

## About this Manual

This manual is designed to aid beef producers in routine animal health record keeping. Maintaining records on identification of animals that are treated, recording treatments, dates, products, serial/lot numbers, doses given, and routes of administration, withdrawal times, and the person who administered the treatment are key components of beef quality assurance. Additional animal health and processing information is also provided.

The companion CD contains the following:

1. Files for printing additional individual and group processing records. These files are provided in Adobe PDF format for printing.
2. Files for electronic recording and management of individual and group processing records. These spreadsheet files are provided in Microsoft Excel 2003 and Microsoft Excel 2007 formats.
3. Free software for printing .pdf files and working with .xls spreadsheet files. Included are the free software programs, Adobe Reader and OpenOffice Calc. These programs are not necessary for those that have a PDF reader or spreadsheet program that can recognize .xls files already installed on their computer. To learn more about the programs included on the CD, as well as full installation instructions, visit [www.adobe.com](http://www.adobe.com) and [www.openoffice.org](http://www.openoffice.org).

***It is every producer's obligation to utilize management and judgment that ultimately lead to a positive eating experience for the consumer.***

***This manual and CD were created by Dan Buskirk, Frank Wardynski, Jeannine Grobblel, and Dan Grooms, Michigan State University Extension and was funded, in part, by the Beef Checkoff***

## Vaccination Programs for Cow-Calf Operations

*By Dan Grooms DVM, PhD, Michigan State University*

Vaccination programs for Cow-Calf operations must be tailored to the individual operation based on specific needs, disease problems, and management framework. The best person to do this is your veterinarian who knows and understands the health and management issues of your operation. The following vaccination recommendations are meant only to serve as a basic starting place.

### Newborn calves to Weaning

Newborn calves will derive most of their early disease protection from a good quality colostrums program. It should be emphasized that no early vaccination program will overcome a poor colostrums program. If problems with specific pathogens, vaccines can be given to neonates to reduce disease risk, but vaccination during this period is less than optimum. Avoid giving vaccines prior to 1 week of age.

### 4-6 Months -Weaning

The goal is to provide protection against common pathogens that may cause problems when colostral antibodies begin to fall off.

- IBR, BVDV, PI-3, BRSV (MLV preferred)
- Clostridium (7-way)
- Mannheimia/Pasteurella (Vaccine needs to contain toxoid component)

### Prebreeding

The goal is to provide protection against pathogens of general health concern and that may increase pregnancy wastage. These vaccines should be completed 30 days prior to breeding.

- IBR, BVDV, PI-3, BRSV (MLV preferred)
- Leptospirosis (5 strains) (2 doses)
  - Also, may consider L. hardjo vaccine
- Campylobacter fetus (vibrio) if using bulls
- Clostridium (7-way)

### Precalving

The goal with precalving vaccinations is to enhance colostral antibodies and protect against early lactation pathogens.

- Rotavirus, Coronavirus, E. coli (for calf scours)

**Adult cows**

In adult cows, we are primarily concerned about fetal protection. Therefore, we should generally gear our vaccination program around how best to provide good immunity during gestation.

Therefore, vaccination prior to breeding is generally recommended.

- IBR, BVDV (MLV preferred)
- Leptospirosis (5 strains)
  - Also, may consider L. hardjo vaccine
- Campylobacter fetus (vibrio) if using bulls

**Other vaccines that may be incorporated if problems exist or are anticipated:**

- |                             |  |
|-----------------------------|--|
| ➤ Neospora                  | Prebreeding  |
| ➤ Haemophilus               | Calves, Prebreeding  |
| ➤ Brucellosis               | Young female calves only                                     |
| ➤ Rota, Corona, E. coli     | Newborns   |
| ➤ Moraxella bovis (pinkeye) | Late spring/early summer. Needs to contain multiple antigens |

**Some general guidelines to reduce vaccine failure**

- Work with your veterinarian to determine the what vaccines to use and the best time to administer
- Handle vaccines with care. Improper handling can quickly inactivate vaccines:
  - All vaccines must be stored at refrigeration temperature
  - All vaccines should not be frozen
  - All vaccines should not be heated
  - All vaccines should not be exposed to UV light (sunshine!)
  - Once mixed, MLV vaccines should be used in less than **4 hours**
  - Never enter a vaccine bottle with a dirty needle
  - Do not use disinfectants on needles or syringes used for vaccinations. Clean with HOT water.
  - Never mix vaccines
- If giving multiple vaccines, make sure they are separated by at least a hands width.
- **Read the label and follow instructions for:**
  - **Timing of administration**
  - **Number of doses**
  - **Amount to give**
  - **Route of administration**
  - **Special precautions (i.e. not to be used in pregnant cows)**
- **All vaccines should be given in the neck regardless of animal age!!**

## A Beef Producers Guide for Judicious Use of Antimicrobials in Cattle

**Prevent Problems:** Emphasize appropriate husbandry and hygiene, routine health examinations, and vaccinations.

**Select and Use Antibiotics Carefully:** Consult with the herd veterinarian on the selection and use of antibiotics. Have a valid reason to use an antibiotic. Therapeutic alternatives should be considered prior to using antimicrobial therapy.

**Avoid Using Antibiotics Important In Human Medicine As First Line Therapy:** Avoid using as the first antibiotic those medications that are important to treating strategic human or animal infections.

**Use the Laboratory to Help You Select Antibiotics:** Cultures and susceptibility test results should be used to aid in the selection of antimicrobials, whenever possible.

