



North Florida Research and Education Center Beef Unit

STANDARD OPERATING PROCEDURES (SOP) September 2025

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This manuscript has been prepared exclusively for the NFREC BEEF UNIT of the University of Florida. It is not intended to be used as generic operating procedures for beef cattle operations.

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SIGNATURE PAGE

Protocol reviewed and approved by:

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9/11/2025 | 5:18 PM EDT

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Date (9/11/2025)

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9/11/2025 | 5:22 PM EDT

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9/11/2025 | 5:26 PM EDT

Dr. Angela Gonella-Diaza

Date (9/11/2025)

NFREC BEEF UNIT ORGANIZATION

All members of the NFREC are required to work as a cohesive team, sharing responsibilities, adhering to protocols described in the Standard Operating Procedures, and conducting themselves in a respectful manner.

The NFREC Beef Unit encompasses the feed efficiency facility (FEF). All employees are made aware of the flow of authority and are expected to report accordingly.

Currently, positions are held by the following individuals:

- Dean Pringle, PhD – Center Director
- Barry Tillman, PhD – Assistant Director & Professor
- Nicolas DiLorenzo, PhD – Professor, Nutrition
- José Dubeux, PhD – Professor, Forage
- Angela Gonella-Diaza, PhD – Assistant Professor, Reproduction
- David Thomas – Beef Unit Manager
- Liza Garcia, PhD – Research Associate
- Tessa Hallford, PhD – Biological Scientist (Nutrition)
- Martin Ruiz Moreno, PhD – Biological Scientist (Forage)
- Olivia Helms Hill – Beef Unit Assistant
- Jakub Bruner – Beef Cattle Crew
- Troy Windham – Beef Cattle Crew
- Cole Wood – Beef Cattle Crew
- Isaac Phillips – FEF Cattle Crew
- Ray Morgan – Maintenance Supervisor
- Gina Arnett – Administrative Assistant
- Tina Gwin – Administrative Assistant

NFREC BEEF UNIT ORGANIZATION

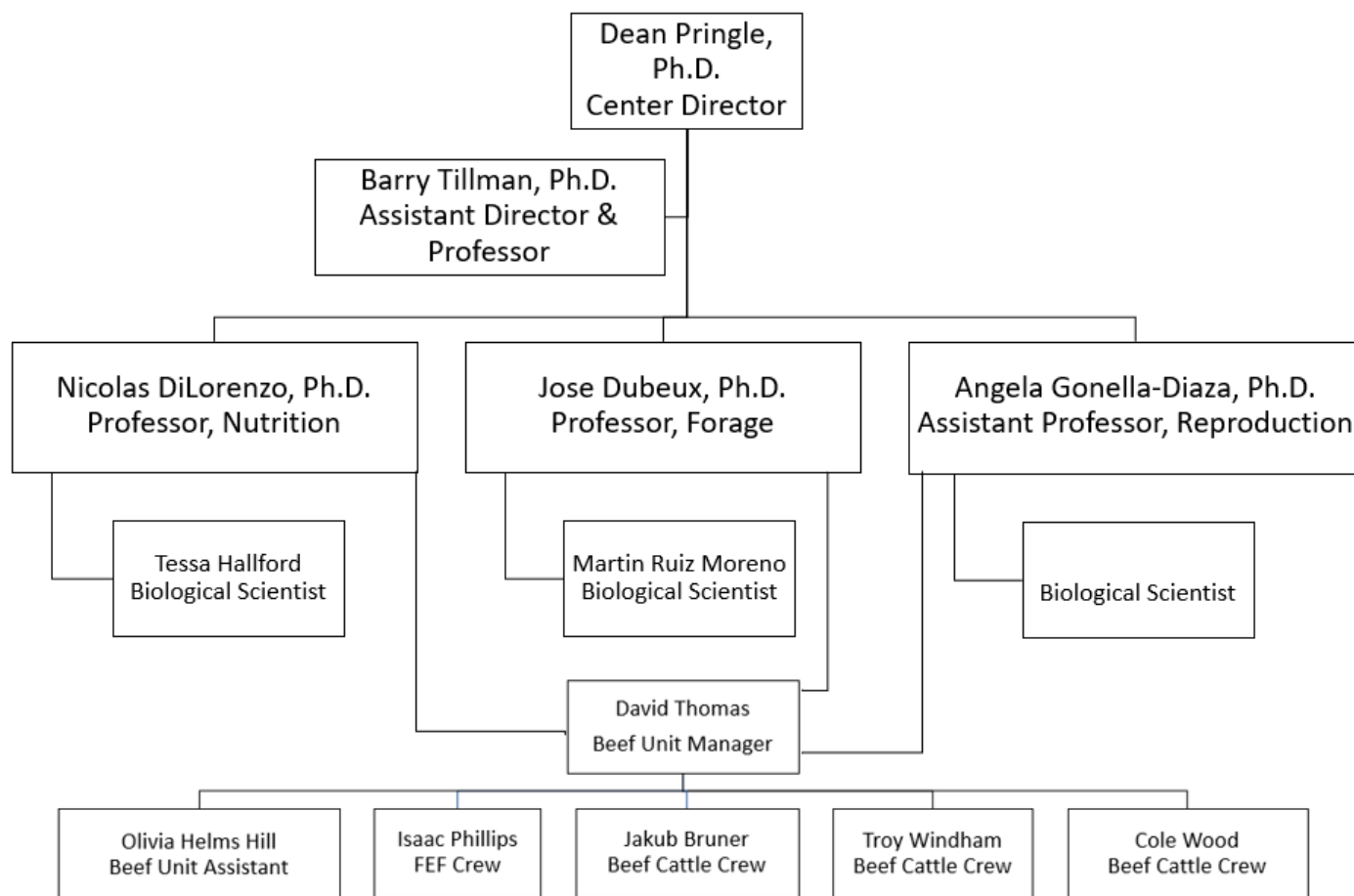


Figure 1. Flow of authority for personnel at the NFREC Beef Unit.

All managers will report to Dr. Nicolas DiLorenzo, Dr. Jose Dubeux, or Dr. Angela Gonella-Diaza. Biological Scientists report to both professors and assistant or associate professors, depending on their appointments.

NFREC BEEF UNIT EMPLOYEE DIRECTORY

Name / Title	Email	Office Phone	Cell Phone
Nicolas Dilorenzo , PhD Professor	ndilorenzo@ufl.edu	(850) 526-1615	(850) 557-8319
Tessa Hallford , PhD Biological Scientist	tschulmeister@ufl.edu	(850) 526-1642	(309) 749-7690
Jose Dubeux , PhD Professor	dubeux@ufl.edu	(850) 526-1618	(850) 209-6305
Martin Ruiz Moreno , PhD Biological Scientist	ruizm001@ufl.edu	(850) 526-1630	(850) 557-2264
Angela Gonella-Diaza , PhD Assistant Professor	a.gonelladiaza@ufl.edu	(850) 526-1612	(850) 693-6465
Liza Garcia , PhD Research Associate	lizagarcia@ufl.edu	(850) 526-1614	(850) 557-8378
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Cole Wood Beef Cattle Crew	cole.wood@ufl.edu	(850) 526-1636	(850) 227-4887
Olivia Helms Hill Beef Unit Assistant	oliviahh@ufl.edu	(850) 526-1621	(850) 272-2669

LIST OF ABBREVIATIONS

Abbreviation	Description
AI	Artificial Insemination
BID	Twice Daily
BSE	Breeding Soundness Exam
BU	Beef Unit
d	Day
DM	Dry Matter
EPA	Environmental Protection Agency
FDA	Food and Drug Administration
FEF	Feed Efficiency Facility
h	Hour
IACUC	Institutional Animal Care and Use Committee
IM	Intramuscular
IV	Intravenous
lb	Pounds
MagOx	Magnesium Oxide
mL	Milliliters
NFREC	North Florida Research and Education Center
QD	Every Day
QID	Four Times a Day
QOD	Every Other Day
SID	Once Daily
TID	Three Times a Day
USDA	United States Department of Agriculture
VCPR	Valid Veterinary Client Patient Relationship

Herd Records

Herd Record Availability

Health, production, genetic, and treatment records of all cattle in the Beef Unit herd are always available. Records are maintained in the Cattle Max program. All files are backed up on a disc which is held by the beef unit secretary. If information is needed from years prior to the current records available, contact the beef unit secretary or the manager.

Beef Unit Assistant:

Olivia Helms Hill

Email: oliviahh@ufl.edu

Office Phone: 850-526-1621

Animal Identification

Individual identification will be applied to each animal. Long-term herd cattle (cows and bulls) will be identified by:

- Ear tag
- Hot iron brand on left hip

The first sequence of numbers of the individual ID is the year followed by the animal ID number.

Processing and treatment records

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

- Group or lot identification
- Date treated
- Product administered
- Dosage used
- Route and location of administration and who administered the product
- Earliest date cattle will have cleared withdrawal period

Treatment records will be maintained with the following recorded:

- Individual cattle or group identification
- Date treated
- Product administered
- Dosage used
- Route and location of administration and who administered the product
- Earliest date cattle will have cleared withdrawal period

Good Documentation Practice

All raw data will be recorded using indelible ink and in a manner that ensures it is accurate, legible, contemporaneous, original, and attributable. Correction of errors in the recording raw data will be accomplished in a manner that:

- Does not obscure the original entry (do not use any correcting fluids)
- Includes the initials of the person making the correction and date
- Includes the reason for the correction (error codes)
- Includes the corrected data entry

Table 1. Correction codes to be used for good documentation practice.

Correction Code	Explanation
CE	Calculation error
DE	Dating error
EE	Entry error
IE	Illegible error
LE	Late entry
ME	Missed entry
OW	Overwritten entry
PE	Pencil entry
SE	Spelling error
UE	Unnecessary entry
WL	Entry in wrong location

All raw data will be recorded in logbooks or study specific form or appropriate data capture forms supplied by a sponsor. Upon completion of data entry, all raw data will be transported to the main office where data is stored. For regulated studies (i.e. vGCP):

- All raw data will be quality checked (QC) by students or staff, then reviewed and signed/dated by the PI
- Following QC and PI review/signature, all raw data will be archived in a designated location in the main office

BEEF UNIT MANAGEMENT MEETING AND SOP DEVELOPMENT

Monthly, a meeting of all members of the Beef Unit, staff of the NFREC, and graduate students is held in the NFREC conference room. The purpose of this meeting is to present all events relevant to Beef Unit management (cows calving, cows culled, feed management, health events, crop production, research activities, etc.), so that all interested parties are made aware of activities at the Beef Unit. It is at this meeting that research activities and plans are developed and discussed.

The results from these meetings, in addition to any changes to state and federal regulations, will be used to update this document on July 1st of each year. The final document must undergo the approval of Dr. Nicolas DiLorenzo. Document must be signed and dated (see Signature section).

CATTLE EMERGENCY CALL PROCEDURES

The Farm and Pet Veterinary Services provides emergency services to the Beef Unit on a 24 h basis. Clinical situations that warrant the assistance of a veterinarian are discussed in this manuscript. All Beef Unit personnel involved in health care procedures are encouraged to seek veterinary assistance when confronted with these situations.

Farm and Pet Veterinary Clinic
Dr. Todd Anderson
4297 Lafayette Street
Marianna, FL 32446
Telephone between 8:00 AM to 5:00 PM: 850-526-4031
After hours, weekends, and holidays: 850-526-4031

Sick or Injured Animals

If possible, all sick or injured animals should be segregated from the herd and housed individually until a clean bill of health is received. Segregation should be determined on an individual animal basis, weighing addition to animal stress and best environment for animal recovery. Once identified as sick or injured, the steps of treatment and reporting (detailed for cattle of each defined group below) should be followed according to the diagnoses.

When warranted and feasible, remove all waste and bedding from facilities occupied by an animal that has died should be moved to an area that is inaccessible to other animals.

Euthanasia Guidelines

The decision to humanely euthanize any cattle will be made by Dr. Nicolas DiLorenzo or Mr. David Thomas in conjunction with a herd veterinarian and should be carried out in a timely manner if the cattle are perceived to be in pain or distress.

Cattle will be euthanized according to guidelines established in 2020 by the American Veterinary Medical Association (<https://www.avma.org/sites/default/files/2020-02/Guidelines-on-Euthanasia-2020.pdf>) and the American Association of Bovine Practitioners (https://www.aabp.org/Resources/AABP_Guidelines/EUTHANASIA-2023.pdf). The barbiturate method can only be applied by a herd veterinarian.

Carcass Disposal

Upon the death of any cattle, regardless of age or size, the following protocol will be adhered to:

- Report death to management and file death report with the Beef Unit secretary
- Remove all inorganic materials that are associated with the carcass
- Prepare a hole in designated area of no less than 6 feet deep and of appropriate dimensions to ensure complete coverage for the size of the carcass
- The carcass should be placed in the hole and covered with fill dirt

- All carcasses are to be buried individually

In all instances, management should be informed of the disposal of a carcass and the details of the event.

Health Reporting

In the case of reporting sick animals to the attending veterinarian the following information will be provided to the beef unit secretary so that proper records may be filed, management is made aware of the case, and the veterinarian is contacted:

- Animal ID
- Age, weight, sex, and physiological status of animal
- Date symptoms were first identified
- Symptoms
- Location of the animal
- Any additional information thought to be pertinent

When institutional representatives determine that a medical record should be created, the record typically contains the following information:

- Identification of the animal(s) or group(s)
- Clinical information, such as the animal's behavior, results of physical examinations, and observed abnormalities, illnesses, and/or injuries
- Immunizations and other prophylactic treatments and procedures
- Documentation and interpretation of diagnostic tests
- Documentation of research interventions
- Treatments prescribed and administered
- Clinical response and follow up information
- Descriptions of surgical procedures, anesthesia, analgesia, and perioperative care
- Methods used to control pain and distress
- Documentation of resolution
- Documentation of euthanasia or other disposition
- Necropsy findings if necropsy is indicated

These records will be made available upon request. In the case veterinarians are needed for treatment, unexplained, and/or unexpected death, Dr. Nicolas DiLorenzo will contact Farm and Pet Veterinary Clinic to perform a necropsy. Dr. Nicolas DiLorenzo will then report the findings to:

Director, Animal Care Services and Attending Veterinarian University of Florida
[PO Box 100006] 1600 SW Archer Road
Gainesville, FL 32610
352-273-9246

HANDLING FACILITIES/EQUIPMENT/WORK AREAS

The Beef Unit has state-of-the-art cattle handling equipment and facilities that are used by numerous people for numerous reasons. It is not only courteous, but also required, that people that use facilities clean up after themselves.

Cattle Processing Facilities

Processing facilities will be washed and cleaned based on the amount of use and buildup of organic matter. The cattle chute will be cleaned to remove all debris underneath the scale load cells and to remove all organic material that is within the chute's body. The area directly in front of the chute will be covered with material to ensure that cattle have adequate traction when exiting the chute to reduce slipping.

The alley way and tub loading system will be cleaned whenever the footing of the cattle is becoming compromised. The entire area will be power washed, with the removal of all organic material.

Bi-annually, the entire processing facilities will be evaluated for any areas or issues that may cause harm to the cattle or cattle handlers. Repairs will be made in order to ensure equipment is in proper working order and meets all safety requirements. At this time all hydraulic and mechanical equipment will also be serviced by the NFREC farm shop.

