emaciated

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



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



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



Mobility Scoring

North American Meat Institute System
4 Point Scale (1-4)



Mobility Score 1

- Normal
- Walks Easily
- No apparent lameness or change in gait

Mobility Score 2

- Minor stiffness, shortness of stride or slight limp
- Keeps up with normal cattle in group

Mobility Score 3

- Obvious stiffness, difficulty taking steps, obvious limp or discomfort
- Lags behind normal cattle in group

Mobility Score 4

- Extremely reluctant to move, even when encouraged
- Statue-like





Marketing Compromised Cattle



Ensure **ALL** marketed animals have cleared withdrawal times

Market animal **BEFORE** they become severely emaciated

DO NOT Market animals that:

- Pose a public health threat or terminal condition
- Are disabled and likely to become downers
- Have advanced eye lesions

Make **PROMPT** decisions to treat, market or euthanize compromised cattle.



Treat, Market or Euthanize??



Transport Candidate

- Mobility score 1 or 2
- Met withdrawal times
- BCS 2.5 or more

Downer Candidate

- Fever greater than 104°
- Withdrawal times not met
- BCS less than 2.5
- Mobility score 4 (can't be humanely loaded, broken leg, etc.)
- Cancer eye, blindness



Non Ambulatory Cattle “Downers”



- **NEVER** use an electric prod
- **NEVER** use chains or cables to pick up and/or suspend the animal.
 - Acceptable: Sled, Loader Bucket, Low-boy trailer
- **ALWAYS** provide feed, water, and proper shelter
 - Roll to prevent compartmentalization
- **NEVER** let downers stay in home pen where they could get walked on or trampled
- **NEVER** attempt to move weak or severely lame cattle to processing barn or to slaughter.





When to Euthanize

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

Unrepairable fractures that result in immobility or inability to stand: Leg, Hip, Spine

Emergency medical conditions that result in excruciating pain that can't be relieved in treatment

Animals that are too weak to be transported due to debilitation from disease or injury

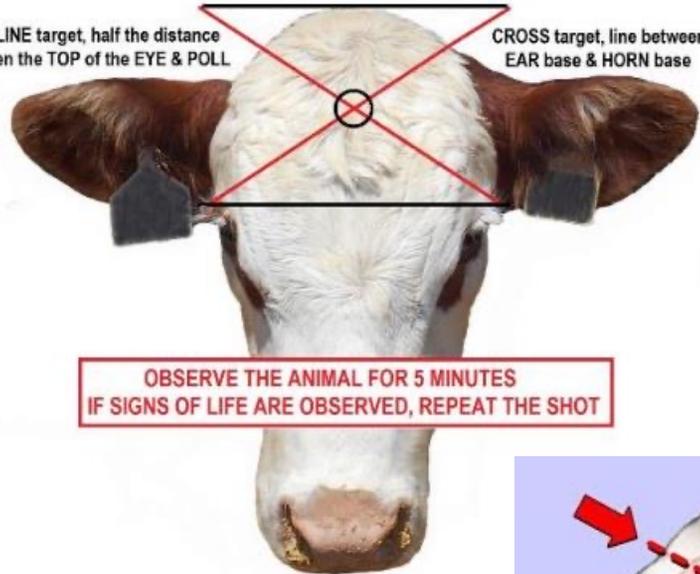
Paralysis from traumatic injuries or disease that result in immobility

Disease conditions where no effective treatment is known, prognosis is terminal, or a significant threat to human health is present

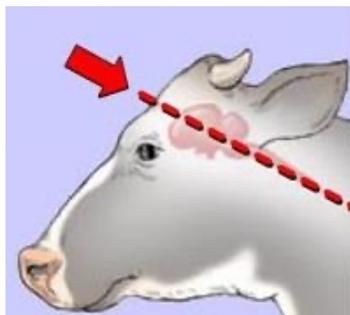
Euthanasia Aiming

MIDLINE target, half the distance between the TOP of the EYE & POLL

CROSS target, line between EAR base & HORN base



OBSERVE THE ANIMAL FOR 5 MINUTES
IF SIGNS OF LIFE ARE OBSERVED, REPEAT THE SHOT



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

Humane Euthanasia



1. Gunshot
2. Captive Bolt
 - Exsanguination, “Bleeding Out”
3. Barbiturate Injection
 - Requires veterinarian
 - Cannot be rendered

Death Confirmation:

- Lack of heartbeat
- Lack of respiration – rhythmic breathing
- Lack of corneal reflex – blinking



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 your veterinarian to complete an euthanasia method without risk of environmental residues