**Combination Antibiotic Therapy Is Discouraged Unless There Is Clear Evidence The Specific Practice Is Beneficial:** select and dose an antibiotic to affect a cure.

**Avoid Inappropriate Antibiotic Use:** Confine therapeutic antimicrobial use to proven clinical indications, avoiding inappropriate uses such as for viral infections without bacterial complication.

**Treatment Programs Should Reflect Best Use Principles:** Regimens for therapeutic antimicrobial use should be optimized using current pharmacological information and principles.

**Treat the Fewest Number of Animals Possible:** Limit antibiotic use to sick or at risk animals.

**Treat for the Recommended Time Period:** To minimize the potential for bacteria to become resistant to antimicrobials.

**Avoid Environmental Contamination with Antibiotics:** Steps should be taken to minimize antimicrobials reaching the environment through spillage, contaminated ground runoff or aerosolization.

**Keep Records of Antibiotic Use:** Accurate records of treatment and outcome should be used to evaluate therapeutic regimens and always follow proper withdrawal times.

**Follow Label Directions:** Follow label instructions and never use antibiotics other than as labeled without a valid veterinary prescription.

**Extra-label Antibiotic Use Must Follow FDA Regulations:** Prescriptions, including extralabel use of medications must meet the Animal Medicinal Drug Use Clarification Act (AMDUCA) amendments to the Food, Drug, and Cosmetic Act and its regulations. This includes having a Veterinary/Client/Patient Relationship.

**Subtherapeutic Antibiotic Use Is Discouraged:** Antibiotic use should be limited to prevent or control disease and should not be used if the principle intent is to improve performance.

*Adapted from AVMA, AABP and AVC Appropriate Veterinary Antibiotic Use Guidelines.*

## Cattle Product Safety Use Guide

By Dee Griffin, University of Nebraska, GPVEC; Revised October 2007

### PROPERLY TRAINING FOR HANDLING ALL PRODUCTS IS CRUCIAL!

#### **VACCINES**

- **Modified Live Virus (MLV)**

- o Minimal Risk

- Most if not all fit in this category.

- o Dangerous

- None recognized.

- o **Safety Action If Exposed:**

- Wash exposed / injected area and treat with a topical antibacterial ointment

- See a doctor if swelling or pain develops.

- **Modified Live Bacterial (MLB)**

- o Minimal Risk:

- None.

- o Dangerous:

- All have the potential to cause disease in humans.

- o **Safety Action If Exposed:**

- See a doctor immediately and take the label / bottle of vaccine with you.

- The doctor will likely begin treatment with an appropriate antibiotic.

- **Killed (virus/bacteria)**

- o Minimal Risk:

- Most if not all fit in this category.

- o Dangerous:

- None recognized.

- o **Safety Action If Exposed:**

- Wash exposed / injected area and treat with a topical antibacterial ointment

- See a doctor if swelling or pain develops.

**MEDICATIONS****• Injectable and Oral:**

## o Minimal Risk:

-Most fit in this category.

-A potential allergic response in some individuals.

-People with known allergies to one or more antibiotics should not work in areas in which animals are being treated ... OR remove the class of antibiotics for which they are allergic from the treatment protocol and thoroughly clean the treatment area to remove remaining traces of the offending antibiotic before the person works in the area.

## o Dangerous:

-**Micotil** If injected has been associated with human fatality.

-If Micotil is accidentally injected, apply ice to injection site, seek immediate medical attention, take label to ER/attending physician, and contact Rocky Mountain Poison Control (1-800-722-0987) as they always have the most current medical information.

-Do not load syringe until the animal is properly and adequately restrained.

-Use the “one-hand” SQ tented technique for giving injections.

-As per all injections, Micotil should be given ahead of the shoulder.

-As per all SQ injections, there is no BQA limit to the amount of Micotil that can be given in one site.

-**Lutalyse (and other prostaglandins)**, PREGNANT WOMEN CAN/WILL ABORT OR GO INTO LABOR IF **EXPOSED** TO THIS MEDICATION ... this product can be absorbed through the skin ... therefore pregnant women should not handle a prostaglandin bottle, work in an area or touch equipment that may be contaminated with a prostaglandin.

-**Dexamethasone** PREGNANT WOMEN CAN POTENTIALLY ABORT OR GO INTO LABOR IF EXPOSED TO THIS MEDICATION.

o **Safety Action If Exposed:**

-For products other than MICOTIL, wash exposed/injected area and treat with topical antibacterial ointment and see doctor if swelling/pain develops

-An accidental injection with MICOTIL should be treated as an extreme emergency, CALL 911 and rush person to the emergency room, however there is no known antidote.

-For pregnant women LUTALYSE (and other prostaglandins), and for pregnant women Dexamethasone, wash exposed/injected area and see a doctor ASAP

-A person exposed to antibiotic or other medication for which they are allergic should see a doctor ASAP, if the allergy is severe, need to call 911.

**ANTIPARASITICS****• Injectable:**

## o Minimal Risk:

- Most fit in this category.
- No known allergies.
- Should a person develop an allergic like response they should see or be taken to a doctor ASAP ... if the response is severe call 911.

## o Dangerous:

- None.

o **Safety Action If Exposed:**

- Wash exposed area and contaminated clothing.
- Should a person develop an allergic like response they should see or be taken to a doctor ASAP ... if the response is severe call 911.

**• Pour-On/Topical/Oral:**

## o Minimal Risk:

- Most fit in this category.
- Organophosphates potentially can be a serious hazard if handled improperly.
- No known allergies.
- Should a person develop an allergic like response they should see or be taken to a doctor ASAP ... if the response is severe call 911.

