



UF IFAS Range Cattle REC



9th Youth Field Day

June 23, 2016



Save the date - the UF/IFAS Range Cattle Research & Education Center Cattle and Forage Field Day & Anniversary Celebration will be held Oct. 27, 2016

~ *Table of Content* ~

Schedule 2

“Thank You!” To Our Sponsors 3

Youth Field Day Staff 4

Expo Participants 6

RCREC Quick Facts 7

RCREC Cattle Management..... 8

LITERATURE FOR MORNING CLASSES

Career Explorations with UF 9

Caught on Camera: Monitoring Florida’s Wildlife with Game Cameras.....14

Harmful Internal Microscopic Bugs & Shot Placement20

Livestock Handling

 Cattle22

 Horses.....44

Pasture Management & Rotational Grazing45

EXTRA RESOURCES

Basic Animal Nutrition48

Body Condition Scoring of Beef Cattle50

Poisonous Plants52

What is Soil?57

Web Resources59

Youth Field Day 2016

~ Schedule ~

- 8:00 a.m. Check-in/Register
- 8:45 a.m. Welcome – Dr. John Arthington, Professor and Center Director
Instructions – Andrea Dunlap, YFD Committee
- 9:00 a.m. Groups begin class rotations
- (30 min) “Career Explorations with UF Animal Sciences” –
Amie Imler, Undergraduate Advisor &
UF Block & Bridle club members
 - (30 min) “Caught on Camera: Monitoring Florida’s Wildlife with Game
Cameras” -
Wes Anderson, Ph.D. Student, Sam Baraoidan, M.S. Student, and
Connor Crank, M.S. Student
 - (30 min) “Harmful Internal Microscopic Bugs & Shot Placement”
Sonja Crawford, Livestock/4-H Agent, Tycee Prevatt, 4-H Agent, &
Christy Walters, Lab Manager
 - (30 min) “Livestock Handling”
Austin Bateman & Clay Newman, Herdsmen
Ashley Fluke, Livestock & Forage Agent
 - (30 min) “Pasture Management & Rotational Grazing”
Chris Prevatt, Cattle & Forage Economist,
Dr. Philippe Moriel, Beef Cattle Nutrition, &
James McWhorter, Livestock Agent
- Learning Expo Booths Open in the Grazinglands Education Building – 12:05 – 2:00 p.m.
- 12:05 p.m. Lunch - Groups Red A, Green A, and Blue A
- 12:45 p.m. Lunch - Groups Red B and Green B
- 2:00 p.m. Field Day Ends

Thank you to the 2016 Youth Field Day Sponsors!

The Andersons Inc.

D & S Cattle Company, Inc.

Doyle Carlton Ranches

Farm Credit of Florida

Florida Fence Post Co. Inc.

Hardee County Cattlemen Assn.

Hardee County Farm Bureau

Hardee Ranch Supply, Inc.

Heartland Growers Supply

Highlands County Cattlemen's Assn.

Joshua Citrus, Inc.

Manatee County Cattlemen's Assn.

Merck Animal Health

The Mosaic Company

Southern Garden Citrus

Wauchula State Bank

A very special "Thank You" to everyone who has had a part in today's program! We are very grateful for your time, assistance, support, and donations!

Youth Field Day 2016

~ Staff ~

Career Explorations with UF Animal Sciences

Amie Imler, Undergraduate Advisor, UF Animal Sciences
with UF Block & Bridle

Caught on Camera: Monitoring Florida's Wildlife with Game Cameras

Wes Anderson, UF Ph.D. Student, Wildlife
Julie Burford, UF M.S. Student, Wildlife
Sam Baraoidan, UF M.S. Student, Wildlife
Connor Crank, UF M.S. Student, Wildlife

Group Leaders

Red A - Jessica Belcher, Summer Intern, UK Undergraduate, Plant Science
Jose Luiz Dias, UF Ph.D. Student, Agronomy
Red B - Juliana Ranches, UF M.S. Graduate, Animal Sciences
Gleise Medeiros, UF M.S. Student, Animal Sciences
Green A - Amanda Baldo, Exchange Visitor, Scholar
Yanyan Lu, UF Ph.D. Student, Soil & Water Science
Green B - JK Yarborough, UF M.S. Student, Agronomy
Caio Carnelos, Exchange Visitor, Intern
Blue A - Bethany Wight, UF/IFAS Biological Sci., Wildlife Ecology and Cons.
Katie Whidden, 4-H Agent, Highlands County Extension