Pens and Holding Areas

All pens and holding areas will be managed in a means that provides a clean and dry environment for the cattle. Cleaning schedules will be based on use and buildup of organic materials.

Any pens with cement bottoms will be bedded with material such as wood shavings or a suitable substitute. Pens with bedding will be cleaned on an as needed basis. Increased cattle size and number of occupants per pen will lead to more frequent cleaning of pens. The frequency of the cleaning schedule will be determined by management.

Cattle Handling

All members of the Beef Unit will manage cattle in a manner which will minimize stress and the chance of injury to themselves and their cattle.

Cattle handlers will use increased caution around bulls or cows with newborn calves. In addition, they will work with an understanding of the cattle's flight zone to ensure handler safety and cattle wellbeing.

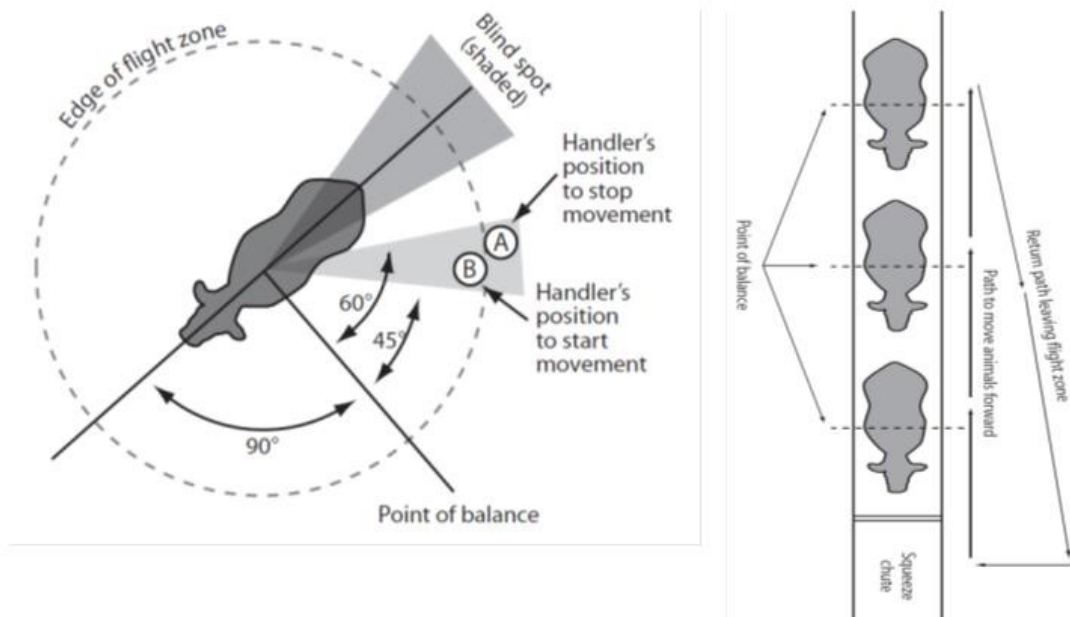


Figure 2: Schematic of bovine flight zone.

Environmental Conditions

Cattle will not be handled during extreme hot/humid or cold weather conditions. In addition, cattle will not be handled in inclement weather conditions that may risk handler or cattle safety. Cattle being housed in pens or holding areas for an extended period of time (> 6 h) will be provided with access to shade and water.

ANIMAL TRANSPORT

The transport of livestock involves a complex series of operations including handling, loading and unloading, unfamiliar environments, and, in some cases, isolation, social disruption, confinement, loss of balance, fluctuations in environmental temperature and humidity, exposure to pollutants (truck exhaust), feed and water deprivation, and other factors. Thus, it is critical that all personnel are familiar with the procedures needed to ensure animal well-being, with the safety and comfort of the animals being taken into account at all times.

The primary trailers that will be transporting cattle at the NFREC can be described as follows:

- Pick-up and stock trailers
- Trailers are double axel and between 24 ft in length and 6 and 7.5 ft in width
- Trailers are pulled by a gooseneck hitch mounted in a ½ or ¾ ton pick-up

In addition, tractor trailers may be contracted to haul larger groups of animals over an extended distance. The contractors will be responsible for abiding by all governed regulations set forth. Under no circumstances will exceeding the weight limits of the trailer be permitted. Strict adherence to all laws and regulations must be followed.

The following considerations should be taken when transporting animals:

- Females within 30 d of parturition should not be transported, aside from brief on-farm transport
- When transporting cows and calves, calves should always be separated from the cows (≥ 500 lb)
- Males and females should be separated during transport
- Animals should not be transported in extreme weather conditions such as heat, cold, or rain if avoidable
- Transport vehicles should be well ventilated, allowing airflow to all animals

Prior to transport and loading the vehicle that will be used for transport should be inspected by the farm shop to ensure that it is in proper working condition. In addition, farm members should do a pre-transport inspection prior to loading the trailer.

The following should be inspected:

- The floor should be clean and free of slick and/or hazardous material to avoid potential injury or falls
- The sides of vehicle should be free of any sharp edges or protrusions which may injury animals
- Ensure all latches are working properly
- Check trailer tire pressure and ensure a proper fitting spare tire and jack are available in vehicle
- Ensure safety chains and ball latches are all locked into position
- Ensure all lights, blinkers, and brake lights are working properly
- Ensure trailer brakes are working properly

Following the pre-trip inspection, the trailer is ready to be loaded for cattle transportation. Cattle weight and space needed for comfortable, safe transport should be considered prior to loading. Weight will be predetermined based on the axle load of the vehicle and the driver's license class held by the vehicle operator. All regulations should be lawfully observed in every circumstance.

Table 2. Recommended area allowance for beef cattle during transport.

Class	Average BW, lb	Area per Animal, ft²	
Calves	200	3.5	
	300	4.8	
	400	6.4	
	600	8.8	
Mature Cows and Steers		Horned	Hornless
	800	10.9	10.4
	1,000	12.8	12.0
	1,200	15.3	14.5
	1,400	19.0	18.0

Adopted from the NRC (2006)

United States regulations specify that livestock must be unloaded, fed, and watered after 28 h on a vehicle during interstate transport. Transporters must comply with all county, state, and federal animal health regulations and identification requirements before transporting livestock. When animals are transported across state lines or from foreign countries, federal regulations for vaccinations, veterinary inspections, and health certificates must be complied with.

After the transport is complete the trailer should be washed, ensuring all animal waste is removed and the floor is clean and free of material that would promote slipping. This is to be done in the designated area using the pressure wash hose.

ANIMAL BODY WEIGHT

Scales must be calibrated using validated weights and maintained prior to each animal weighing procedure. Each employee responsible for recording animal weight will undergo annual training, which must be documented (see Documentation section).

The scale validation process consists of recording the lower and upper limit of the group that will be weighed.

- Place a certified 25 lb weight on the scale and record the reading
- Place the heaviest animal in the group on the scale, add the certified 25 lb weight, and record the reading
- Determine the variation – the expected and actual reading should not vary more than 2%

Marketing

Check payments for cattle will be made to the University of Florida or University of Florida Foundation for all shared cattle (NO EXCEPTIONS). All monies will be given to the Administrative Specialist (Tina Gwin) for processing.

Management will consult the assistant director on all marketing decisions. Cattle will be marketed in various methods at differing locations.

Prior to marketing cattle, all health records will be reviewed to ensure proper withdrawal times have been allowed. In addition, all parties involved in shared ownership and partnerships must be made aware of and approve the marketing plan.

NOTE: Checks must be made out properly or Beef Unit management will be responsible for contacting the owner of the check and making the corrections.

Evaluation of body condition score (BCS)

All animals will undergo a BCS evaluation prior to the breeding season. Additionally, evaluation of BCS is a commonly used technique in research protocols; therefore, a guide to evaluate BCS is available in Table 3. Individuals evaluating BCS are required to receive initial and annual training with a capable supervisor, which must be well documented and maintained (see training section).

Table 3. Body condition score (BCS) evaluation guide.

BCS	Condition	Appearance
1	Emaciated	Shoulder, ribs and back are visible
2	Very thin	Some muscle, no fat deposits
3	Thin	Some fat deposits, ribs visible
4	Borderline	Foreribs not noticeable
5	Moderate	12 th and 13 th ribs not visible
6	Good	Ribs covered, sponginess to tailhead
7	Very good	Abundant fat on tailhead
8	Fat	Fat cover thick and spongy
9	Obese	Extremely fat throughout

Blood sample collection

When needed, cattle blood samples are collected via coccygeal or jugular venipuncture, using treated vacutainers according to the research needs. Blood will be placed on ice until further processing depending on the study in place. Every employee handling, collecting, or processing blood must undergo initial training prior to the start of the study, and annually thereafter. All trainings are documented as needed (see Documentation section).

NUTRITIONAL MANAGEMENT

Animals will be managed such that their maintenance requirements, according to the Nutrient Requirements of Beef Cattle (NASEM, 2016), are either met or exceeded. These requirements will be adjusted according to the stage of production and level of expected performance.

Nutrient requirements include, but are not limited to:

- Energy
- Protein
- Vitamins
- Minerals
- Water

The nutritive values of feedstuffs will be determined by wet chemistry proximate analysis, if unknown, to ensure that the proper requirements are being met.

Additionally, all delivered feedstuffs will be closely monitored for spoilage, molds, or any other condition which may be harmful to animal health and wellbeing.

Feeding requirements and levels may be adjusted for research trials; however, all feeding levels, if below recommended values will be approved by IACUC prior to initiation of the research.

Feed storage and handling practices

Feed will be stored in designated areas and feed commodity management will be overseen by the Beef Unit Manager.

When new commodities are received from an outside source the following steps should be taken:

- Ticketing information should be confirmed on the delivery of the item and the quantity that should be delivered
- All tickets must be given to the NFREC secretaries. If an individual other than the manager is present at the time of the delivery the tickets should first be given to the manager, and he/she should be made aware of the commodity brought and location of storage
- An employee must be present at the delivery of feed. Whoever is present at the time the feed is unloaded is responsible for the tickets, feed sample, and proper storage of the feed

All feedstuffs will be stored in clean dry areas. Feeds will either be stored at the commodity barn, in mass storage containers located at the Feed Efficiency Facility (FEF), or in smaller storage containers with secure lids.

The following considerations will be managed for all feeds:

- All bagged feeds will be stored in a dry area, under shelter, and should always be placed on a wooden pallet off the ground

- All feed that is contained outside the commodity barn or mass storage containers will be stored with a secure lid and placed out of reach of any animals
- Prior to introducing a new commodity or feed a storage area or container the area will be cleaned to ensure no residual from the prior commodity exists for cross contamination. This includes mixing equipment and gravity flow wagons
- While the commodity is in stock it will be managed for quality. Identification of any molds, fungus, or specious looking feedstuffs should be reported to management
- When mixing feed, only the large bucket attachment for the Bobcat is used
- The use of the small bucket attachment is for handling manure
- Any compounds that are deemed as possibly toxic should be properly labeled and stored in a designated area to avoid contamination or animal risk

Conserved forage (hay) will be managed by the Beef Unit manager with the following considerations:

- All hay will be stored in a means to limit exposure to environmental elements
- Following harvest, any feeds with possible toxin issues will be tested prior to being fed to livestock
- All haylage will be managed throughout the year, with evaluation of the wraps for holes and damage being done every month
- All wrap or twine will be removed from feed prior to delivery to livestock and employees are expected to ensure that none of the material is left within the feeding grounds

Feed Sample Collection

Representative samples of the diet should be collected from the feed bunk on each day animals are weighed (every 14 or 28 d). Specific trials may vary but unless stated otherwise the following should be referenced for feed sampling:

- Collect two samples from each feed bunk of the diet fed during the test immediately after delivery
- Each sample should be stored in a 1-gal plastic Ziploc bag
- Collect samples by hand, grabbing a representative amount from at least 3 bunks in different pens
- A couple fistfuls of sample from each bunk (taken at different depths) should be sufficient to fill the 1-gal bag
- Label the bags appropriately with the date, name of the experiment, name of PI (principal investigator) and diet (i.e., FL Bull Test, Big Beef-0.2%, etc.)
- Bags should be stored at -20°C until further processing or immediately transported to the lab to be weighed and placed in the oven
- The contents of one bag should be weighed immediately and dried at 100°C for 24 h to determine dry matter (DM)
 - This sample can be disposed of after weighing the dried sample
- The contents of the second bag should be dried for 72 h at 55°C to determine nutritional composition
 - This sample does not need to be weighed to determine DM
 - After the 72-h drying, the sample can be stored at 4 to 10°C

- At the end of the experiment, when all the 55°C samples have been dried and stored; a composite sample is created by mixing equal amounts from each sampling date
 - This sample will be ground through a 2-mm screen and analyzed for nutritional value
- The average DM value of all samples dried at 100°C during the study will be used to calculate the overall DM value of the diet fed

HERD HEALTH MANAGEMENT

New herd additions

Records of vaccinations and treatments of new herd additions are reviewed prior to purchase. Management and/or a herd veterinarian will contact the veterinarian providing veterinary care to the herd(s) of origin to determine their health status.

As required by state law, beef cattle entering Florida must test negative for tuberculosis and brucellosis, or they must originate in certified/accredited herds/states free of these diseases (see <https://www.fdacs.gov/Agriculture-Industry/Livestock/Animal-Movement/Cattle-Movement-Requirements-Including-Bison> for additional information on State of Florida cattle import requirements). As required by federal law, cattle will be inspected and an Official Certificate of Veterinary Inspection issued by a USDA accredited veterinarian prior to loading for interstate delivery to the Beef Unit.

Cattle originating from within Florida will be required to have an Official Certificate of Veterinary Inspection issued by an USDA accredited veterinarian prior to loading for delivery to the Beef Unit.

Quarantine

Bulls purchased as sires for propagating the NFREC Beef Unit herd will be subjected to a quarantine for no less than 30 d in a designated pen, pasture, or paddock and set apart from the research herd by a minimum distance of 10 feet. Newly received bulls will be monitored daily for any signs of infectious disease. Any bull exhibiting signs or symptoms of disease will be examined by the attending veterinarian and treated as prescribed. The decision to release a bull treated for disease from quarantine will be at the discretion of the attending veterinarian. During the quarantine period, newly received bulls will be vaccinated and treated for parasites, according to the NFREC Beef Unit vaccination schedule for bulls (Table 12). Newly received bulls will be retained in the quarantine area until prior to the initiation of the breeding season where they will undergo a breeding soundness exam, which must be passed to remain within the bull herd. Records for newly received bulls will be added to and maintained in the Cattle Max program within 2 d of arrival to NFREC Marianna.

Drug storage and monitoring

Drugs are kept locked in a storeroom accessible by the Beef Unit management, beef cattle crew, and feed efficiency crew members. It is the responsibility of the Beef Unit management to keep

track of what's on hand and monitor the expiration dates. Drugs are rotated by expiration date as they are received and put in storage. Monthly, the inventory of drugs will be reviewed, and any expired drugs will be disposed of properly.

Injections and antibiotics

All FDA/USDA/EPA guidelines for product(s) utilized should be followed. All products are to be used per label directions. Extra-label 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.

Injection sites

These recommendations are those made by the Beef Quality Assurance Program and are intended to minimize post-injection complications and to improve the quality of beef in the market.

Intramuscular injections (IM)

- All IM injections should be given in the muscle on the side of the neck
- No IM injections should be given in the muscles of the legs

Subcutaneous injections (SQ)

- Under the skin on the side of the neck or behind the elbow

Intravenous injections (IV)

- > 5 mL – jugular vein
- < 5 mL – coccygeal vein

Table 4. Primary drugs used / available at the NFREC BEEF UNIT.