## o Dangerous:

- Only organophosphates are considered dangerous unless an allergic like response should develop.

o **Safety Action If Exposed:**

- Newer generation synthetic pyrethroids can cause a severe paraesthesia in some people depending on location of exposure.
- Wash exposed area and contaminated clothing.
- Should a person develop weakness, tremors or an allergic like response they should see or be taken to a doctor ASAP ... if the response is severe call 911.

## Proper Injection Site and Technique

Regardless of animal age, injections (All intramuscular (**IM**) and subcutaneous (**SQ**) medications and vaccines) should be given in front of the shoulders – never in the rump or back leg. All products cause tissue damage when injected IM. Therefore all IM use should be avoided if possible. Administer or ask that all medications be administered SQ, IV, IN or orally if possible. Products with low dosage rates are recommended and proper spacing should be followed. It is against BQA guidelines to give SQ injections along the ribs or in the elbow region.

If medications labeled only for IM administration must be used, administer them in the neck and never exceed 10 cc per IM injection site. For example, if 24 cc is the calculated dose, use three 8 cc injections instead of two 12 cc injections. There are no restrictions to the volume of SQ injections other than as indicated by the product label or as instructed by the herd veterinarian.

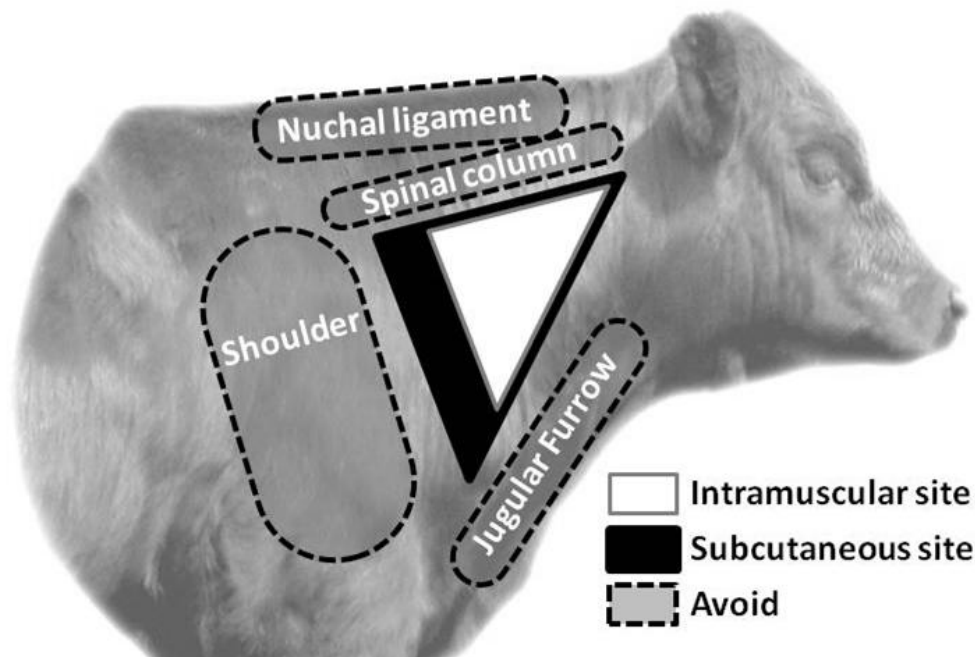


Photo courtesy Dan Buskirk



## Needle Selection

Visit with the herd veterinarian if you have any questions about the following needle selection information for vaccines, antibiotics and supportive therapies. Needles contribute to injection site defects. Use needles that are no larger than necessary to adequately complete the injection, but large enough to prevent needle bending or breaking off in muscle tissue. The **leading cause of needle bending is improper restraint**, but using dull, damaged or poor quality needles may also contribute to the problem. Under no circumstances can animals with broken needles in them be sent to a harvest facility.

### Considerations in needle selection:

- *Primary:* Route of administration, size of animal, and location or site of injection (BQA requires all injections be given in the neck)
- *Secondary:* Viscosity and volume/amount of fluid injected



### Needle size/gauge guidelines

Cattle weight, lb	Route of Administration								
	SQ ½ - ¾ in needle			IM 1 ½ in needle			IV 1 ½ in needle		
	<300	300-700	>700	<300	300-700	>700	<300	300-700	>700
Needle gauge for thin viscosity product (i.e. saline)	18	18-16	16	20-18	18-16	18-16	18-16	16	16-14
Needle gauge for thick viscosity product (i.e. tetracycline)	18-16	18-16	16	18	16	16	16	16-14	16-14

Select the smallest size needle (without bending) to fit the cattle size

### Change needles

- Immediately if the needle bends (**DO NOT USE A BENT NEEDLE**)
- If needles become contaminated with feces, dirt, or irritating chemicals
- If the needle point is damaged/burr develops
- Before the needle becomes dull (at least every 10 to 15 injections)
- Between cattle with **KNOWN** blood borne infectious disease
- Follow the herd veterinarian's instructions

### Needle care

- Protect needles from contamination (feces, dirt or irritating chemicals)
- Store unused needles in protected area

### Needle disposal

- Follow EPA guidelines for disposal of used needles and other Sharps
- Seal Sharps container and dispose of in an approved land fill

## Vaccine and Equipment Care and Handling

*By Dan Grooms DVM, Michigan State University*

Several millions of dollars have been invested to deliver to the livestock producer safe and efficacious vaccines. It behooves us to handle these products in a manner that will maximize the immune response in the healthy animal.