Harmful Internal Microscopic Bugs & Shot Placement

Sonja Crawford, Livestock/4-H Agent and Tycee Prevatt, 4-H Agent, Hendry County Extension & Christy Walters, Lab Manager, Central Florida Large Animal Veterinary Services

Livestock Handling: Beef Cattle & Horses

Austin Bateman & Clay Newman, Herdsmen, UF/IFAS Range Cattle REC
Ashley Fluke, Livestock & Forage Agent, UF/IFAS Osceola County Extension

Pasture Management & Rotational Grazing

Chris Prevatt, Livestock & Forage Economist, UF/IFAS, Range Cattle REC, Regional Specialize Agent
Dr. Philipe Moreil, Beef Cattle Nutrition, UF/IFAS Range Cattle REC
James McWhorter, Livestock Agent, UF/IFAS, Highlands County Extension

Extension Staff

Lindsey Wiggins (Multi County - Livestock), Deanna Thompson (Desoto County - Agriculture), Robin Scott (Desoto County - 4-H), Christa Kirby (Manatee County - Livestock)

RCREC Staff and Students

Joe Aldana, Randy Crawfis, Lauria Gause, Dennis Kalich, Christina Markham, Terry Neels, Kim Parks, Jeff Steele, Juliana Ranches, Cindy Holley, Ryan Nevling, Joao Sanchez, Cecilio Soares, Wendy Colombo, John Arthington, Jacob Miller, Julie Warren, Wyatt Kofke, Jessica Belcher

Youth Field Day Committee

Sonja Crawford, UF/IFAS, Hendry County Extension, Livestock /4-H Agent
Andrea Dunlap, UF/IFAS Range Cattle REC, Educational Media/Communications Coordinator
James McWhorter, UF/IFAS, Highlands County Extension, Livestock Agent
Chris Prevatt, Livestock & Forage Economist, UF/IFAS, Range Cattle REC, Regional Specialize Agent
Katherine Whidden, UF/IFAS, Highlands County Extension, 4-H Youth Development Agent

~ Expo Participants ~

Abraham Baldwin Agricultural College

Suzanne Bentley

www.abac.edu

Block and Bridle Club at UF

Dr. Joel Yelich

<http://animal.ifas.ufl.edu/students/clubs/BnB/>

DeSoto/ Charlotte Farm Bureau Young Farmers & Ranchers

Morgan Norris

863-381-8014

morgan.norris@me.com

Farm Credit of Florida

Lindsey John

<https://farmcreditfl.com/>

Florida Automated Weather Network (FAWN)