Drug	Dosage
Argimycin® 200	4.5 mL / 100 lb of BW administered IM or SQ not to exceed a total of 4 consecutive d
Biomycin® 200	4.5 mL / 100 lb SQ or IM (one dose gives 3 d of therapy)
Draxxin™	1.1 mL / 100 lb SQ (one dose gives 6 d of therapy)
Flunixin®	2 mL / 100 lb IV SID up to 3 d
Excenel®	2 mL / 100 lb IM or SQ (side of neck) SID for up to 7 d
Micotil®	1.5 mL / 100 lb SQ (no more than 25 mL per injection)
Naxcel®	2 mL / 100 lb IM or SQ (side of neck) SID for up to 7 d
NuFlor®	6 mL / 100 lb SQ on side of neck (one dose gives 4 d of therapy)

Penicillin 5-10 mL / 100 lb IM (side of neck) SID for up to 7 d

SID = Once a day

BID = Twice a day

IM = Intramuscular injections

SQ = Subcutaneous injections

Parturition

Identification of the stage of labor which the cow/heifer is in will allow for proper management of the birth. Once the cow is identified in labor, her ID, the time, and stage of labor should be reported to ensure that if assistance is needed, it can be done on the appropriate timeline.

Stage 1

Visual Signs: Visible signs of labor may be scant or absent in mature cows, but more evident in the first-calf heifers.

- The pastured cow will usually seek an isolated place, and vaginal discharges increase in liquefaction and expulsion of the cervical plug.
- The cow (particularly first-calf heifers) will show signs of uneasiness and pain.
- Occasionally she will kick at her belly and wring her tail or elevate her tail.
- Restlessness and a tendency to lie down and get up frequently.

Events of Labor:

Stage 1

Begins with contraction and ends when the cervix is fully dilated and fetal parts enter the birth canal.

- Uterine contractions first occur about every 15 min, and by the end of stage 1, they occur about every 3 min.
- As the first stage progresses, the contractions become strong enough to cause the cow to arch her back and strain slightly. In cattle, the normal duration of stage 1 is 2-6 h, sometimes longer in heifers (should not exceed 8 h).
- Normally, the first water sac is forced into the dilating cervix and breaks during stage 1 and it may be observed that the water has broken.
- Certain abnormal deliveries are characterized by a failure of the heifer or cow to progress into stage 2 and the calf may be dead before the decision for intervention is made.
- If it is suspected that a heifer or cow has been in stage 1 too long and not progressed into Stage 2, intervention is recommended.

Stage 2

Visual Signs: At this stage of labor, the second water sac will be visible with fetal parts entering the birth canal (feet and legs).

- The observation of the water sac is probably the most practical indication the animal is in stage 2 labor.

- The pains of uterine contraction at this point usually force most cows to lie down.
- The abdominal press is exerted more frequently as labor progresses until it occurs up to 1-3 times per min.

Events of labor for Stage 2

Second stage labor begins when the cervix is fully dilated. The unbroken water sac is often forced through the vulva after the cow has been in labor for a short time.

- During delivery, a series of frequent abdominal presses followed by a short period of rest is characteristic. The greatest frequency and force are achieved when the fetal head is being forced through the birth canal and vulva.
- Following delivery of the head, a short period of rest may occur. Strong expulsive efforts are required again to force the shoulders and chest of the calf through the birth canal. Sometimes the cow will stop straining for a short time following delivery of the chest, allowing the rear legs to rest in the birth canal.
- At this point, usually the umbilical cord may be compressed shutting off the oxygen supply to the calf from the dam. It is not unusual to observe the calf establishing its own breathing at this point.
- Occasionally at this point, the sac is still over the head of the calf, and the calf could suffocate if the sac is not broken.
- Delivery of the hips and legs is usually uneventful; occurring soon after the chest passes through the vulva.
- Second stage labor lasts from 0.5 to 4 h in the cow. Intervention guidelines suggest assistance at not over 2 h, and earlier if it is not progressing normally.

Stage 3

The placenta or fetal membrane is usually expelled within 8-12 h after delivery of the calf.

Recognizing deliveries that may need assistance

The decision to intervene should be made based on sound judgment. An understanding of the rationale behind these guidelines is essential for all personnel who may be involved in the calving crew. If employees are unsure of the stage of labor or the time in which the animal has been in that stage, early intervention is recommended.

Recommended guidelines based on stage of labor

Stage 1: If you suspect the cow has been in stage 1 of labor for over 8 h, intervention is needed. Some abnormal deliveries do not allow the cow to progress into a normal stage 2 of labor. In other cases, the cow may be in a state of uterine inertia and will not go into stage 2 of labor.

Stage 2: Intervention is indicated if any of the following conditions of stage 2 exist:

- If the water sac is visible for 2 h and the cow is not trying.
- If the cow has been trying for over 30 min and making no progress.
- If the cow has quit trying for over a 15-20 min period of time after a period of progress. Breaks normally should not exceed 5 to 10 min unless fatigue or uterine inertia is involved.
- If the cow or calf is showing signs of excessive fatigue and stress--like swollen tongue of the calf or severe bleeding from the rectum of the cow.
- If from an observational standpoint you determine that you have an abnormal delivery from the presentation, position, and posture standpoint.

Stage 3: If the cow has not passed fetal membranes within 12 h of calving, intervention may be necessary. If they are retained, treatment may be indicated.

In no instance, however, is manual removal of the fetal membranes advocated, as this is detrimental to subsequent reproductive performance.

These specific guidelines for intervention in protracted labor will be adequate in most instances. However, should you realize that interruption of normal progress of labor at any stage or time is sufficient justification for intervention. Early intervention appears to be of the greatest benefit for calf survivability and reproductive performance of the heifer or cow. Early intervention is defined as 30 min after presentation of the water sac with feet outside the vulva. Late intervention is 1 h.

Examination of the cow

Once it is determined that intervention should take place. The cow/heifer should be brought to the processing pens and placed in the squeeze chute for an examination.

Keeping in mind:

- Obstetrics is a branch of surgery and therefore cleanliness, asepsis, and gentleness are of prime importance
- The treatment must be humane and should be carried out with adequate available help to realize the best outcome
- Obstetric cases should always be regarded with urgency, but the actual intervention requires patience, bearing in mind the normal duration of the different stages of labor

Once you have properly restrained the cow/heifer the following protocol should be followed during the examination of the cow/heifer:

- Scrub the hands and arms thoroughly with soap, warm water and antiseptic
- Wash the vulva and anal area plus an area lateral to both
- Insert your hand slowly into the vagina, and don't rupture the water-sac unless the cervix is fully dilated. Use lubrication as necessary and determine the presentation, position, and posture of the calf
- If the calf's presentation, position, or posture is not normal, you may want to seek help, particularly if you encounter a delivery you have not seen before
- The presentation, position, and posture of the fetus should be assessed, and a determination made as to whether it can be handled within the capabilities of the assistant
- If assistance is to be provided, it is essential that the assistant have a thorough understanding of the amount of traction, direction of pull, and limitations of assistance in the delivery process. If not, more qualified help should be sought immediately

If it is determined that assistance is needed, you should first determine if the calf is alive or dead and the relative strength of the calf before attempting correction and manipulations. The reflexes used for determining viability are:

- Withdrawal reflex – Pinching between the digits of the hoof, and the calf withdraws its limb in response
- Suckle reflex – Placing hand in mouth you can feel mouth close or tongue move
- Poke in eye – Calf usually responds by withdrawing head
- Check for heartbeat – For a frontward calf, run hand down along side of the chest and feel for the heartbeat, or in a backwards calf feel for pulsation in the umbilical cord
- Rectal reflex – In backward calf, sticking finger in rectum should elicit contraction on the finger in a good strong calf

Lastly, the following guidelines are recommended to call for professional help to maximize the opportunity for a live calf. Professional assistance needs to be defined as someone who knows more about handling the problem than you do. The different levels of experience among individuals will dictate with what problems you require assistance. Regardless of the experience level, if these rules are followed the survivability opportunities of the calf and dam are increased.

Call for further assistance in any of the following cases:

- You are unable to identify what problem you are dealing with

- You know the problem and the solution, but know they are unable to handle the problem
- Know the problem and the solution; have tried and simply made no progress in a 20-min period

Abnormal Presentation, Position and Postures

Abnormal presentations, positions, and postures are best corrected while the cow is in the standing position. Once corrected, the tests for delivery can be applied as previously described. Try to carry out all these operations when the cow is not straining vigorously.

Prior to the beginning of the procedure, you may need to apply lubrication liberally within the uterus of the cow before correction is started. In some instances, the use of 4 to 5 gal of warm water with lubricant in it will also help distend the uterus to give you the extra room needed for correction.

Normal position in frontward presentation requiring forced extraction

Condition: Calf is in the backwards presentation (hind legs first), normal position and posture.

Procedure: Bilateral traction can be applied in the amount of two men and should be applied bilaterally (both legs at the same time). The test for delivery is if both shoulders of the calf can pass through the pelvis of the cow. If this is easily accomplished, possible delivery can be made.

The calf's life will not be compromised until its umbilical cord becomes trapped against the maternal pelvis. In practical terms, therefore, traction should be slow and controlled until such time as the calf's tail head and anus begins to emerge from the cow's vulva. Once this point is reached, delay should be avoided.

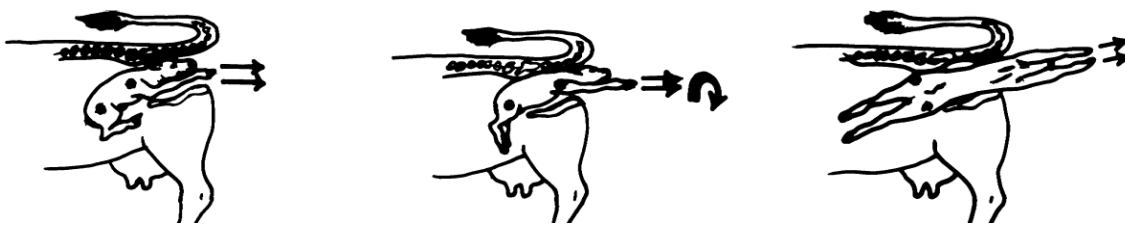


Figure 3: Sequence of delivery by forced extraction of calf in frontward presentation with normal position and posturing.

Backward calf

Condition: Calf is in the backwards presentation (hind legs first) but normal position and posture.

Procedure: First rotate calf 45-90 degrees by crossing the legs before attempting delivery to take advantage of the widest diameter of the cow's pelvis. In addition, the direction of pull on the calf is in a direction that is slightly up from a line straight out from the back of the cow.

Bilateral traction can be applied in the amount of two men and should be applied bilaterally (both legs at the same time). The test for delivery is if both hips of the calf can pass through the pelvis

of the cow. This is determined in most instances by the extension of the hocks of the calf beyond the vulva. If this is easily accomplished, possible delivery can be made.

At this point very little time remains to accomplish rotation of the fetus to a right side up position for the chest of the calf to come through the pelvis of the cow and deliver the calf. Delivery should be complete in no more than 2-3 min.

Note: If the test fails in either case, call for professional assistance as surgical delivery is probably indicated.

The calf's life will not be compromised until its umbilical cord becomes trapped against the maternal pelvis. In practical terms, therefore, traction should be slow and controlled until such time as the calf's tail head and anus begins to emerge from the cow's vulva. Once this point is reached, delay should be avoided.



Figure 4: Sequence of delivery of calf in backward with normal position and posturing

Elbow lock posture

Condition: One or both forelimbs are not extended as they come into the pelvic inlet, and the partly flexed elbows are locked on the brim of the pelvis and cause elbow lock.

Procedure: Push the body of the calf back into the uterus while simultaneous traction is exerted on the affected limb. This should allow the body to properly align moving elbows and head into the proper position.

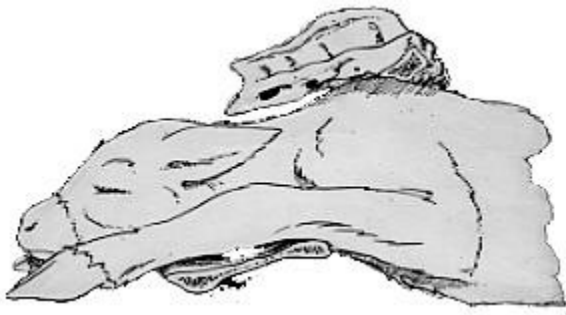


Figure 5: Visual example of elbow lock posture.

Deviation of the head

Condition: The two front legs may be presented, and the head deviated to the side or down between the front. If the head cannot be felt, do not assume that the calf is coming backward.

Procedure: Before pulling on the limbs, distinguish between forelimbs and hind limbs as described earlier. If the head is bent back into the right flank of the cow it will be easier to correct if the left hand is used and vice versa.

By grasping the muzzle or by placing the thumb and middle finger in the eye sockets, the head can be raised and directed into the pelvis. A loop of soft rope or chain placed in the mouth and looped up around the poll of the head behind the ears will sometimes be helpful.

The loop of the rope may be placed next to the mouth and the rope placed above the tongue of the calf. In some instances, looping the rope around the lower jaw is used instead. This should be avoided because it is easy to use excess traction and fracture the lower jaw.

In addition, pulling of the lower jaw will sometimes expose the uterus to the teeth of the calf and result in a uterine tear. In all these cases, the head can be brought up and straightened more easily if the body of the calf is at the same time repelled further back into the uterus.

This can be done by placing the hand between the front legs and pushing back the chest while the head is being pulled into the pelvis at the same time. In some instances, it is necessary to create even more room to correct the head.

This may require one of the front legs to be pushed back into the uterus to create a retained front leg that is flexed at the shoulder. In the case where the head is between the front legs this needs to be done first.

This would allow you to manipulate the head into first a lateral deviation and then correct as previously described.

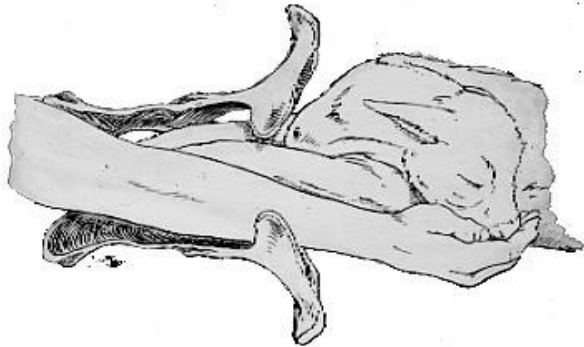
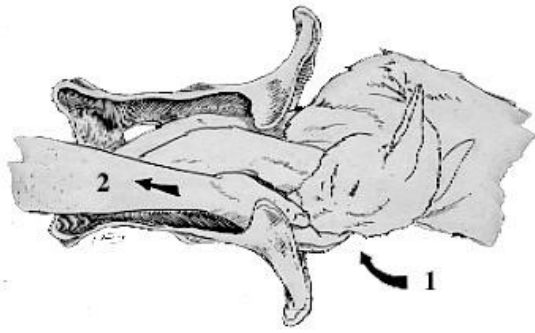
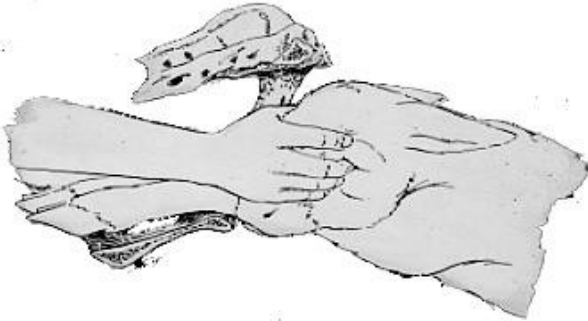


Figure 6. Correction of deviated head by grasping the muzzle or nose of calf.