Let's take a couple of minutes to review a few simple steps to help insure that we don't drop the ball by something we did or did not do that could negatively affect vaccine efficacy.

1. Purchase only federally licensed vaccines from a reliable source that is conscientious about the ordering, timely receiving and shipping, and storing vaccines they are going to sell you.
2. Purchase the proper vaccines for the cattle you are vaccinating – consult your veterinarian and/or read the directions carefully.
3. Keep vaccines refrigerated at all times (36 degrees to 44 degrees F). Keep in an ice chest and out of the sun at chuteside.
4. Mix only enough vaccine that will be used in a timely period (less than 1 hour) and discard any unused product by burning containers.
5. Reconstitute modified live virus (MLV) vaccines with clean transfer needles. Using a bleeding needle is highly recommended because they are cheap and disposable (see your veterinarian).
6. Do not mix two different products in the same syringe unless it is part of the package, i.e. IBR / Leptospirosis vaccine.
7. Use only new needles to fill and refill syringes.
8. Consider using multidose disposable syringes that automatically draw from the vaccine vial, especially for modified live virus (MLV) vaccines.  
When using this method keep the vial in use in a vial shroud or cover to insulate and protect from sunlight.
9. Use the proper needle gauge and length. 16 ga. X  $\frac{3}{4}$  or 1 inch for all subcutaneous (subq) injections. Use 16 ga. X 1-inch needles for intramuscular (IM) injections in young cattle. A 16-ga. X 1½ inch needle is used for IM injections in adult cows and bulls. Always use sharp needles – burrs take in hide, hair and debris resulting in injection site infections and abscesses.
10. Use the proper injection site as described by the product insert. Always use the subq route of administration when a choice is given between subq and IM. All injections are to be administered in the neck area as displayed below.

### 11. Syringe cleaning

- a. Don't use alcohol, disinfectants, or detergents in syringes used for (MLV) vaccines.
- b. Do use hot water (distilled), more hot water as a rinse, dry on clean paper towels, silicone oil, and store in a clean dry area (baggie).

Wash the outside first with the needle and needle cover on. Wash your hands thoroughly, break the syringe down, and perform the cleaning procedure.

#### **The take home message:**

We the beef producer, the vaccine company, and the veterinarian have a mutual responsibility to produce a quality, drug free and economic product for the beef consumer.

Using quality vaccines, proper handling and administration, and using clean functional equipment healthy cattle will develop immunity when vaccinated thereby decreasing as much need for antibiotic therapy and increased injection sites.

*Adapted from Kirkpatrick, Oklahoma State University Extension*

## Care and Husbandry Practices

- Follow the 'Quality Assurance Herd Health Plan' that conforms to good veterinary and husbandry practices.
- All cattle will be handled/transported in such a fashion to minimize stress, injury and/or bruising.
- Facilities (fences, corrals, load-outs, etc.) should be inspected regularly to ensure proper care and ease of handling.
- Strive to keep feed and water handling equipment clean.
- Provide appropriate nutritional and feedstuffs management.
- Strive to maintain an environment appropriate to the production setting.
- Bio-security should be evaluated.
- Records should be kept for a minimum of 2 years (3 for Restricted Use Pesticides)

## BQA Code of Cattle Care

Beef cattle producers take pride in their responsibility to provide proper care to cattle. The Code of Cattle Care lists general recommendations for care and handling of cattle.

- Provide necessary food, water and care to protect the health and well-being of animals.
- Provide disease prevention practices to protect herd health, including access to veterinary care.
- Provide facilities that allow safe, humane, and efficient movement and/or restraint of cattle.
- Use appropriate methods to humanly euthanize terminally sick or injured livestock and dispose of them properly.
- Provide personnel with training/experience to properly handle and care for cattle.
- Make timely observations of cattle to ensure basic needs are being met.
- Minimize stress when transporting cattle.
- Keep updated on advancements and changes in the industry to make decisions based upon sound production practices and consideration for animal well-being.

Persons who willfully mistreat animals will not be tolerated.

# Animal Handling Cattle Transporter Beef Quality Assurance

Jeannine P. Grobbel, Ph.D.  
Frank Wardynski



## Reasons for conducting workshops

- Improve Beef Quality
- Industry Image



## Results of the 2007 National Market Cow and Bull Audit

- All trucks met American Meat Institute (AMI) guidelines
- Virtual elimination of cattle that were injured and could not walk
- Cattle Unloading
  - 65% of loads had no cattle slipping
  - 70% of loads had less than 3% cattle slipping
  - 30% had more than 3% cattle slipping



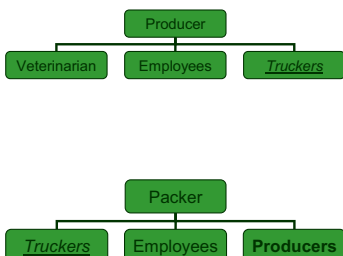
## Results of the 2007 National Market Cow and Bull Audit

- Electric Prod Use
  - 22% of all loads and 32% of beef loads used prods to unload
  - 13% of all loads and 18% of beef loads used prods on more than 25% of the cattle
- Bruising
  - 63% of cows and 53% of bull had bruising



## BQA Responsibilities

- Producers and Packers need to hire qualified and conscientious people to help ensure BQA
- Everyone involved in the industry has a responsibility to BQA