Rick Lusher

(352) 846-3219

rlusher@ufl.edu

<http://fawn.ifas.ufl.edu/>

Florida Cattlewomen's Association

Wendy Pettaway

www.floridacattlewomen.org/fcw

Merck Animal Health

Greg Woodard

gregory.woodard@smrfarms.com

Mosaic

Brittany Dunlap

<http://www.mosaicco.com/florida/>

South Florida State College

Summer Miller

www.southflorida.edu

UF IFAS Citrus REC

Jamie Burrow

(863)956-8648

jd Yates@ufl.edu

www.crec.ifas.ufl.edu/

UF IFAS College of Agriculture and Life Science (CALS) Ambassadors

<http://cals.ufl.edu/>

UF IFAS Gulf Coast REC

Christine Cooley

www.gcrec.ifas.ufl.edu/

UF IFAS Indian River REC

Robin Koestoyo

<http://irrec.ifas.ufl.edu/>

UF IFAS Highlands County Extension

David Austin

<http://highlands.ifas.ufl.edu/index.shtml>

UF IFAS Range Cattle REC Agronomy

Joao Sanchez and Cecilio Soares

UF IFAS Range Cattle REC Animal Sciences

Julie Warren and Juliana Ranches

UF IFAS Range Cattle REC Wildlife Ecology & Conservation

Wes Anderson

Warner University

Scarlett Jackson

(863)638-7116

scarlett.jackson@warner.edu

www.warner.edu

UF/IFAS Range Cattle Research and Education Center - Quick Facts

- **This Station was established in 1941** for two purposes: 1) to learn how to produce quality forage on the sandy cut-over pinelands; 2) to investigate breeding, feeding and management of beef cattle.
- Much of the proposed land had been sold during the 1915 boom in 10, 20 and 40-acre tracts to people throughout the U.S.A. In the late 1920s when the land boom broke most of the Station area was returned to the county because of unpaid taxes. Hardee Farms and Ranch Inc., Wauchula, redeemed the tax certificates and later sold a large part of the land to the Station Trustees at \$2.25 per acre. Funds for the **purchase of this land** were obtained through private donation and grants from the Hardee Board of County Commissioners.
- The center has been its current size (**2,840 acres**) since 1960.
- **Modern conveniences:** Electric power was provided in 1946, an all-weather road in 1952, and phone service in 1954.
- **The purpose of the center** is to conduct research and provide information that will solve problems related to improving profitability of beef, forage and field crops, and dairy production in central and south Florida.
- The center has **7 faculty members** doing work in soil and water science, animal science (beef cattle), forages, weed science, economics, and wildlife ecology & conservation.
- The center has **20 support personnel**- office manager, research coordinator/farm manager, herdsman, biological scientists, educational media/communications coordinator, custodian, ag. technicians, auto/equipment mechanic, field work assistant, maintenance and a secretary.
- Currently there are **4 Ph.D. students, 9 M.S. students, and several International Exchange Visitors: short-term & research scholars and interns** at the center. Students come to the center to do research toward the degree they are pursuing. We have hosted students from Brazil, Honduras, India, Africa, China, Turkey, Russia, and North America.
- Currently the Range Cattle REC has **605 mature cows, 100 yearling heifers, and 35 bulls. Breeds** include Angus, Brangus, Braford, Brahma, and various crosses.

Contact us:

Phone - 863-735-1314

Fax - 863-735-1930

E-mail - ona@ifas.ufl.edu

Website - <http://rcrec-ona.ifas.ufl.edu>

Range Cattle REC Cattle Management

Herdsman, Austin Bateman

January

1. Cow breeding season begins (1st week)
2. Early wean calves from 1st calf heifers (1st week)

April

1. Remove bulls following 90-day breeding season:
 - a. Vaccinate bulls with Cattlemaster 4 + VL 5, Ultrabac 8, and worm
2. Work all cows and calves;
 - a. Weigh and Body Condition Score (BCS) Cows
 - b. Weigh calves
 - c. Worm cows
 - d. Vaccinate calves with Bovi-Shield Gold 5, Ultrabac 8, One-Shot pasturella, worm
3. Pregnancy check yearling heifers via ultrasound;
 - a. Vaccinate heifers with Cattlemaster 4 + VL 5, and worm

June

1. Pregnancy check cows and Brucella test
2. (greater than or equal to 30 days from prior) Vaccinate calves with Bovi-Shield Gold 5 and Ultrabac 8, One-Shot pasturella, and worm

July

1. (greater than or equal to 30 days from prior) Wean calves and ship

August

1. Work replacement heifers before going onto fall studies;
 - a. Brand, Bangs vaccinate, worm

September

1. Work and sort mature cowherds prior to winter feeding studies;
 - a. Vaccinate with Cattlemaster 4 + VL5, Ultrabac 8, and worm

October

1. Work bulls;
 - a. BSE exam, Brucella test, trich test
 - b. Vaccinate with Bovi-Shield FP4 + VL5, Ultrabac 8, and worm

December

1. Begin heifer breeding as per schedule

Updated June 2016

True Colors Personality Test & Career Exploration

Exploring Your Personality to Find the Career that's Right for You!

Are you... **Blue?**

**Enthusiastic...Sympathetic...Personal?
Warm...Communicative...Compassionate?
Idealistic...Spiritual...Sincere?
Peaceful...Flexible...Imaginative?**

At school...

- I have a strong desire to be a role model for my classmates
- I am skilled at motivating and interacting with others – I make friends easily and like having friends
- I respond well to encouragement rather than competition
- I like being artistic, communicating with people, and helping people
- I don't like conflict
- Others would describe me as optimistic

Careers I may like...

- | | | |
|--|---------------------------------|---------------------|
| • Teacher | • Public Relations | • Chef |
| • Extension Agent | • Social Worker | • Cosmetologist |
| • Nurse, Doctor,
Dentist, Paramedic | • Humanitarian or Aid
Worker | • Actor |
| • Veterinarian | • Conservationist | • Musician |
| • Rancher | • Psychologist | • Child Care Worker |
| • Animal Behaviorist | • Advisor | • Interior Designer |
| | | • Florist |

True Colors Personality Test & Career Exploration

Exploring Your Personality to Find the Career that's Right for You!