Correction of deviated head by swinging head into correct posture before extraction is attempted



Alternative use of gripping the orbits of the eye in correcting a head deviation



Retention of one or both forelimbs

Condition: One or both forelegs are retained while the calf has the head out

Procedure: Secure the head by placing a chain behind the poll and through the mouth, then lubricate the head and push it back into the uterus. Then search for the limbs one at a time. If fully retained, the limb should be grasped just below the knee (carpus) and the limb be pulled until bent at the knee. Once this is accomplished you can generally slip a hand down the limb and grasp the hoof. It is necessary to cup the hoof such that you are providing protection for the uterus of the cow as you continue in the correction process.

To correct, now opposing forces need to be applied simultaneously. The knee should be repelled by one hand in a forward-upward-lateral direction and traction on the hoof in a medial-backward direction by the other hand. These directions are relative to the cow. It may be necessary to use a small rope or chain and place around the leg above the fetlock and between the digits of the hoof if getting both arms in the cow is a problem. If the other leg is retained, correct in a similar fashion.

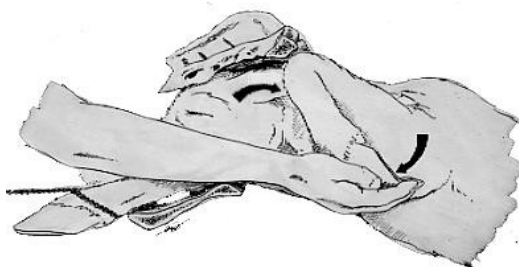
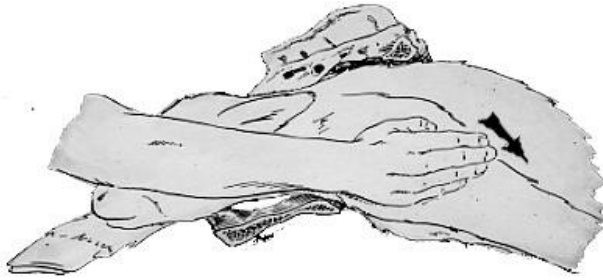


Figure 7. Correction of retained forelimb.

Step 1: Slipping hand down below elbow to convert leg to flexed knee or carpus

Step 2: Simultaneous movement of hoof toward midline of calf and knee laterally before pulling leg into extended posture



Retained hind limb or backward presentation, breech posture

Condition: The calf will have both back legs that are not presented and the calf is breech.

Procedure: The correction of this abnormal posture is the same as the retained forelimb. First, you find the hock and pull it until it is in a flexed position. Then, slip one hand down to cup the hoof. The hock should be repelled by one hand in a forward-upward- lateral direction and traction on the hoof in a medial-backward direction by the other hand. In some instances, the calf must be repelled back into the uterus before correction can be made. Occasionally, it is difficult to get both hands into the cow for correction. In these instances, the use of a toilet plunger a repulsion device against the rump of the calf has worked effectively.

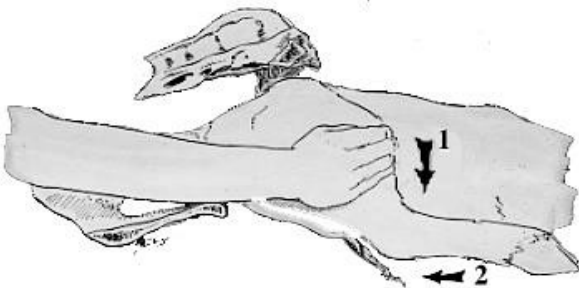
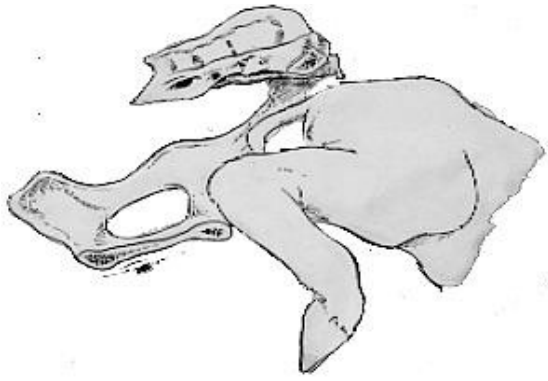
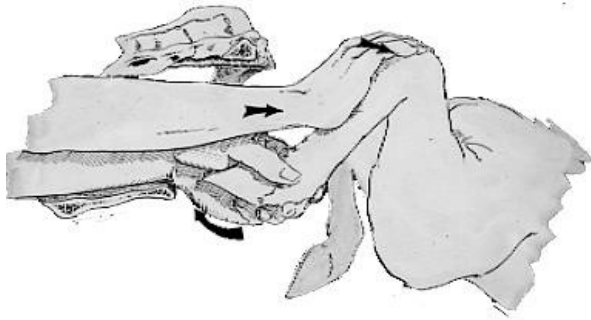


Figure 8: Retained hind limb in flexed hock posture

Step 1 in correction of retained hind limb. Sliding hand down leg to level of hock then converting limb to flexed hock



Correction of flexed hock by medial-posterior movement of hoof while lateral- forward repulsion of the hock



Transverse presentation

Condition: The calf is lying with their back against the pelvic opening or with all four limbs extended into the birth canal.

Procedure: Determine the hind from the forelimbs and if possible, deliver hind limbs first so you don't have to worry about the head. Since the calf is on its side, it's easier to rotate the calf's body by the hind legs than the forelegs. This requires repulsion of the forelimbs of the calf and usually the trunk of the calf as well. In most instances, this is a difficult correction to make.

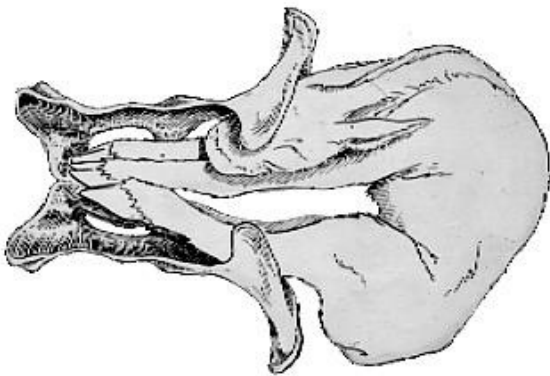


Figure 9: Calf in transverse presentation

Twins

Condition: Twins enter the vagina one at a time and are presented together and block the birth canal. In most of these cases, one comes frontward and the other backward.

Procedure: Extract the closest twin first. If in doubt, first extract the twin presenting hind legs, after first repelling the other twin back into the uterus.

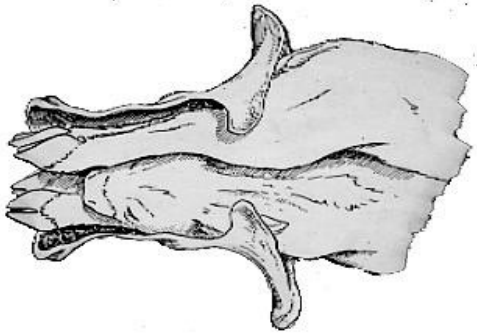


Figure 10: Twins with one each of frontward and backward presentation

Cesarean section and fetotomy

Condition: The reasons for surgery include most causes of dystocia:

- Fetal oversize
- Incomplete dilation of cervix
- Irreducible uterine torsion
- Fetal deformity or monsters
- Uncorrectable abnormal presentation, position or posture of fetus

Procedure: Cesarean section (C-section) is now a routine obstetric procedure in cattle practice, and the method of choice when dealing with a live calf and optimizing calf survivability. If calf is already dead, fetotomy is the method of choice due to optimal cow survivability. Remember, C-section is the most invasive of the two procedures.

The success of the surgical procedure increases with the timely decision-making than to the surgical skills of the veterinarian. Therefore, decision making in a timely fashion is of importance for greatest survivability of the calf and the cow

Reproductive Management

Artificial insemination (AI)

All cattle enrolled into AI program will be synchronized with one of the approved estrus synchronization protocols (heifers and cows). All AI will be performed by a certified/trained technician.

During the AI process, the technician will be required to use full-arm palpation sleeve while breeding and apply adequate lubrication prior to entrance into the cow/heifer. The vulva should be clean, and all needed precautions will be taken to ensure reproductive health and success for each animal.

Records will be taken for each individual cow/heifer that is bred. The person breeding the animals is responsible for ensuring that all proper records are being taken by the assistant or themselves. The following should be recorded:

- Visual ID
- Date and time
- Sire
- AI technician
- Record any injections given on day of breeding

Hormones which are used within the synchronization protocols will be managed to ensure expirations dates and label instructions are followed.

Table 5. List of approved hormones used in synchronization protocols.

Hormone	Trade Name
Prostaglandin (PGF2 α)	estroPLAN®, Estrumate®, In-Synch®, Lutalyse®, ProstaMate®
Gonadotropin Releasing Hormone (GnRH)	Cystorelin®, Factrel®, Gertagyl®, OvaCyst®
Progestin	CIDR®, MGA®

Figure 11: Estrus synchronization protocols for beef cows.

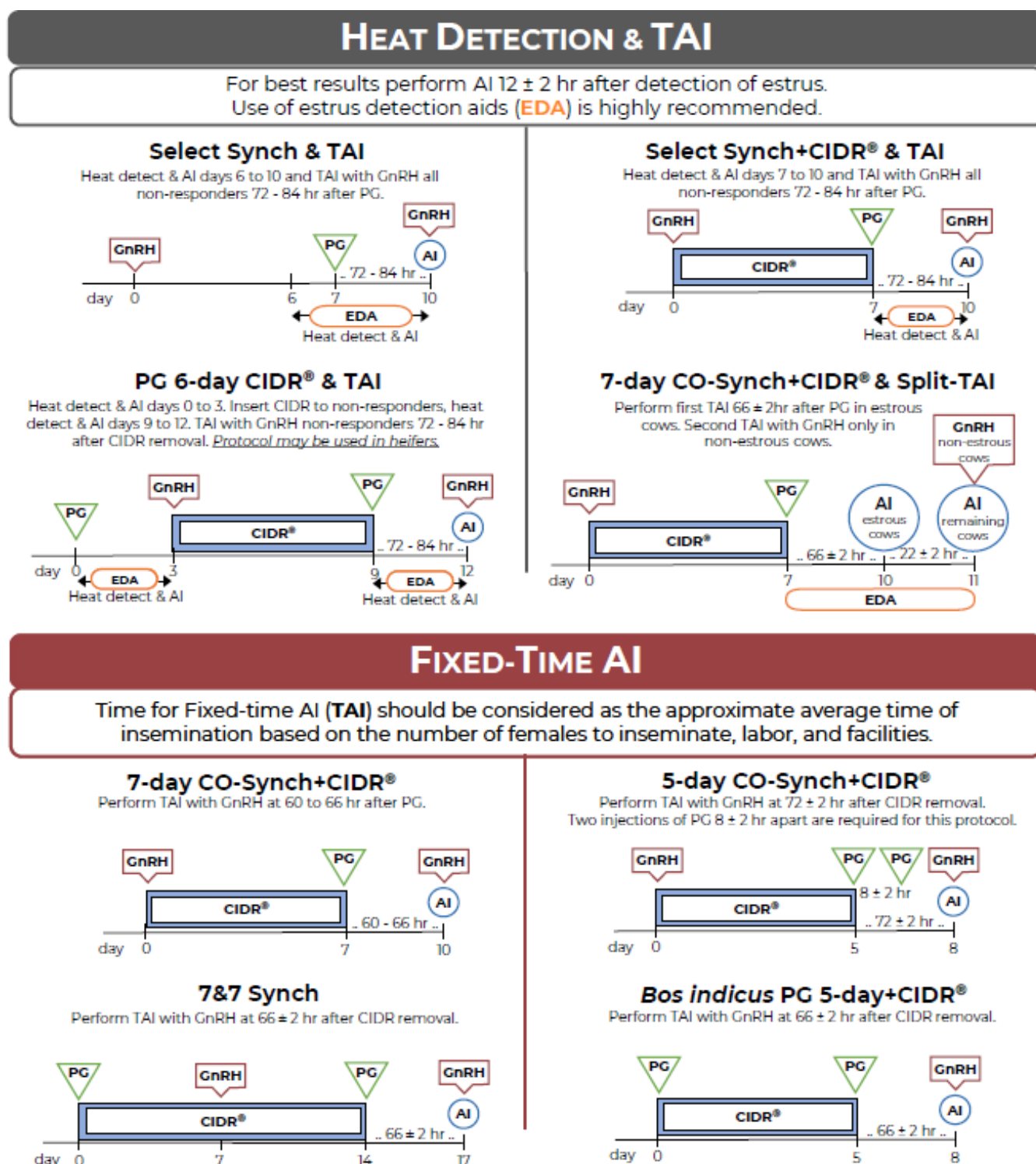
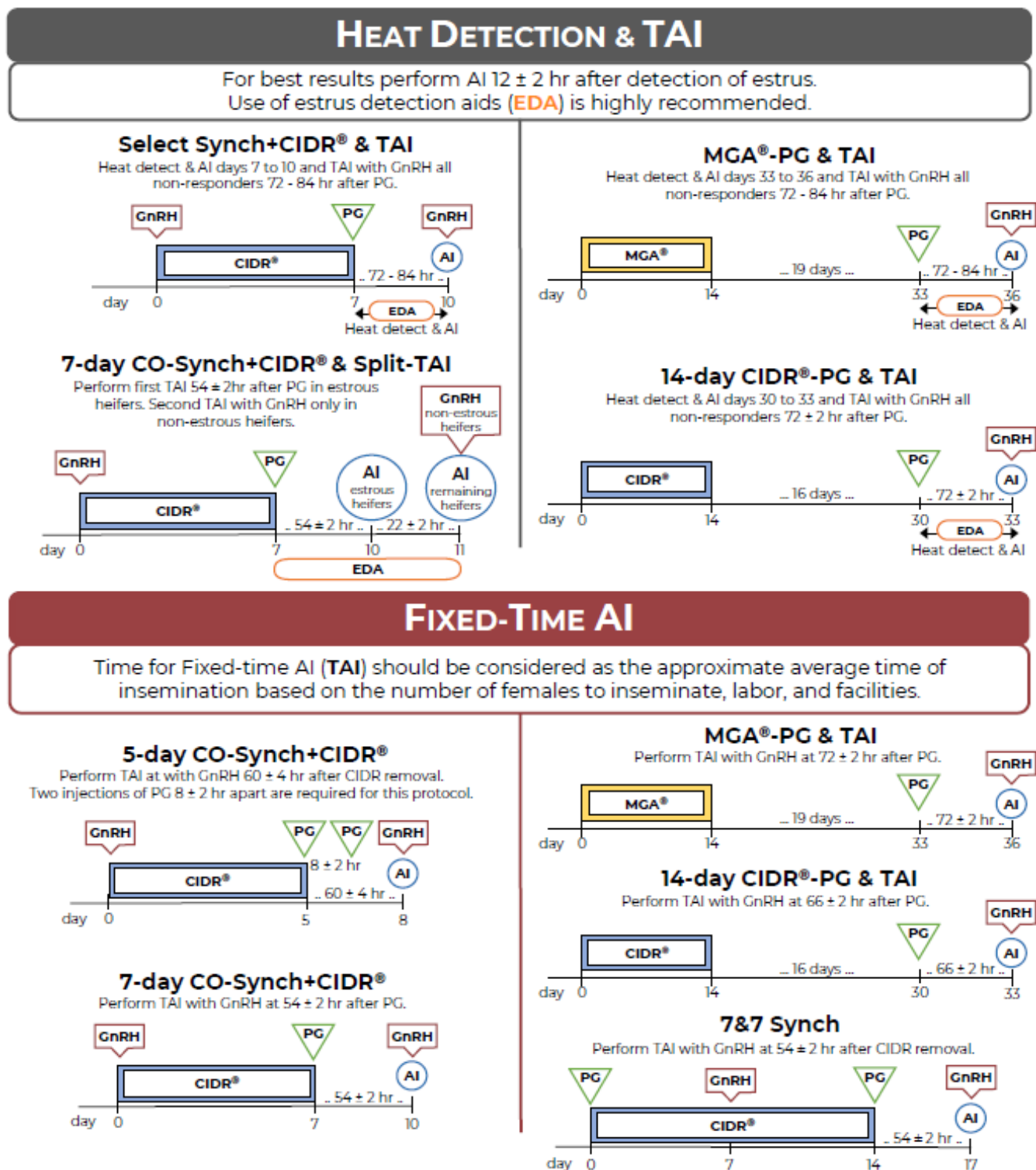


Figure 12: Estrus synchronization protocols for beef heifers.