## Overview

- Cattle Handling
- Prior to loading
- Hot weather
- Cold weather



## Basic Ingredients for Handling Success

- Patience
- Understand how cattle see the world
- Understand how you influence cattle behavior
- Learn how to control your behavior to work cattle with care

## Basic Cattle Behavior

- Prey animals
  - Vigilant
- Senses
  - Wide range of vision
    - Predator detection (we are predators)
    - Eye location
      - 360 degree range of vision
      - Focus with both eyes for single vision
      - See separate images with each eye
  - Acute hearing: ear movements
  - Smell: sniffing, head movements

## Basic Cattle Behavior

- Herd animals
  - Protection, detection, foraging, etc.
  - Most comfortable moving in groups
  - Separation causes panic and urgency to return to herd (survival mechanism)

## Interacting with Cattle Behavior

- Flight Zone (FZ)
- Point of Balance (POB)
- Range of Influence (RI)

## Flight Zone (FZ)

- Movement related to perceiving a predator or danger
- The distance at which an animal will no longer tolerate your approach, it will turn and flee
  - Abrupt or deep penetration of zone: escape behavior
  - Size of FZ changes with experience of animal
    - Dairy cattle small to no zone
    - Range cattle larger zone

## Outside the flight zone



Cattle face handler outside of flight zone

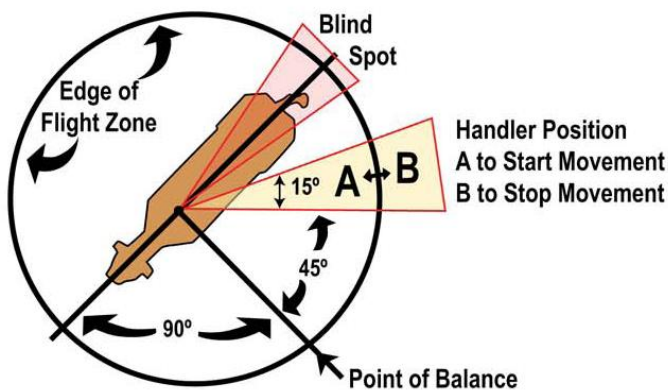
## Inside the flight zone



Cattle move away when handler enters flight zone

## Point of Balance (POB)

- Working position located adjacent to the shoulder of the animal
  - At the edge of the flight zone
- Moving ahead of the POB
  - Animal stops, turns back or moves backward
- Moving behind the POB
  - Animal moves forward



## “Range of Influence” (RI) (O’Byrne, 2004)

- Your presence and behavior determines the level of influence you have on the cattle
  - Highly dependent on how you behave when in the pen
    - Cattle are a captive audience
      - Makes them more reactive: no easy escape
- Working a FZ and POB effectively depends on how you adjust your RI

## Setting Range of Influence

- Check your attitude at the truck door
- Assume a calm posture
- Observe character of the cattle
- Use your body language and movements to exert influence while working the FZ and POB
  - Use of eye contact, body position to apply and release pressure from the animals
  - Release the pressure when they move correctly
- Cattle must understand you intend no harm

## Things to Avoid

- Quick excited movements
- Loud hollering, whooping, whistling or noisemaking
- Improper use of driving aids or heavy reliance when unnecessary
- *There is no adequate artificial substitute for good animal handling skills*

## Use of FZ + POB + RI

- Sorting cattle for loading
- Move cattle calmly to/onto the trailer
- Off load cattle
  - Want to off load cattle calmly and at a walk
    - Avoid bruising due to crush at the exit
    - Avoid slipping and falling (audit point at the packing plant)

## Moving Cattle



The flight zone gets larger when a person makes themselves big  
Grandin photo gallery

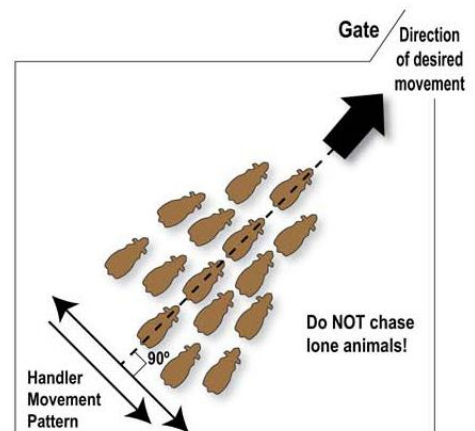
## Common Driving Aids

- Whips, paddles, shakers
- Sticks with plastic bag, flag or cloth strips tied to its end
- Prods
  - Vibrating prod
  - Electric shock prod

## Use of Driving Aids

- Forceful striking with any object is not appropriate: distress and bruises
  - Gentle to firm tapping to direct movement
- Electric prods
  - Method of last resort
  - Used only at hip, behind shoulder, on top of rump
  - Never use in/on soft body parts: anus, eyes, mouth etc.
  - Audit point for food retailers

Stick with plastic streamers





## Before Loading

- Survey cattle
- Healthy and fit for travel
  - Size
    - Sorted for sections of the truck
  - Unfit or weak cattle
    - Cattle that have difficulty walking or standing should not be transported



## Before Loading

- Look at the facilities: You should expect:
  - A clear path and designed to promote easy flow
    - No sharp edges, obstructions, faulty gates, distractions
  - Loading ramp with proper footing and slope

## Before Loading

- Solid sides on the loading chute and raceway
  - No gaps between ramp and trailer (proper docking)
  - Cattle able to see into the trailer (lighting)
  - Single file loading
- Consider your own safety too
  - Facilities that are ill designed and kept promote human safety problems