**ENVIRONMENTAL
QUALITY CONTROL
POINTS**





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



Nutrient Management



Take into consideration for confined cattle:

- Whole-pond seepage testing
- Dam and water control structure design
- Wetland delineation
- Dam safety inspection
- Breach inundation mapping
- Supplemental Watershed Plans and Environmental Documents
- Floodplain modeling and evaluation
- Water supply system modeling
- Water right development
- Waste management system analysis and design



**WORKER SAFETY &
EMERGENCY
ACTION PLANNING**



Importance of Worker Safety

- 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



Personal Protective Equipment (PPE)

Personal protective equipment (PPE) is special clothing and equipment that places a barrier between responders and the hazards they encounter.

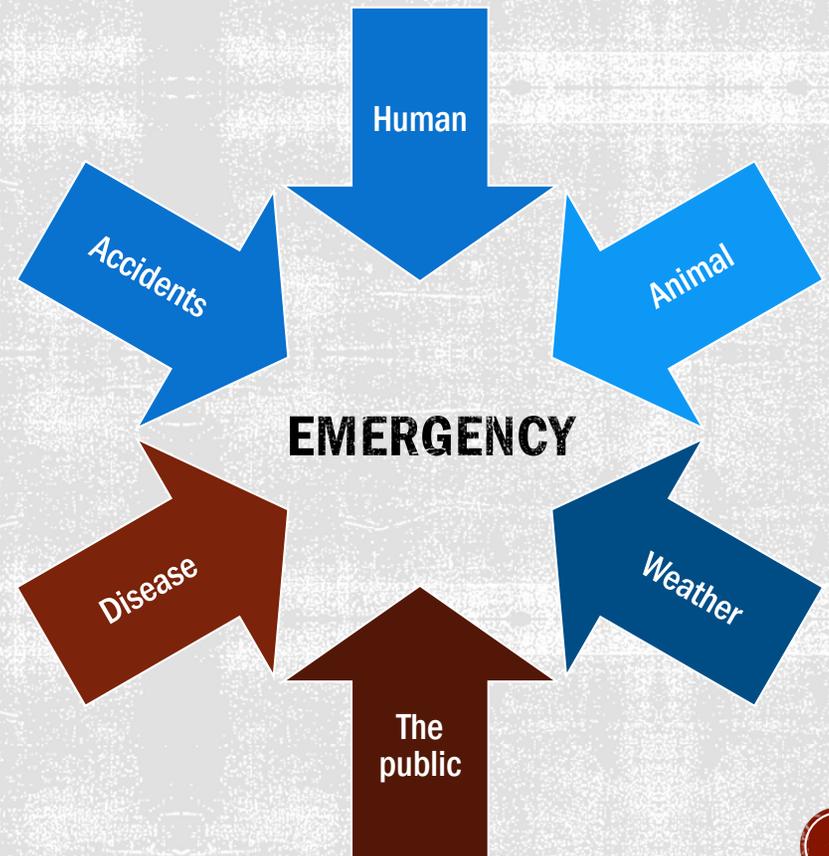
Types of PPE -

- Non-slip, steel toed boots
- Gloves
- Dust mask/respirators
- Eye protection
- Hearing protection
- Coveralls





EAP- Forms of Emergency



Threat of emergencies always exists in agriculture

EAPs should be posted and easy to locate for all employees
Glove compartment of vehicles or equipment

Transportation Emergencies

- Complete BQA Transportation
- Bovine Emergency Response Plan (BERP)
 - Program provides the education for emergency personnel to develop their own dispatch tree and emergency response plan when cattle are involved
- Consider conducting a mock emergency drill to practice the chain of phone calls
 - Stranded trailer loaded with cattle
- Consider who will conduct emergency euthanasia in a safe manner





DAILY BIOSECURITY PLAN FOR DISEASE PREVENTION



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



Organization/Person	Name/Notes	Phone Number	Organization /Person	Name/Notes	Phone Number
Farm or Ranch Personnel			Utilities		
Operation Owner			Electric Company		
Operation Manager			Water Company		
Herd Manager			Natural Gas / Propane Supplier		
Cattle Handler			Plumber		
Cattle Handler			Boiler Service Company		
			Equipment / Feedmill		
Animal Health			Millwright		
Herd Veterinarian			Co-Op Manager		
District Veterinarian			Manure Applicator		
State Veterinarian			Equipment Dealer		
Nutritionist			Agrochemical Dealer		
Feed Supplier					

Emergency Action Plan Example



QUESTIONS?
-
**CERTIFICATION
TEST**





Thank you



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