Reproductive Disorders and Conditions

Intrapelvic inflammation

- Condition: Vaginal canal swelling extending to the vulva. Can lead to nerve paralysis and downer cow conditions
- Treatment: Polyflex®1 20 mL IM BID, or Penicillin11 60 mL IM SID, or Excenel®2 15-20 mL IM SID for 4-5 d
Flunixin 15-20 mL IV SID for 2 d; follow with 4 aspirin bolus SID for 2- 4 d
Treat for dehydration

Metritis

- Condition: Off feed, show signs of sickness - depressed attitude, moves slowly
Temperatures abnormally - High or Low. Dehydration (+/-)
Uterine discharge watery and fetid; uterus enlarged over the pelvic brim
- Predisposition: Retained placenta, calving difficulties, prolapse, fetotomy
Usually within 3-10 d after calving
Procedures: Complete physical examination
- Treatment: Treat with 1-2 mL/100 lb Excenel® for 5 d
Drench with 5-7 gal of FCD and water
- After 72 h, if cow is not responding, treat with 20 mL Polflex®3 IM BID or 60 mL Penicillin13 IM SID for 4-5 d
- If the cow has a temperature >103°F, give aspirin (4 boluses) SID for 2 d
- If the cow has a temperature greater than 104°F, give Flunixin 15-20 mL IV SID

Late Postpartum Endometritis

- Condition: 20-26 DIM, enlarged cervix (<7.5 cm) with or without non-fetid vaginal purulent discharge
- Predisposition: Retained placenta
- Treatment: None – monitor overall health

Prolapse

- Condition: Uterus protrudes from rectum or vagina, common prior to or following the event of parturition

Procedures: Cow Down. Extend rear legs to rear so that hocks are pointed up and top of foot is facing the ground extended behind cow's hock. This places the cow back up straight and tilts pelvis down. Place a board (plywood section) under vulva and rest on the point of hocks with uterus supported here.

Clean uterus with soap and water. An epidural anesthetic should be administered. Replace starting with the tip of the horn and using a closed fist and well lubricated arm. Use slow steady pressure NO FORCE.

Treatment: Oxytocin 5-7 mL IM

Polyflex® 20 mL IM BID or Penicillin 15 60 mL IM SID for 4-5 d

Tetracycline capsules 15 4 g intrauterine

Flunixin 15-20 mL IV SID for 2 d; follow with 4 aspirin bolus SID for 2-4 d

Pyometra

Condition: Uterine infection (pus in uterus), presence of a CL and cow is not cycling

Treatment: PGF 5 mL IM; repeat second dose 12 h later

Follow up as instructed by reproductive exams.

Retained placenta

Condition: Fetal membranes retained longer than 24 h

Treatment: Do not remove external membranes manually from the cow. If cow had an unassisted delivery of calf, monitor for metritis and LDA according to the postpartum monitoring and physical examination (pages 8 & 11).

If the cow had an assisted delivery, check for significant tears in the reproductive tract.

For tears > 2 inches, treat with Polyflex® 15 (20 mL IM BID) or Penicillin 15 (60 mL IM SID) for 5 d; monitor cow for metritis and treat accordingly (page 20)

For tears < 2 inches long, treat with Excenel® 5 20 mL IM SID for 5 d and Aspirin (2 to 4 boluses) SID for 2-4 d

Note: Cows that do not pass RFM after d 5 should be left alone to pass membranes; continue watching for signs of metritis/toxemia

Post-surgical care

Condition: Surgical C-section or Fetotomy

Treatments: Polyflex® 6 20 mL IM BID or Penicillin 17 60 mL IM BID or Excenel® 7 20 mL IM SID for 5 d
Flunixin 15-20 mL IV SID for 2 d; follow with 4 aspirin bolus SID for 2-4 d
Oxytocin 1 mL IM every 1-2 h for 3-4 treatments; treat for dehydration

Note:

- 1 CAUTION: EXTRALABEL BEEF UNIT USE - Observe established milk/meat withholding times.
- 2 EXTRALABEL BEEF UNIT USE: No milk withholding necessary.
- 3 CAUTION: EXTRALABEL BEEF UNIT USE - Observe established milk/meat withholding times.

Mature Cow Herd

Vaccination Schedule

Disclaimer: The products recommended are not an endorsement from the University of Florida. We recommend that the producer consult with other pharmaceutical companies for product comparisons. The Beef Unit utilizes products from pharmaceutical companies that participate in the University of Florida Veterinary School Program. Administration/Application of all products must follow manufactures label recommendations.

Table 6. Vaccination schedule for mature cows.

Season	Product	Dose	Manufacturer
Fall (Sep. or Oct.)	Bovishield Gold FP5 VL5	See label	Zoetis Animal Health
	Spirovac®	See label	Zoetis Animal Health
	Dectomax	See label	Zoetis Animal Health
Spring	Dectomax	See label	Zoetis Animal Health

HEALTH MONITORING PROGRAM

Visual Examination

Cows herd health will be visually assessed by members of the Beef Unit daily in an effort to identify any health concerns within the herd. The frequency of the visual exams will fluctuate depending on the production stage of the animal.

Upon each visual exam cattle will be evaluated based on the following:

- Depression/ alertness
- Social behavior
- Feed intake
- Body condition
- Structural soundness
- Udder health
- Maternal bonding/behavior
- Overall wellbeing

Identification of any health concerns will be evaluated reported to management, a treatment plan will be developed, and the cattle will be treated within 24 h depending on the severity of the condition.

Table 7. Base-line vitals for a mature cow.

Item	Winter	Summer
Temperature, °F	101 – 103	102 – 104
Heart rate, beats/min	60 – 80	70 – 90

Health Disorders and Treatment Protocols

Abscess

Condition: Abscess

Treatment: Clean area of abscess with disinfecting agent. With a 1 ½ in × 16 G needle and 35 cc syringe attempt to aspirate fluid by inserting needle into abscess. If fluid is obtained, use a scalpel to make an opening in the bottom most area of the abscess and drain. Following this, rinse the area with water and clean with disinfectant and apply some form of fly repellent.

Bloat

Condition: Gas-filled swelling left flank

Treatment: Minor nutritional bloat - No treatment

Vagal indigestion - No ruminal sounds; see Veterinarian

Ruminal indigestion - give 2 to 4 MagOx boluses orally for maximum of 2 treatments

If no improvement, give Therabloat per label dose and/or see Veterinarian

Acute: pass esophageal tube to relieve gas distention and administer one gal of mineral oil; if no improvement within 15 min consult with Veterinarian

Grass Tetany

Condition: Stiffness and locking of muscles and joints

Treatment: Cattle will be treated with an IV of CaKP solution as soon as condition is identified.

Additionally, an oral gel dose of magnesium will be given following the IV

Diarrhea

Condition: Watery scours due to many disease and nutritional disorders

Treatment: Scours with continued appetite and production - No Treatment

Scours with history of nutritional disorder - Give 2-4 MagOx boluses orally once daily for a total of 2 treatments only

If diarrhea continues, give 2-4 Astringent boluses once daily for 2 d and/or see Veterinarian

Transfaunate if rumen stasis develops; treat dehydration as needed

Chronic untreatable scours with weight loss and production drop: Sample for Johnes and cull

Cancer eye

Condition: Small nodules on 3rd eyelid to extensive tumor infiltration around eye

Treatment: Snip off small nodules from 3rd eyelid (Veterinarian only)

Consult veterinarian for eye removal if tumor is extensive

Pinkeye

Condition: Small white ulcer with or without red vessels and eye tearing

Cows in early stage show tears, squinting, and hold head high

Treatment: Topical: Administer 4.5 mL of LA 200 per 100 lb of body weight or 1.1 cc of Draxxin per 100 lb of body weight
Eye patch in severe cases

Dehydration

Condition: Dehydration as a result of any disorder

Treatment: Oral therapy - 5-10 gal once or twice daily of a commercially prepared product

Mix electrolytes as follows:

- 16 oz NaCl (1 lb of table salt)
- 3 oz KCl (3 oz box of lite salt)
- 3 oz CaCl₂

To make 5 gal of electrolyte solution:

Use 6 oz of the above salt mix to 5 gal of water; give orally via esophageal or stomach tube

IV therapy - Hypertonic saline or volume replacement.

Hypertonic saline - 2 L warmed to body temperature and given IV

followed with oral fluid therapy as described above; allow access to fresh water

DO NOT GIVE to severely depressed or downed cow unless followed with 10 gal of water orally

Volume replacement - mix 5 gal electrolyte solution using formula above

and sterile distilled water (grocery store distilled water is ok) in sterile IV bag

Administer IV over 1 h

Foot Rot

Condition: Infected, swollen break in the interdigital skin

Treatment: Minor case (no swelling above hoof):

Clean skin between toes, apply KoperTox®

Agrimycin200® 20 mL IM BID or Penicillin 60 mL IM QD (3-4 sites)

Major case (swelling above the hoof or around heels):

Clean and apply KoperTox®.

Agrimycin200® 20 mL IM BID or Penicillin 60 mL IM QD (3-4 sites)

NOTE: Simple case of Foot Rot will clear by the 3rd to 4th day; if swelling and infection persist, contact veterinarian

Indigestion

Condition: Diarrhea, decreased rumen motility, normal temp, ketone negative, +/- bloat
Treatment: Give 2-4 MagOx boluses orally twice for a total of 2 treatments only
Transfaunate with 2 gal, if rumen stasis develops

Respiratory

Condition: Acute- Elevated temperature 104-107°F
Cough and rapid respiratory rates; nose not clean
Treatment: 1st - Flunixin 1-2 cc per 100 lb IV, and Nuflor according to label directions
Temp daily in AM
No response in 36 to 48 h, start 2nd treatment; check temperature & weight
If temperature is still elevated (>104°F) start treatment with Micotil, or Draxxin
according to prescribed label directions; may continue Flunixin daily for 4 to 5 d

THERAPY FAILURE, SEVERE ACCIDENT or ACUTE DEATH

In the event of total therapy failure, severe injury, untreatable condition or acute collapse and death; that is, the cattle are going to die or needs to be euthanized:

If an animal needs to be euthanized, action should be taken immediately and should only occur with clearance from management (see page 9 for protocol).

Culling Procedure

Cows may be identified as culls for a variety of reasons. Low production and a lack of reproductive efficiency are the primary reason for removal of a mature cow from the herd. In addition, cows will be culled for lameness, disease, poor body condition, health conditions, and temperament.

The culling of all cows will be cleared by management prior to the marketing.

- Every effort will be made to maximize the income from the sale of these cattle.
- If there is a research trial or training event requiring the use of cull cows, they will be maintained on farm for this purpose.

Replacement Heifers

Selection

Replacement heifers will be selected from within the NFREC cow herd. The following truncated list of the selection traits will be taken into consideration during replacement heifer selection, which will be done by the management:

- Genetics
- Dam performance
- Structure and confirmation
- Disposition
- Phenotypic appearance
- Size and body weight
- Health history

Development Program

Replacement heifers will be developed to maximize their future production potential within the mature cow herd. Replacement heifers will be managed to allow proper growth and body weight gains, with the target of 65% of their mature body weight prior to the initiation of the breeding season.

The breeding season will be approximately 30 to 60 d prior to the mature herd breeding season to allow for a lengthened post-partum interval following the delivery of their first calf. Replacement heifers will be managed to calve at approximately two years of age. Heifers will not be bred to calve younger than this.

Vaccination Schedule

Disclaimer: The products recommended are not an endorsement from the University of Florida. We recommend that the producer consult with other pharmaceutical companies for product comparisons. The Beef Unit utilizes products from pharmaceutical companies that participate in the University of Florida Veterinary School Program. Administration/Application of all products must follow manufactures label recommendations.

Table 8. Vaccination schedule for replacement heifers.

Season	Product	Dose	Manufacturer
Fall (Sep or Oct)	Bovishield Gold FP5 VL5	See label	Zoetis Animal Health
	Spirovac®	See label	Zoetis Animal Health
	Dectomax	See label	Zoetis Animal Health

Health Monitoring Program

Visual Examination

Replacement heifer health will be visually assessed by members of the Beef Unit two or three times per week in an effort to identify any health concerns within the herd. The frequency of the visual exams will fluctuate depending on the production stage of the animal.

Upon each visual exam cattle will be evaluated based on the following:

- Depression/ alertness
- Social behavior
- Feed intake
- Body condition
- Structural soundness
- Overall wellbeing

Identification of any health concerns will be evaluated reported to management, a treatment plan will be developed, and the cattle will be treated within 24 h depending on the severity of the condition.

Culling Procedure

Replacement heifers may be identified as culls for a variety of reasons. Poor growth performance and a lack of reproductive efficiency are the primary reasons for removal of heifers from the development program. In addition, heifers will be culled for lameness, disease, poor body condition, health conditions, and temperament. Any apparent issues that are identified in a replacement heifer as being detrimental to her being a productive member of the cow herd will warrant culling.

The culling of all replacement heifers will be cleared by management prior to marketing.

Calves

Day of Birth (0-24 h)

With continuous monitoring from the beef crew members during the calving period, all calves will be processed within 24 h of birth. During periods of inclement weather, monitoring will increase.

Following the identification of a new calf the following protocol will be carried out for each individual calf:

- Locate calf and make sure calf has bonded to the cow. If not, place cow in pen until bonding is established
- Dip umbilicus with dilute betadine or chlorhexidine
- If calf appears cold (depressed, shivering, frozen ears), place in warming hut for 2-4 h. Feed the calf colostrum from the cow, if possible. If the cow is fractious, thaw and warm colostrum from storage
- Ear tag, tattoo and weigh calf. Record calf ID, dam ID, calf birth weight, calving ease and calf vigor scores, and time when calf was born and nursed in logbook
- If calf has not nursed in 12 h, bottle feed calf. If calf is too weak or refuses to nurse, tube calf with one quart of warmed colostrum

Vaccination Schedule

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Table 9. Vaccination schedule for calves.