Cattle loading ramp with solid sides and a level dock

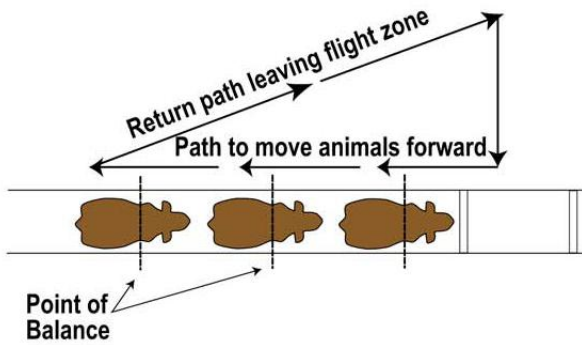


Level dock loading/offloading facility

[www.grandin.com](http://www.grandin.com)

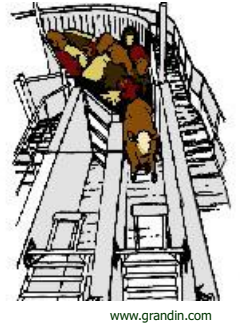
## Loading

- Effective use of FZ, POB and RI
  - More efficient loading
- Minimize use of electric prods
  - Use gentle handling aids
- Do not hurry
  - Provide time for first cattle to load
  - Don't overload chutes and crowd pens
  - Keep flow steady
- Work quietly



## Lead Animal

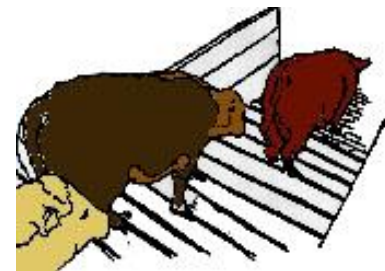
- Critical to moving into trailer
- Allow time to investigate
- Stay calm and gentle
- May use next animal in line to nudge leader forward
- Do not incite fear



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## Off Loading

- Properly dock the trailer
- Proper footing and ramp design
- Do not prod cattle inside the trailer
- Allow lead animal to calmly off load
- Gently encourage movement
- Resist deep penetration of flight zone
  - Causes running off the truck
  - Slipping and falling (handling audit point)
- Resist yelling, whistling and exciting behavior



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1. Don't rush: Avoid slipping and falling
2. Cattle usually anxious to exit truck

## Clean Truck

- Between species
- When changing from feeders to fat cattle
- Once a day
- Cold weather
  - Prevent liquid build-up that freezes
- Clean top to bottom, front to back, inside to outside

## Driver's Daily Schedule

- Specific locations of pickups and drop offs
- Phone numbers of producers at both places
- Approximate loading time
- Information about shipment
  - Correct pen and lot number
  - Sale barn buyer number
  - Head count and loading instructions

## Hot Weather

- Extreme heat conditions when heat index is  $\geq 100$  F
- Avoid transporting cattle in extreme heat
- Avoid hauling between 11 AM and 4 PM
- **Avoid stopping** in extreme heat
  - If cannot avoid stopping
    - Make stops short as possible
    - Stop during cooler parts of the day
    - Pick shaded areas away from other livestock trailers

## Hot Weather

- Place fewer cattle on the trailer
- Handle cattle with even greater care
  - They become stressed very easily
  - Gently and patiently to prevent them from becoming non-ambulatory, sick, and death

Heat Index

High Temperature °F	Heat Index																		
RH	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
90	91	95	98	102	105	109	113	117	122	126	131	136	141	147	152	158	164	170	176
85	90	93	96	99	102	106	110	113	117	122	126	130	135	140	145	150	155	161	167
80	89	91	94	97	100	103	106	110	113	117	121	125	129	134	138	143	148	153	158
75	88	90	92	95	97	100	103	106	109	113	116	120	124	128	132	136	141	145	150
70	86	88	90	93	95	98	100	103	106	109	112	116	119	123	126	130	134	138	143
65	85	87	89	91	93	95	98	100	103	105	108	111	114	118	121	125	128	132	136
60	84	86	88	89	91	93	95	97	100	102	105	107	110	113	116	119	123	126	129
55	84	85	86	88	89	91	93	95	97	99	101	104	106	109	112	114	117	120	124
50	83	84	85	86	88	89	91	93	95	97	99	101	103	105	108	110	113	115	118
45	82	83	84	85	87	88	89	91	92	94	96	98	100	102	104	106	109	111	114
40	81	82	83	84	85	87	88	89	91	92	94	95	97	99	101	103	105	107	109
35	81	82	83	84	85	86	87	88	89	90	92	93	95	96	98	100	102	104	106
30	80	81	82	83	84	85	86	87	88	89	90	92	93	94	96	97	99	101	102
25	80	81	82	83	84	85	86	87	88	89	90	91	93	94	95	97	98	100	100

RH = Relative Humidity

HI > 100 (Gray, Red # Area) is the Emergency Zone

## Cold Weather

- Extreme cold conditions when wind chill is below 0 F
- Drastic effects on cattle health in extreme wind and cold conditions
  - If unprotected can be exposed to dangerous wind chill
    - Wet cattle even greater risk
- Avoid transportation in extreme cold
- Avoid stopping, get cattle to destination quickly

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

## Checklist for Loading

- Weigh empty unless on the ground
- Ready the truck
  - Shut traps
  - Set gates and ramps
  - Keep In good repair
- Back in square and even
- Ensure chute is in good repair and anchor portable chutes
- Approximate weight and size of cattle

## Fit vs Injured Cattle



## Checklist for Traveling

- Weather
- Route
- Paperwork
- Check the load
- Pull out slow, gentle turns
- Check cattle after 2 hrs then every 4 hrs

## Checklist for Unloading Cattle

- Back in square and even
- Ensure gates to pen are open
- Use low stress handling techniques
- Shut holding pen gate

## Biosecurity and Emergency Action Plan

- Biosecurity action plan
- Assessing the situation
- Procedures for responding to emergencies

## Improving Profits by Managing the Cull Cow

Frank Wardynski

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Bringing Knowledge to Life!

Today's non-fed beef is being marketed by methods very different than they were just a few years ago.

It's not just ground beef anymore. Opportunities are available to manage cows to receive higher value by improving beef quality.



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## How Cow Beef is Sold

- ▶ 44% of the beef from cull cows and bulls is sold as primals and subprimals
- ▶ Whole muscle cuts from the round, rib and loin
- ▶ Boneless trimmings sold on a lean content basis
- ▶ Value of beef sold as ground beef vs. beef cuts

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## Value of Trimmings vs Cuts

- ▶ Trimmings are sold on lean content basis
- ▶ Whole muscle cuts are sold on a quality basis
  - Intramuscular fat
  - Fat color
  - Tenderness
  - Juiciness

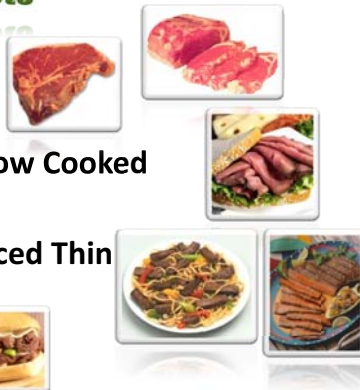


AMSA, 2001

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## Whole Muscle Products

- ▶ Steaks – Fillets, Strips
- ▶ Roast Beef – Sliced, Slow Cooked
- ▶ Quick Fix - Stir Fry, Sliced Thin
- ▶ Philly Steak



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## Factors Affecting Feedability

- ▶ Health
- ▶ Condition - Beginning BCS 2-4, ?5
- ▶ Feed supply and cost
- ▶ Future prices
  - Example – BST coming off market in Michigan



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## Factors Affecting Cull Cow Gain

- ▶ Excellent feeding
  - Open
  - Bad udder
  - Age
- ▶ Poor feeding
  - Eyes
  - Feet and legs
  - Poor health
  - Wild



## Body Condition Score (BCS)

- ▶ High lean vs carcass quality and value (Apple, 1999)
  - BCS 2-3 Least valuable carcasses
  - BCS 6 Optimum returns for packer and producer, Highest % Utility Grade and lean yield
  - BCS 7-8 best quality but excess fat increases fat trimming labor



## BCS Related to Feeding and Carcass Characteristics

- ▶ Can increase body condition by 1 full score in 30 d and 2 scores in 60 d (Schnell et al., 1997)
- ▶ BCS 2 are sold as USDA Quality Grade Cutter or lower
- ▶ BCS 7 & 8 are sold as USDA Quality Grade Utility

DEGREES OF MARBLING	MATURITY†				
	A	B	C	D	E
Abundant	PRIME				COMMERCIAL
Moderately Abundant					
Slightly Abundant	CHOICE				UTILITY
Moderate					
Modest	SELECT				
Small					
Slight	STANDARD				CUTTER
Trace					
Practically None					

\*Assumes that firmness of lean is completely developed with the degree of marbling and that the carcass is not a "dark cutter".  
†Maturity increases from the left to right (A through E).  
‡The A maturity option of the tissue is the only option available to bulk carcasses.

## Quality Grade Relating to Price

	Low \$/cwt	High \$/cwt
Utility	45	51
Cutter Canner	40	46

- ▶ \$5.00/cwt Spread between Utility and Cutter/Canner

Source: Cattle-Fax Update, October 26, 2007

## Cull Cow Price and Slaughter



## Seasonal Cow Market Opportunities

An initial cow cost of \$48/cwt on an 1,100 pound female and assuming she will gain 2 pounds per day for 120 days costing \$.45 per pound, using normal death loss, interest, and freight should leave a breakeven of around \$50/cwt.

Source: Case Gable, Cattle-Fax Update, October 26, 2007

## Feed and Gain Economics

### Initial Cow Price

1100lb \* \$45/cwt = \$495

### Expected Weight Gain

60d \* 3.35lb/d = 201lb

### Feed Cost and Consumption

1285lb \* \$12/cwt = 154

### Breakeven

\$650/1300lb final wt = \$50/cwt

## RISK

- ▶ Prices – Number 1
- ▶ Management
- ▶ Poor choice of cows to feed
- ▶ Sickness
- ▶ Death loss



## '94 & '99 National Beef Quality Audits

- ▶ Each audit indicated that just shy of \$70 per carcass was lost or not captured due to quality defects
- ▶ Major defects – Bruises, lameness, antibiotic residue, lead shot, body condition
- ▶ Less major defects – Eyes, mastitis
- ▶ Minor defects – Udders, prolapse

## Management to Increase Cow Value

- ▶ Manage the cull cows to increase immediate dollars in producer's pocket
- ▶ Manage to help recoup value for the industry
- ▶ Manage to improve carcass quality to help increase beef demand

## Increase Immediate Dollars

- ▶ Feeding to improve condition and weight gain
- ▶ Cull before health problems occur
- ▶ Keep cows in good condition