Time	Product	Dose	Manufacturer
60 – 90 d	Bovishield Gold FP5 Ultrabac 8	See label	Zoetis Animal Health
3 – 4 weeks following	Bovishield Gold FP5 Ultrabac 8	See label	Zoetis Animal Health

Dehorning

Removal of the horn buds should occur at as young of age as possible by several means, including hot cauterizing irons, cauterizing chemicals, a sharp knife, or commercially available mechanical devices.

Horn scoops will be used for all dehorning procedures, with calves being dehorned at ≤ 30 d of age, and prior to reaching a BW of 50 kg. Calves with body weight of ≥ 50 kg or over 1 month of age will require appropriate restraint and local anesthesia to control pain.

- Calves will be restrained within the squeeze chute
- Trained technician will use horn scoops to remove horn
- Calf will be monitored closely for next 7 d to ensure no issues arise from the procedure.

Castration

All males are castrated prior to reaching 230 kg of body weight. Calves are restrained within the hydraulic cattle chute, squeezed to limit movement.

Procedure: All scalpels are sterilized using chlorihexidine solution prior to use for each individual animal.

The distal 1/3 of scrotum is removed with a scalpel blade; the spermatic cord is bluntly dissected from surrounding soft tissue; the testicle is removed by pulling it straight down.

After removal of both testicles, any residual soft tissue is removed at the level of the scrotal incision by cutting with scalpel.

Health Monitoring Program

Calves will be monitored on a daily basis directly following birth. Once cow/calf pair is moved from the calving lots, calves will be checked by the no less than daily for clinical signs of illness by the NFREC Beef crew members.

Clinical signs that a calf may be ill include:

- Dull or sunken eyes
- Depression
- Signs of scours
- Not nursing
- Listlessness

- Weakness
- Tucked up abdomen
- Cow/calf Bonding

Identification of any health concerns will be evaluated reported to management, a treatment plan will be developed, and the cattle will be treated within 24 h depending on the severity of the condition.

Health Disorders and Treatment Protocols

Scours

Condition: Discolored or loose stool

Treatments: If calf appears to have diarrhea, take temperature and record in logbook

If calf is not nursing and appears depressed or dehydrated, give 2 quarts of warm oral electrolytes 4x daily until diarrhea resolves

Place calf and cow in separate pen (isolation) from other cow-calf pairs until diarrhea resolves

Calves over one month of age that develop diarrhea should be given Tetracycline boluses; if calf appears depressed, is not nursing, or is dehydrated, give warm oral electrolytes at 2 quarts 4x daily until diarrhea resolves

If the calf has bloody diarrhea, indicating coccidiosis, treat the calf for 5 d with Corid (amprolium) at the labeled dose

Bloat

Condition: Distended abdominal cavity

Treatments: If calf appears to have a bloat issue record in logbook

Calf will be orally drenched with 0.5 gal mineral oil and monitored; diet may be adjusted dependent of severity of the bloat

Respiratory Issues

Condition: Raspy breathing, rattling in the lungs, quick shallow breaths

Treatments: If calf appears to have a respiratory issue record in logbook

Label doses of Draxxin and Flunixin will be administered

Navel Infection

Condition: Swollen navel

Treatments: If calf appears to have symptoms, record in logbook
Examine for infection, drench with iodine, and monitor; if infection is detected, administer Biomycin 200 by label dose

Bulls

Sire Selection

Sires will be selected by management for each cow herd and or cow. Expected progeny differences and family lineages will be considered in the selection of sires annually.

First-calf heifers and mature cows will be managed in different breeding groups, with differing breeding seasons.

Reproductive management

Breeding Soundness Exam

Prior to the initiation of each breeding season bulls must pass a breeding soundness exam (BSE) to remain within the bull herd.

Criteria for successfully passing the breeding soundness exam include:

- Physical exam (health, eyes, feet, confirmation, and body condition)
- Examination of the reproductive organs (via rectal palpation and visual assessment)
- Scrotal circumference must meet guidelines of breed and age being ≥ 30 cm to be considered fertile
- Gross motility of semen must be no less than 30% to be qualified as fair (semen will be collected via electro-ejaculation)
- Morphology must be $\geq 70\%$ normal sperm cells
- 800 - 2,000 million sperm/ mL of ejaculate or 5 - 15 billion sperm/ejaculate
 - Evaluating stained (eosin-nigrosin most common) semen smears under a microscope.

Table 10. Age comparison of average scrotal circumference (cm) of breeds.

Breed	Month							
	<14	14-17	18-20	21-23	24-26	27-30	31-36	>36
Angus	34.8	35.9	36.6	36.9	36.7	36.3	36.6	38.2
Charolais	32.6	35.4	34.5	34.9	34.6	36.2	37.1	38.1
Hereford	33.0	32.2	34.1	36.2	33.4	33.8	35.2	34.0
Simmental	33.4	36.5	—	—	36.0	—	—	37.2
Limousin	30.6	31.7	32.0	33.9	—	—	—	35.5
Santa Gertrudis	34.0	35.3	35.5	36.7	36.5	36.4	38.3	40.5
Brahman	21.9	27.4	29.4	31.4	31.7	33.5	34.7	36.7

Table 11. Gross motility guidelines for breeding soundness exam (BSE).

Gross Motility	Rating	Individual
Rapid swirling	Very Good	>70%
Slower swirling	Good	50-69%
Generalized oscillation	Fair	30-49%
Sporadic oscillation	Poor	<30%

Types of abnormalities

Primary: occur inside testes due to faulty spermatogenesis. Includes all head defects, most tail defects, proximal droplets

Secondary: typically: occur as sperm move through duct system including proximal droplets, detached heads,

Major: underdeveloped, double forms, narrow heads, acrosome defects, crater defect on head, pear-shaped heads, abnormal head contour, small and free abnormal heads, abnormal midpiece, proximal droplet, strongly folded or coiled tail, and accessory tails

Minor: small normal heads, giant and short broad heads, free normal heads, abaxial implantation, distal droplet, simple bent tail, terminally coiled tail, and detached, folded, or loose acrosomal membranes

Following examination bulls will be classified as the following: Satisfactory Potential Breeder is categorized to breed cows

- Bull must pass a physical examination
- Bull must meet the minimum values for:
 - Scrotal circumference for the bull's age

- Motility: >30%
- Morphology: >70% normal Unsatisfactory Potential Breeder
- Bull does not meet either one or several of the minimum BSE values
- Bulls in this category are typically not sold as breeding bull
- Bulls in this category are expected to cause poor fertility during the breeding season

Classification deferred

- Bull does not meet either one or several of the minimum BSE values
- Classification is deferred to the evaluator's discretion and bull can undergo a re-examination a later date to determine if he can be placed in the Satisfactory Potential Breeder category
- Typically used for pubertal bulls or mature bulls that may have had an insult in spermatogenesis and from which recovery is expected

Following classification bulls will either be cleared for entrance into the cow herd or will be evaluated by management to determine their fate within the breeding herd.

Reproductive Diseases and Disorders

Trichomonas Fetus (Trich)

Condition: Identifiable as 3-haired single cell protozoa which are sexually transmitting into the cow herd causing abortion 40-60 d following conception

Treatment: Administration of therapeutic vaccinations to bulls and cows
Test all non-virgin bulls prior to exposure to the herd via prepuce scrape

Campylobacteriosis Vibriosis

Condition: Venereal disease-causing local infection in the genital tract resulting in early embryonic death (15-80 d) in cows exposed to infected bulls

Treatment: Vaccination yearly of cows and bulls with 30 d pre-breeding vaccination; treat infected bulls with streptomycin sulfate

Vaccination Schedule

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University of Florida Veterinary School Program. Administration/Application of all products must follow manufactures label recommendations.

Table 12. Vaccination schedule for bulls.

Time	Product	Dose	Manufacturer
Fall (Sep or Oct)	Bovishield Gold FP5 VL5	See label	Zoetis Animal Health
	Spirovac®	See label	Zoetis Animal Health
	Dectomax	See label	Zoetis Animal Health
Spring	Dectomax	See label	Zoetis Animal Health

Health Monitoring Program

Visual Examination

Bull herd health will be visually assessed by members of the Beef Unit to or three times per week in an effort to identify any health concerns within the herd during breeding season. The frequency of the visual exams will fluctuate depending on the production stage of the animal, with bulls being monitored out of the breeding season.

Upon each visual exam cattle will be evaluated based on the following:

- Depression/ alertness
- Social behavior
- Feed intake
- Body condition
- Structural soundness
- Overall wellbeing

Additional examination of reproductive organ soundness will be required during the breeding season. While bulls are in cow herd the following will be examined 3 times per week:

- Size, tone, and shape of testicles
- Examine penis for breaks, swelling, lacerations, adhesions, discoloration, or discharge
- Size and shape of the sheath

Identification of any health concerns will be evaluated reported to management, a treatment plan will be developed, and the cattle will be treated within 24 h depending on the severity of the condition.

Health Disorders and Treatment Protocols

Foot Rot

Condition: Infected, swollen break in the interdigital skin

Treatment: Minor case (no swelling above hoof):

Clean skin between toes, apply KoperTox®

Agrimycin200® 20 mL IM BID or Penicillin 60 mL IM QD (3-4 sites)

Major case (swelling above the hoof or around heels):

Clean and apply KoperTox®

Agrimycin200® 20 mL IM BID or Penicillin 60 mL IM QD (3-4 sites)

Note: Simple case of Foot Rot will clear by the 3rd to 4th day. If swelling and infection persist, contact veterinarian.

Indigestion

Condition: Diarrhea, decreased rumen motility, normal temp, bloat

Treatment: Give 2-4 MagOx boluses orally twice for a total of 2 treatments only

Transfaunate with 2 gal, if rumen stasis develops

Respiratory

Condition: Acute- Elevated temperature 104-107°F

Cough and rapid respiratory rates; nose not clean

Treatment: 1st - Flunixin 1-2 cc per 100 lb IV, and Nuflor according to label directions

Temp daily in AM

No response in 36 to 48 h, start 2nd treatment

Check temperature & weight

If temperature is still elevated (104°F) start treatment with Micotil, or Draxxin according to prescribed label directions; may continue Flunixin daily for 4 to 5 d

Breeding Season Management

Bull to Cow/Heifer Ratio

This will be determined by the management based on the age and prior performance of each individual bull.

Baseline ratios for yearling bulls will be 1:25 and up to 1:60 for mature sires. Bulls that are being used as clean up bulls in AI herds may be used at a much higher ratio depending on the estimated success of the AI season.

Dominance

Bulls will be housed in a means that dominance will be able to be established without risking the health and wellbeing of the less dominant animal. No bulls will be penned together in small holding pens which have not been properly exposed previously. Young bulls and mature bulls will be managed accordingly.

Culling Procedure

Bulls may be identified as culls for a variety of reasons. Poor genetic performance, age, injury and a lack of reproductive efficiency are the primary reasons for removal of a bull from the herd. In addition, bulls will be culled for lameness, disease, poor body condition, health conditions, and temperament.

The culling of all bulls will be cleared by management prior to marketing.

Feed Efficiency Facility (FEF) Cattle

Feed efficiency test protocol

Upon entry into the FEF all cattle will be processed following the latter mentioned processing guidelines. They will be allowed a 14 to 21 d (depending on previous diet and housing conditions) acclimation period to allow cattle to become aquatinted with the bunks and housing facilities.

Following the acclimation period, a minimum of 50 – 24-h feed intake data collection periods will be required to calculate residual feed intake (RFI; the measure of feed efficiency used).

Un-fasted body weights will be collected every 14 d for the test. Unless average daily gain will be calculated using a regression model, cattle will be doubled weighed on d 0 and d 1 of the feed efficiency test and again on d 69 and d 70.

Processing new animals into the FEF

When animals arrive at the FEF the following steps will be taken to process and enroll them in the feed efficiency test:

- Every animal that will be in a study in the Feed Efficiency Barn will have an Electronic Identification (EID) inserted into the animals' left ear. The numbered portion of the tag should always be on the inside of the left ear (use tag guns supplied by Allflex or Destron Fearing). EID tagging should be done when the animals first arrive while obtaining their initial weight. We have two sources for the half-duplex EID, Allflex and/or Destron Fearing. *Note: only the half-duplex EID will work with the GrowSafe/Vytelle System.*
- Within 24 to 48 h after the animals were placed in the Feed Efficiency Barn their EID should have registered into the GrowSafe/Vytelle Computer Data Base after an active feeding event. After this 24 to 48-h time period their Visual Tags can be entered into the GrowSafe/Vytelle Computer.
- The Visual Tags are entered by opening the Daily Intake Screen and clicking on the Edit Visual Tag button at the bottom of the screen. Use the hard copy of your data that was obtained when the animals enter the barn and ensure that the EID # (a string of fifteen numbers on each tag) match with the correct Visual Tag #. You can only enter Visual Tag #'s one pen at a time, and you must click on the Update Button at the bottom of the Screen when you finish, otherwise the data will not be saved.
- You can also use the process in third bullet point to ensure that you have the correct number of animals in their assigned pens. For example, if you know pen 1 has 10 animals and only 9 show up in the Daily Intake Screen after 48 h, the animal has probably not gone to the feed bunk to eat. Therefore, the EID will not yet be registered in the GrowSafe/Vytelle System. Other potential caused could be the EID was dislodged from the ear or the EID was faulty. If the animal still has an EID in the left ear, you will need to rescan the EID to ensure the tag is transmitting a signal.

Our system is directly linked to GrowSafe/Vytelle in Canada via Log Mein program, which allows a Technical Representative from GrowSafe/Vytelle to log into our computer and help diagnosis/resolve computer or data collection issues.

Note: The GrowSafe/Vytelle computer should only be used for the collection and processing of data on animals in the Feed Efficiency Barn. Other computer files/programs installed on this computer can interfere with its operating system and the collection of this data.

Pen Allocation Guidelines

Animals will be allocated into pens based on sex and weight. Allocation will be done by the FEF management, unless animals are a part of a research trial, making the primary investigator responsible for the allocation.

Basic guidelines are used for all pen allocations:

- Heifers will never be housed or comingled with bulls (> 4 mo. of age)
- Animals of different physiological states (lactating cows vs. replacement heifers) will not be housed with the same pen
- Animals will be allocated so that no more than 16,000 lb of animals are within one pen (12 animals at 1400 lb)
- A maximum of 20 animals will be housed within each pen, regardless of weight

These are guidelines and may allow exceptions depending on trial protocols.

Daily Review/Use of GrowSafe/Vytelle 8000 System

- Ensure the main screen is up and operational and displays bunks currently in use. If an error is noted at the bottom of the screen, you may have a problem with one of the RF panels, see System Layout for location of RP Panels. This can be determined if you notice that a group of bunks show errors (i.e. pens 1 through 6 have an error), the RF panel may need to be unplugged for 30 seconds and plugs back in. You may also have a GFCI that has tripped and needs to be reset. If this does not resolve the problem, call GrowSafe/Vytelle.
- Next move the cursor to the right of the main screen and open the occupancy screen. This screen is used to ensure the active bunks are recording feeding activity. If you notice a black line for a bunk, you may have a problem. Call GrowSafe/Vytelle.
- Next move the cursor to the Daily Intake and review the feed intake for the pens that are active and have animals assigned. This program can also be used to detect sick animals before clinical signs occur, i.e., you have an animal that has been eating between 20 to 25 kg/day, and they suddenly drop down to 10 kg or less.

Note: This screen is also used to enter the animals Visual Tag. This is usually done on the second or third day after the animal is housed in the barn.

- Next move the cursor to Water Intake and review as in the previous bullet point.
- You also have a help screen that can be used to review other applications that may be of assistance.

Health Monitoring Program

Daily Monitoring of Animals

Visual Screens are used to monitor animal behavior and monitor feed/water intake. Each morning the animals/pens will be evaluated for overall health.

- Occupancy Screen - click the Occupancy Program then click open, then click Adjust to last 3 days, and then click process files. Use the Legend at the bottom of the page to determine occupancy for any bunk. Black indicates no activity, unless you have a black line for more than 24 h, which means that bunk is not reading EIDs (call GrowSafe/Vytelle).
- Behavior Screen - same as above. Then click on the pens that are active and click open. In that pen click on the 1st EID and click ok, then the behavior screen opens for that animal. In the bottom left side of this screen, you will see a window that says directory, click next until you have viewed all the animals in that pen. When finished, select other, when this screen opens select the up one level icon and go to the next pen. Repeat this process until all active pens have been reviewed.
- Daily Intake Screen - click open and then go to view pen, click on any active pen you, and view the intake for each animal in that pen. Use the up or down arrow to scroll all the active pens. You can also use this screen to indicate the start date for the study. However, you can only enter one date. The screen on the top right displays a graph for intake. At the very top right you will see the total feed consumed for that animal. The screen at the bottom shows all the animals in that pen. As noted in Processing New Animals, #3 this is also the screen you use to update the Visual Tag.
- Water Intake Screen- repeat the process as noted above, with the exception, you do not enter Visual Tags on this screen.

In addition to the use of the visual screens, daily, a walk-through evaluation will be conducted. This will consist of a member of the FEF crew walking through the barn, evaluating the health of the animals in each pen on a visual basis. Cattle will be evaluated for the following:

- Depression/alertness
- Social behavior
- Respiratory health
- Body condition
- Structural soundness
- Overall wellbeing

Identification of any health concerns will be evaluated reported to management, a treatment plan will be developed, and the cattle will be treated within 24 h depending on the severity of the condition.

Health disorders and treatment protocols

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Abscess

Condition: Abscess

Treatment: Clean area of abscess with disinfecting agent. With a 1 ½ × 16 G needle and 35 cc syringe attempt to aspirate fluid by inserting needle into abscess. If fluid is obtained, use a scalpel to make an opening in the bottom most area of the abscess and drain. Following this, rinse the area with water and clean with disinfectant and apply some form of fly repellent.

Bloat

Condition: Gas-filled swelling left flank

Treatment: Minor nutritional bloat - No treatment

Vagal indigestion: No ruminal sounds; see Veterinarian

Ruminal indigestion: 2-4 MagOx boluses orally for maximum of 2 treatments

If no improvement, 2 gal of Transfaunate orally and/or see Veterinarian.

Acute: pass esophageal tube to relieve gas distention and administer one gal of mineral oil; if no improvement within 15 min, consult with veterinarian

Diarrhea

Condition: Watery scours due to many diseases and nutritional disorders

Treatment: Scours with continued appetite and production - No Treatment
Scours with history of nutritional disorder - Give 2-4 MagOx boluses orally once daily for a total of 2 treatments only
If diarrhea continues, give 2-4 Astringent boluses once daily for 2 d and/or see veterinarian
Transfaunate if rumen stasis develops; treat dehydration as needed
Chronic untreatable scours with weight loss and production drop: Sample for Johnes and cull

Pinkeye

Condition: Small white ulcer with or without red vessels and eye tearing. Animals in early stages show tears, squinting, and hold head high

Treatment: Topical: Administer 4.5 mL LA 200 per 100 lb of body weight or 1.1 mL of Draxxin per 100 lb of body weight
Eye patch severe cases

Dehydration

Condition: Dehydration as a result of any disorder

Treatment: Oral therapy - 5-10 gal once or twice daily of a commercially prepared product

Mix electrolytes as follows:

- 16 oz NaCl (1 lb of table salt)
- 3 oz KCl (3 oz box of lite salt)
- 3 oz CaCl₂

To make 5 gal of electrolyte solution:

Use 6 oz of the above salt mix to 5 gal of water; give orally via esophageal or stomach tube

IV therapy - Hypertonic saline or volume replacement.

Hypertonic saline - 2 L warmed to body temperature and given IV

Follow with oral fluid therapy as described above; allow access to fresh water
DO NOT GIVE to severely depressed or downed cow unless followed with 10 gal of water orally

Volume replacement - mix 5 gal electrolyte solution using formula above and sterile distilled water (grocery store distilled water is ok) in sterile IV bag
Administer IV over 1 h

Foot Rot

Condition: Infected, swollen break in the interdigital skin

Treatment: Minor case (no swelling above hoof):

Clean skin between toes, apply KoperTox®

Agrimycin200® 20 mL IM BID or Penicillin 60 mL IM QD (3-4 sites)

Major case (swelling above the hoof or around heels):

Clean and apply KoperTox®

Agrimycin200® 20 mL IM BID or Penicillin 60 mL IM QD (3-4 sites)

Note: Simple case of Foot Rot will clear by 3 to 4 d; if swelling and infection persist, contact veterinarian

Indigestion

Condition: Diarrhea, decreased rumen motility, normal temp, ketone negative, +/- bloat

Treatment: Give 2-4 MagOx boluses orally twice for a total of 2 treatments only
Transfaunate with 2 gal, if rumen stasis develops

Respiratory

Condition: Acute - Elevated temperature 104-107°F

Cough and rapid respiratory rates; nose not clean

Treatment: 1st - Flunixin 1-2 cc per 100 lb IV, and Nuflor according to label directions

Temp daily in AM

No response in 36 to 48 h, start 2nd treatment; check temperature & weight

If temperature is still elevated (>104°F) start treatment with Micotil or Draxxin

according to prescribed label directions; may continue Flunixin daily for 4 to 5 d

Acute Acidosis

Condition: Ruminal pH below 5.2 and voluntary feed intake observed is decreased by more than 50% compared with the previous day

Treatment: Remove any grain or byproduct high on starch from the diet and switch to a high forage diet, preferably comprised of hay

Subacute Acidosis

Condition: Ruminal pH between 5.6 and 5.2 and voluntary feed intake observed is decreased by more than 50% compared with the previous day

Treatment: Increase the proportion of roughage in the diet using preferable hay

Therapy failure, severe accident or acute death

In the event of total therapy failure, severe injury, untreatable condition or acute collapse and death; that is, the animal is going to die or needs to be euthanized, action should be taken immediately and should only occur with clearance from management (Dr. Nicolas DiLorenzo)

Culling Procedure

Cattle that are in poor enough health that the integrity of their feed efficiency test is compromised will be removed from the FEF. In addition, any animal that appears to have a disorder or disease that can potentially be passed to the other occupants of the FEF will immediately be removed from the barn. In all cases, management will be notified of any cattle possibly needing to be culled and be responsible for the decision making.

BEEF UNIT AND FEED EFFICIENCY CREW

Employee Duties

Daily

Management will detail the daily duties for each employee. Duties are likely to vary by day and within season greatly. Each employee will be expected to arrive on time in the morning and will report to management for their daily duties. Duties may include, but are not limited to the following:

- Check and move or set irrigation, record on/off times, and meter readings
- Feed any nutrition research projects in progress
- Haul away old feed from commodity area
- Checking herds
- Perform daily feeding
- Ensure all cattle have access to clean, fresh water
- Fence and facility repairs and maintenance
- Check fluid levels, air filters, lug nuts, and tire pressures in equipment before use
- Clean air filters, check lug nuts, grease and clean equipment after use
- Hay production

Weekends/Holidays

Beef unit and feed efficiency crew members will work on a rotation for weekend feeding and cattle monitoring. Employees will be compensated for hours worked over the weekend or holiday.

While on call for the weekend, crew members will be expected to carry out duties detailed by management as well as any emergencies that arise within their respected area or responsible (beef unit or feed efficiency barns).

MAINTENANCE: FACILITIES PLANNING AND OPERATIONS

Waste Management

All organic animal waste will be managed by the FEF manager. Records (date and amounts delivered/spread, where it is spread, and the origin of the waste) will be kept in the FEF main office and are available for review.

No animal waste (manure) is to be sold, distributed, or otherwise removed from the NFREC Beef Unit without direct consent (Dr. Nicolas DiLorenzo).

Waste will be managed in accordance with the environmental guidelines set forth by the U.S. government in conjunction with the Environmental Protection Agency.

Beef Unit Manager:
David Thomas
Email: davidall@ufl.edu
Office: 850-526-1620
Cell: 850-693-0309

Pest Control

The NFREC-Marianna, has a contract for pest control with Panhandle Pest Control, Inc. Inspection and maintenance occurs monthly at NFREC-Marianna unit. All payments and contracts are made directly with the administration unit in Quincy, FL where all documentation is kept.

Panhandle Pest Control, Inc.
PO Box 735
Sneads, FL 32460

Beef Unit Maintenance

All needed maintenance of equipment and facilities will be reported to the Farm shop maintenance supervisor by management. If maintenance is required, all employees will report needs to the manager, who will be in charge of communicating needs to the farm shop maintenance supervisor and file a repair order in the “Documentation” archive with specifications of the problem and the repair needed. Form will be dated and signed by the manager and the shop maintenance supervisor. In case of an emergency, any person can contact the farm shop maintenance supervisor for assistance. All emergencies will be reported verbally, never send email or written notice.

From the hours of 7 A.M. to 4 P.M. farm shop maintenance crew members will be on farm. During weekends or after-hours discretion will be used as to if the matter can wait for working hours

or must be handled prior to the next business day. If so the Beef Unit manager and farm shop maintenance supervisor will communicate to develop a working plan.

Farm Maintenance Supervisor: Ray Morgan
Email: merrelmorgan@ufl.edu
Office: 850-526-1622
Cell: 850-209-2042

Equipment Maintenance, Calibration, and Validation

All equipment maintenance and repair needed at the main office or Beef Unit are done by the Farm Maintenance crew and will be documented (see Documentation section).

Traceable Weights

All traceable weights are validated yearly by Rice Lake Weighing Systems. A table is included below containing all the validated weights, their serial numbers and their traceable certificate numbers.

Table 13. List of traceable weights.

Weight	Serial Number	Traceable Certificate
20 g	59XU	(1) P/N 111936/01
200 g	59XV	(1) P/N 115922/01
1 lb	59XW	(1) P/N 12876/01
5 lb	59XX	(1) P/N 12823/01
25 lb	58JC	(1) P/N 12833/01
25 lb	58JD	(1) P/N 12833/01

The two certified 25 lb weights are kept in a labeled plastic container, above the ground at the Beef Unit office. All other weights are kept in a covered and dry location at the Animal Sciences Laboratory.

Rice Lake Weighing Systems
Phone: (715) 234-9171
230 W. Coleman St.
PO Box 272
Rice Lake, WI 54868

Calibration Scales/Feed Wagons/GrowSafe/Vytelle Bins

Mettler-Toledo Inc. does the yearly calibration for scales (animal and laboratory), feeding tractors and the 48 GrowSafe/Vytelle bins. Below is a table of the calibrated equipment with serial number included.

Table 14. List of calibrated equipment.

Equipment	Name/Model	Serial Number
Laboratory Scale	Ohaus SD75L	06786596KM
Animal Scale	Tru-test	22257
Animal Scale	Molo	5CE00055
Feed Wagon	DigiStar E7200DV	00030309
Feed Wagon	Rotomix 425VXT	800177101
GrowSafe/Vytelle Bins	-	-

In addition, Mettler-Toledo Inc. does the yearly calibration of all bunks of the GrowSafe/Vytelle system in the Feed Efficiency Facility

Mettler-Toledo Inc.
1900 Polaris Parkway
Columbus, OH 43240
Phone: 1-800-523-5123

Laboratory Equipment

Every machine in the laboratory is calibrated and every assay is validated in every run by using some standard samples, which concentrations are known and validated.

All equipment maintenance is completed by the respective Biological Scientist and if repair is needed the Biological Scientist will get in contact with the manufacturer. Every repair completed by the manufacturer undergoes approval from Dr. DiLorenzo, Dr. Dubeux, and/or Dr. Gonella-Diaza, prior to requesting a repair order.

All repairs completed are well documented and receipts are kept in the respective Biological Scientist's office.

Water Analyses

The water at the NFREC- Marianna is tested by a certified person. The water in the main office is tested monthly with the water from the City of Marianna. The water in the Beef Unit and the FEF comes from a well. A water sample is collected from the well quarterly by the local County

Health Department and sent to the Florida Department of Health Laboratory for analyses on minerals, chemicals and bacteria.

All bills are charged to the Facilities and Planning Department at the main campus of University of Florida localized in Gainesville, Florida and receipts are kept with the NFREC-Marianna Administrative Specialist (Tina Gwin).

County Health Department:
John H. Sims
5054 Pondview Loop
Marianna, Florida 32448
Phone: (850)573-6316

GENERAL INFORMATION

Injuries

If an employee is severely injured at NFREC, call 911. If an employee has a minor injury, first aid kits are located at the maintenance building office and in the pavilion storage room. If the injury requires further medical attention, contact a supervisor or office staff immediately. The injured person will be sent to a designated Worker's Comp. medical facility. An injury report will be completed and returned to the office within four days of the injury. The employee may return to work upon receiving approval from his/her physician.

Faculty and (or) supervisors are responsible for notification to employee(s) with animal contact about University EH&S regulations.

On Farm First Aid Supervisor:
David Thomas
Email: davidall@ufl.edu
Work number: 850-526-1620
Cell number: 850-693-0309

Emergency Preparedness

Depending on the nature of the emergency, all normal cattle husbandry procedures will be performed when it is safe for personnel to carry out these functions. All personnel scheduled to work that day are "Essential Personnel", no exceptions.

In the case of a natural disaster or weather-related emergency the "Natural Disaster/Hurricane Emergency Preparedness Plan" will be referenced. All managers are provided with a current copy each year and are expected to have reviewed and understand the procedures within the plan. Cases of flood, freeze, hurricane, and tornado procedures are outlined in this document.

Cattle Care and Support

In case of natural disaster or weather-related emergency:

- Relocate cattle in pens/pastures near external roads to pens/pastures more centrally located within the station.
- Ensure that generators are in proper working condition in case they are needed to supply power for wells and provide drinking water to cattle.
- In case of strong winds, turn shade structures on sides to prevent potential harm to cattle from flying objects.

Disaster Recovery Plan

In case of power outage or failure all refrigerated systems (refrigerators, -20°C and -80°C freezers) will be kept close at all times in order to maintain the isolation of freezers and refrigerators. The Biological Scientist in

charge will be contacted. The Biological Scientist will then contact the Farm Maintenance (Ray Morgan), who will contact the electrical service. In case the Farm maintenance is not available; the Biological Scientist will directly contact the electrical service.