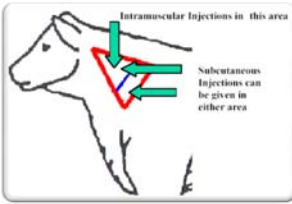
## Recoup Industry Dollars

- ▶ Handle to decrease bruises
- ▶ Cull before problems worsen
  - Health
  - Lameness
  - Eyes
- ▶ Ensure antibiotic residues are not present



## Improve Carcass Quality

- ▶ Ensure adequate body condition
- ▶ Proper injection site and technique





## Processing/Treatment Records

- Following all FDA/USDA/EPA guidelines for product(s) utilized.
- All products are to be used per label directions.
- Extra-label drug use shall be kept to a minimum, and used only when prescribed by a veterinarian working under a valid Veterinary Client Patient Relationship (VCPR).
- Strict adherence to extended withdrawal periods (as determined by the veterinarian within the context of a valid VCPR) shall be employed.
- Treatment records will be maintained with the following recorded:
  - Individual animal or group identification.
  - Date treated.
  - Product administered and manufacturer's lot/serial number.
  - Dosage used.
  - Route and location of administration.
  - Earliest date animal will have cleared withdrawal period.

When cattle are processed as a group, all cattle within the group shall be identified as such, and the following information recorded:

- Group or lot identification.
- Date treated.
- Product administered and manufacturer's lot/serial number.
- Dosage used.
- Route and location of administration.
- Earliest date animals will have cleared withdrawal period.

All cattle shipped to harvest will be checked by appropriate personnel to assure that animals that have been treated, meet or exceed label or prescription withdrawal times for all animal health products administered.

All processing and treatment records should be transferred with the cattle to next production level. Prospective buyers must be informed of any cattle that have not met withdrawal times.

## Feedstuffs

- Maintain records of any pesticide/herbicide use on pasture or crops that could potentially lead to violative residues in grazing cattle or feedlot cattle.
- Adequate quality control program(s) are in place for incoming feedstuffs. Program(s) should be designed to eliminate contamination from molds, mycotoxins or chemicals of incoming feed ingredients. Supplier assurance of feed ingredient quality is recommended.
- Suspect feedstuffs should be analyzed prior to use.
- Ruminant-derived protein sources cannot be fed per FDA regulations.
- Feeding by-product ingredients should be supported with sound science.

## Feed Additives and Medications

- Only FDA approved medicated feed additives will be used in rations.
- Medicated feed additives will be used in accordance with the FDA Good Manufacturing Practices (GMP) regulation.
- Follow 'Judicious Antibiotic Use Guidelines'.
- Extra-label use of feed additives is illegal and strictly prohibited.
- To avoid violative residues: withdrawal times must be strictly adhered to.
- Where applicable, complete records must be kept when formulating or feeding medicated feed rations.
- Records are to be kept a minimum of two years.
- Operator will assure that all additives are withdrawn at the proper time to avoid violative residues.

# Group Processing Treatment Record



Farm/Ranch name

Premises ID

page \_\_\_\_ of \_\_\_\_

RFID Visual ID

RFID	Visual ID

Group/Pen

Date

Processor Initials

Safe market date

Product 1

Route/location

Dosage unit  

--	--

Lot or serial #

Expiration date

Withdraw, days

Product 2

Route/location

Dosage unit  

--	--

Lot or serial #

Expiration date

Withdraw, days

Product 3

Route/location

Dosage unit  

--	--

Lot or serial #

Expiration date

Withdraw, days

Product 4

Route/location

Dosage unit  

--	--

Lot or serial #

Expiration date

Withdraw, days

RFID	Visual ID

Group/Pen  Date

Product 5  Route/location  Dosage  unit   
Lot or serial #  Expiration date  Withdraw, days

Product 6  Route/location  Dosage  unit   
Lot or serial #  Expiration date  Withdraw, days

Product 7  Route/location  Dosage  unit   
Lot or serial #  Expiration date  Withdraw, days

Product 8  Route/location  Dosage  unit   
Lot or serial #  Expiration date  Withdraw, days



# Group Processing Treatment Record



Farm/Ranch name

Premises ID

page \_\_\_\_ of \_\_\_\_

RFID	Visual ID

Group/Pen  Date  Processor Initials  Safe market date

Product 1  Route/location  Dosage  unit

Lot or serial #  Expiration date  Withdraw, days

Product 2  Route/location  Dosage  unit

Lot or serial #  Expiration date  Withdraw, days

Product 3  Route/location  Dosage  unit

Lot or serial #  Expiration date  Withdraw, days

Product 4  Route/location  Dosage  unit

Lot or serial #  Expiration date  Withdraw, days

RFID	Visual ID

**Group/Pen**  **Date**

**Product 5**  **Route/location**  **Dosage**  **unit**

**Lot or serial #**  **Expiration date**  **Withdraw, days**

**Product 6**  **Route/location**  **Dosage**  **unit**

**Lot or serial #**  **Expiration date**  **Withdraw, days**

**Product 7**  **Route/location**  **Dosage**  **unit**

**Lot or serial #**  **Expiration date**  **Withdraw, days**

**Product 8**  **Route/location**  **Dosage**  **unit**

**Lot or serial #**  **Expiration date**  **Withdraw, days**





# Individual Animal Treatment Record

Written record version



RFID	Visual ID	Group/Pen	Date	Weight, lb	Rectal Temp °F	Diagnosis	Treatment Product

Lot or serial #	Expiration date	Dosage	Route/location	Withdrawal, d	Safe market date	Initials

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