Brock's Electrical Service LLC
2720 Lakeviewpoint Road
Quincy, FL 32351
Phone: (850) 875-1341
Cell: (850) 528-0970
brockselectrical@hotmail.com

Once the electrical service estimates how long it would take for the refrigerators to be running and stabilized again, the Biological Scientist together with Dr. DiLorenzo, Dr. Dubeux, and/or Dr. Gonella-Diaza will evaluate the situation prior to determine the next step. If needed, samples can be transported in refrigerated and sealed coolers to the NFREC unit in Quincy, Florida, where they have enough storage and refrigerated room for all samples. The NFREC unit of Quincy is 45 min driving distance; therefore, all samples should arrive intact. All data is backed up periodically in Teams reducing the potential of data loss due to power outage.

Calling 911

In cases in which 911 responders are needed, the following steps should be taken:

- Call 911
- Provide operator with the following address for the Beef Unit:
4925 Hwy 162
Greenwood, FL
- Inform a fellow employee of the situation and have them meet the 911 responders at the main entrance gate in a state vehicle with hazard flashers on and escort them to the site of need.

Fire

In the case of a fire the following steps should be taken:

- Call 911 immediately
- With personal safety in mind, safely work to remove all people and livestock from the area.
- Contact management (Drs. Nicolas DiLorenzo and Jose Dubeux, and David Thomas); inform them of the situation and current status of emergency.

Breaches of Security

In the case of a breach in security area manager and Dr. Nicolas DiLorenzo (850-557- 8319) should be contacted, in addition to the Marianna Police Department. Do not attempt to handle the situation by any means by yourself.

Marianna Police Department:
2890 Green Street

Marianna, FL 32447
(850) 526-3125

Breaches of Biosecurity

When a breach in biosecurity occurs, Dr. Nicolas DiLorenzo (850-557-8319) should be contacted and informed of the situation. He will contact Dr. Laura Eurell to receive guidance in handling the situation.

Laura Eurell, DVM, MS, DACLAM
Director, Animal Care Services and Attending Veterinarian University of Florida
1600 SW Archer Road
Gainesville, FL 32610
(352) 273-9233

Animal Activists Activities

In the case of suspected animal activism activity Dr. Nicolas DiLorenzo (850-557-8319) should be contacted. Do not attempt to handle the individual or group without the assistance of Dr. Nicolas DiLorenzo. Attempt to contain the group within the beef pavilion until one of the above-mentioned professors arrives.

If you feel personally threatened and believe the safety of the employees of the NFREC are at risk, call the Marianna Police Department.

Other Situations

In case of an unplanned or defined emergency always contact authorities if needed and contact management immediately. Human safety and health should always be placed in higher priority than that of livestock in all emergencies. No exceptions.

Biosecurity

A high standard of biosecurity will be maintained to protect against the unintentional transfer of pathogenic organisms and subsequent infection of production animals by humans, vermin, or other means.

Personal cleanliness is required of all individuals who work or are in contact with the cattle. A shower is provided to the employees, which is open for access during hours of operation. It is located in the FEF offices. Washing facilities are located near each of the animal handling facilities and provided with antibacterial soaps and needed material to ensure cleanliness.

Disposable gloves will be located chute side at every cattle handling facility. Employees should wear gloves whenever they come in direct contact with animals. In addition, palpation sleeves will be available if needed.

Food and drink should only be taken and/or stored in designated areas.

Refrigeration is designated either for animal or human use. No human food or drink is permitted to be stored in a container deemed for animal use, nor should any animal products or by products ever be stored within a container deemed for human use. If animal products or by products are placed within a human container, all items within that container are considered contaminated and must be disposed of.

The NFREC Beef Unit requires all visitors to sign in at the beef pavilion office directly after entering the property. Visitors are not permitted to be unescorted at any point during their visit and will have limited access to the livestock.

Security Procedures

Gates located in the back and front entrances of the Beef Unit are always to be locked, with the exception of business hours.

In addition, all doors to the buildings will be locked if the building is not in use or it is not during normal business hours. This includes rolling doors and maintenance buildings. Keys should be removed from all vehicles and equipment after business hours and houses within the manager's office.

All keys will be registered with the NFREC administrative personnel and employees are not to make copies under any circumstances.

Laboratory Procedures

All laboratory procedures (laboratory SOP) are kept in a separated file. All procedures are updated when needed and this is documented by updating the date in each procedure. Every machine is calibrated, and every assay is validated in every run by using some standard samples, which concentrations are known and validated.

Drs. DiLorenzo and Hallford are responsible for keeping the procedures up to date. The final laboratory procedure undergoes the approval of Dr. DiLorenzo, who must sign and date in the specified section.

Hazardous Materials

Chemical Materials

All employees are required to hold the appropriate license before handling any chemicals that are listed or regulated by state or federal entities.

Harmful chemicals used on the BEEF UNIT are predominantly pesticides and herbicides. They are stored in a single area outside the barn, inaccessible to the livestock. There are gloves and face shields available for personnel who must handle these materials and in case of accident there are eye wash stations and a shower close by to flush any material. If flushing is inadequate and burning persists for longer than 5 min, the personnel affected will be transported to the emergency treatment facility for further care. All of the above will be monitored by the hazardous materials coordinator for the NFREC Beef Unit.

If at any point handling questions, safe issues, or any other information regarding hazardous materials arises the hazardous materials coordinator should be contacted.

Hazardous materials coordinator: Jim Bob Baxter

Email: jbbaxter@ufl.edu

Office number: (850) 526-1635

Cell number: (850) 557-2640

Biohazardous Materials

The biological safety manual set forth by the environmental health and safety department of the University of Florida. This manual can be found at: <http://www.ehs.ufl.edu/Bio/BioMan.pdf>.

Biohazardous spill cleanup kits are located in the main office of the Beef Unit pavilion and the Feed Efficiency Facilities computer shack. In the event of a spill management and the biological scientist should be contacted. The biological scientists are responsible for having reviewed and understand the policies and guidelines listed within the safety manual. They will direct the cleanup of any spills, handle all material accumulated, and ensure that employees are properly trained in the handling of biohazardous materials.

ADDENDUM 1

Occupational Health

The program is consistent with Federal, State and Local Regulations, and will depend on the research activities and hazards involved. The degree of participation of individuals in the program will be based on an assessment of risk by Health and Safety Specialists involving consideration of the hazards posed by the animals and materials used; the duration, frequency, and intensity of exposure; the susceptibility of the personnel; and the history of occupational injury and illness in the particular workplace.

All employees of the Beef Unit are enrolled in the University of Florida Occupational Health program at time of hiring. Prior to the beginning of the working period, as an employee who works with animals, this enrollment process must be completed. This could include but is not limited to annual physicals, blood serum banking, employee orientation, and other health related details that may pertain to specific jobs. All employees are encouraged to explore the Occupational Health Program at the universities website: www.ehs.ufl.edu.

Upon hiring the new employee will work with Tina Gwin and Penny Malone of Quincy to ensure all requirements of the Occupational Health Program are met.

Marianna Administrative Specialist

Tina Gwin

Email: tpgwin@ufl.edu

Office: (850) 526-1614

Quincy Administrative Services Manager

Penny Malone

Email: malonep28@ufl.edu

Office: (850) 875-7114

Injuries

In the case of an employee being injured on the job and in need of emergency care the following steps should be taken:

- If life-threatening or too severe to be handled on site, call 911
- Provide operator with address for the Beef Unit: 4925 Hwy 162 Greenwood, FL
- Call management
- If the person can be transported to an emergency room or medical care facility, management will do so
- Call management, Tina Gwin, and Workers' Compensation (1-800-455-2079)

Pre-Existing Conditions

Employees are strongly encouraged to make management aware of any pre-existing medical conditions which may affect the safety and health of the employee, or co-worker. Employees should inform management of medication(s) needed in the event of a medical emergency. Medical emergencies are defined as an unexpected event that requires immediate medical attention, which includes calling 911. This would include, but is not limited to insulin for diabetes, nitroglycerin for cardiac associated chest pain, asthma, allergies, and seizures.

Immunization Schedule

All employees must have a current immunization against Tetanus, and a booster every ten (10) years. This is in accordance with the institution's risk assessment. Immunizations should be offered to employees (before exposure occurs) who work- handle animals and risk exposure to infection pathogens. The UF Health Department houses all employee health records, including blood serum banking. UF Health Care Department (352) 392-1161

Allergens

Employees with pre-existing allergic conditions, i.e., dust, pollen, animal dander etc., should be aware of work areas which could precipitate an allergic reaction. They can help minimize this potential problem by using appropriate protective gear. This should include a protective mask, gloves, and clothing.

High risk areas and tasks may include but are not limited to:

- Working in the hay field
- Working in high dust areas while processing cattle
- Working in any closed areas within the farm
- Feed mixing or feeding cattle
- Any work in the fields where you are exposed to plant matter.

Physical Injuries

The risk of physical injuries constitutes health hazards for individuals working with livestock and farm equipment. Thus, all employees are required to be current and up to date on safety training. Individuals should have assistance from a coworker when handling livestock, in the event an injury was to occur.

High risk areas for injuries would include, but are not limited to:

- Operation of equipment
- Handling of livestock, especially mother cows with calves, and bulls

Zoonotic Diseases

Employees should be aware of the existences of zoonotic diseases and trained in methods to reduce the risk of exposure and contamination. Chute side gloves and safety material are provided to help reduce exposure. These safety items should be used at all times. The biological scientists and management can be contacted with questions about diseases and safety precautions that should be implemented.

Table 15. List of zoonotic diseases of agricultural animals.

Disease in humans	Causative agent	Host	Means of spread
Acariasis	<i>Carpcptes scabie</i>	C	Direct contact
Animal pox	Pox virus	L	Contact
Anthrax	<i>Bacillus anthracis</i>	L	Contact, inhalation, or ingestion
Botulism	<i>Clostridium botulinum</i>	C	Ingestion of (food borne) toxin, direct contact with spores, spores in wound
Brucellosis	<i>Brucella abortus</i>	C	Contact and ingestion of milk, milk products, and raw meat
Campylobacteriosis	<i>Campylobater fetus</i>	C	Ingestion of raw meat and milk
Chlamydiosis	<i>Chlamydophilia abortus</i>	C	Contact with uterine fluid
Clostridiosis	<i>Clostridium septicum</i>	C	Wound infection
Coccidioidomycosis	<i>Coccidioides immitis</i>	C	Contamination of food
Colibacillosis	<i>Escherichia coli</i>	L	Ingestion
Cryptosporidium	<i>Cryptosporidium</i>	C	Fecal-oral
Foot and mouth disease	Picornavirus	L	Rarely can cause mild lesions in humans
Giardiasis	<i>Giardia lambia</i>	L	Fecal-oral, food borne, contaminated water
Hydatid disease	<i>Echinococcus spp.</i>	L	Egg ingestion
Leptospirosis	<i>Listeria monocytogenes</i>	L	Contact; urine contaminated soil or water
Listerisis	<i>Listeria monocytogenes</i>	L	Possible mucous membrane contact, skin penetration, ingestion of unpasteurized milk
Melioidosis	<i>Burkholderia pseudomallei</i>	L	Contact with blood, urine, nasal secretions, milk
Milker's nodules	<i>Paravaccinia virus</i>	C	Contact with teats and udder
Nematodiasis	Roundworms	L	Ingestion, contact
Plague	<i>Yersinia pestis</i>	C	Bites from infected fleas; direct contact with wounds or mucous membranes
Pneumocystis	<i>Pneumocystis carinii</i>	C	Inhalation
Pseudocowpox	<i>Parapoxvirus</i>	C	Direct contact
Pseudotuberculosis	<i>Y. pseudotuberculosis</i>	L	Contact, contaminated food/water, ingestion
Q fever	<i>Coxiella burnetii</i>	L	Inhalation; ingestion of contaminated raw milk; amniotic fluid or placenta contact, blood sucking arthropods
Rabies	<i>Rhabdovirus</i>	L	Bite wound; saliva in open wound
Rain Rot	<i>Dermatophiluc congolensis</i>	L	Direct contact
Ringworm	<i>Trichophyton spp.</i> , <i>Microsporum spp.</i>	L	Direct contact; soil can be reservoir
Salmonellosis	<i>Salmonella spp.</i>	L	Ingestion, inhalation, contact
Sarcocystis	<i>Sarcocystis neurona</i>	L	Cyst ingestion
Staphylococcal infection	<i>Staphylococcus spp</i>	L; DC	Contact, consumption of unpasteurized milk
Streptococcal infection	<i>Streptococcus spp.</i>	L; DC	Contact, consumption of unpasteurized milk
Trichostrongylsis	<i>Trichostrongylus spp.</i>	L	Fecal-oral, contamination of food
Tuberculosis	<i>M. tuberculosis</i> , <i>M. bovis</i>	C	Contact, ingestion, inhalation
Variant Creutzfeldt- Jakob	Prion protein (bovine spongiform encephalopathy)	C	Variant Creutzfeldt- Jakob
Vesicular stomatitis	<i>Rhabdovirus</i>	C	Contact

C = Cattle; L = Livestock; DC = Dairy Cow

EMPLOYEE TRAINING

New Employees

Research faculties are responsible to ensure that IACUC regulations are met regarding required training for IACUC required/approved projects.

Before new employees can work independently, all new employees must undergo formal training on selected topics related to their job duties prior to performing those duties. Employees will sign and date forms verifying their training. A set of binders containing documentation of this training is kept in the respective lab's Teams file. Available training modules include the following:

- Laboratory Safety (for lab employees only)
- Chemical Hygiene Plan (for lab employees)
- Hazardous Waste Management
- UF Biological Safety
- UF Biomedical Waste Training – to include handling of sharps
- Zoonotic disease risks
- Asbestos and Lead Awareness
- Tractor Safety
- Hearing
- Heat Stress
- Lock Out/Tag Out

In addition, employees will be trained in a person to person-based training in BCS evaluation, blood collection and handling, animal body weight, and laboratory procedures. These trainings will be conducted by a qualified person, will be updated as needed, and will be kept current (within a 12 month period).

New employees often work with an experienced employee to learn procedures.

Employees are retrained when evidence indicates that the procedure is not being performed properly.

New employees also are required to participate in the “Animal Contact Medical Monitoring Program” provided by EH&S prior to being hired.

Current Employees

All employees will undergo yearly ‘refresher’ training on selected topics related to their job duties. If/when an employee’s job description changes, training in topics related to this change occurs at that time. A set of binders containing documentation of this training are kept in the respective lab’s Teams file.

Current employees must renew their “Animal Contact Risk Assessment” every three years.

Also, employees will be trained in a person to person-based training in BCS evaluation, blood collection and handling, animal body weight, and laboratory procedures. These trainings will be conducted by a qualified person, will be updated as needed, will be kept current (within a 12 month period).

Drs. DiLorenzo and Hallford are trained to manage and gather data from the GrowSafe/Vytelle system. They will undergo yearly 'refresher' training in the GrowSafe/Vytelle system.

Documentation

All equipment maintenance/repairs completed will be documented and kept with the Farm Maintenance (Ray Morgan). All water testing receipts will be kept with the NFREC Administrative Specialist (Tina Gwin). In addition, all weights and scales validation will be documented, and receipts will be kept with Dr. DiLorenzo.

Every employee training record will be documented (signed, dated and signed by a supervisor when needed) and kept in a separate file. The set of files including the general SOP, the laboratory SOP and all training documentations will be kept in a safe area in the office of the Biological Scientist (Tessa Hallford) and/or in the Teams server.

All data for regulated research will be kept with the raw data in a safe locked area localized at building number 8023 and 8004 at NFREC Marianna.