Are you... **Green?**

Analytical...Global...Conceptual?
Cool...Calm...Collected?
Inventive...Logical...Problem Solver?
Abstract...Creative...Investigative?

At school...

- I love learning – knowledge is power
- I am conceptual and am an independent thinker
- For me, work is play
- I am drawn to constant challenge
- I like to develop models and explore ideas – I am resourceful

Careers I may like...

- Teacher – Agriculture, Science, Math, Religion, Philosophy
- Scientist – Agriculture, Food, Environment, Ecology, Computer Systems, Forensics
- Product Development
- Political Scientist
- Geologist
- Surveyor
- Conservationist
- Marine Biologist, Oceanographer
- Dietitian or Nutritionist
- Food or Flavor Technologist
- Pilot or UAV/Drone Operator
- Engineer
- Inventor, Entrepreneur or Business Owner
- Graphic Designer
- IT Specialist
- Statistician
- Doctor – Optometrist, Surgeon, Anesthesiologist
- Veterinarian
- Pathologist
- Economist
- Dentist

True Colors Personality Test & Career Exploration

Exploring Your Personality to Find the Career that's Right for You!

Are you... **Gold?**

Loyal... Dependable... Prepared?
Thorough... Sensible... Punctual?
Faithful... Stable... Organized?
Caring... Concerned... Helper?

At school...

- I am dependable and organized
- I am detailed oriented
- I am predictable and I do *NOT* like change
- I believe that work comes before play, even if I must work overtime to complete the job
- I understand and respect authority and am comfortable with how school goes – I am a rule follower

Careers I may like...

- Animal Geneticist, Breeder
- Inspector – Food Safety, Meat
- Teacher – Economics, Math
- Pharmacists
- Accountant or Budget Analyst
- Auditor
- Air Traffic Controller
- Office Manager
- Secretary, Executive Assistant
- Human Resource Management
- Editor
- Bank Teller
- Business Owner or Entrepreneur
- Inspector – Fire, Construction or Building
- City and Regional Planner
- Appraiser or Assessor – Insurance, Tax
- IT Specialist
- Audio/Video Equipment Specialist
- Customer Service Representative

True Colors Personality Test & Career Exploration

Exploring Your Personality to Find the Career that's Right for You!

Are you... **Orange?**

**Witty...Charming...Spontaneous?
Impulsive...Generous...Impactful?
Optimistic...Eager...Bold?
Physical...Immediate...Courageous?**

At school...

- I learn by doing and experiencing, rather than by listening and reading
- I like being physically involved in the learning process
- I am motivated by my own natural competitive self and sense of fun
- I am a natural performer
- I like doing tasks that allow me to be independent and free
- I am confident and I attack problems head-on

Careers I may like...

- Sales & Marketing
- Reporter, News Anchor, Journalist
- Ranch Management
- Product Promotion
- Business Owner or Entrepreneur
- International Trade Representative
- Lawyer
- Politician, Lobbyist
- Mechanic, Welder
- Truck Driver
- Real Estate
- Investor, Stock Broker
- Engineer
- General Contractor, Construction Manager
- Animal Trainer
- Forester
- Landscape Architect
- Pilot
- Artist, Musician
- Jeweler
- Animator
- Actor
- Fish & Game Wardens
- Law Enforcement
- Criminal Investigator
- Military
- Teacher – Business, P.E.
- Professional Athlete

True Colors Personality Test & Career Exploration

Exploring Your Personality to Find the Career that's Right for You!

Resources for Career Exploration – Agriculture & Science

- <http://cals.ufl.edu/>
- <http://animal.ufl.edu/>
- <http://www.agcareers.com/>
- <http://www.agday.org/education/careers.php>
- <http://www.bls.gov/ooh/occupation-finder.htm>
- <http://www.environmentalscience.org/careers/agriculture-and-forestry>
- <http://www.gaaged.org/page.aspx?ID=353>
- <http://agsci.oregonstate.edu/academics/careers/careers-agricultural-sciences-and-natural-resources>
- <https://www.agricareersinc.com/>
- <http://www.agri-search.com/>

Caught on Camera

Monitoring Florida's Wildlife with Game Cameras

Wes Anderson, Sam Baraoidan, Connor Crank, Julie Burford,
Bethany Wight



Game cameras have many uses for studying wildlife. They are also known as trail cameras or camera traps.

Applications include:

- Detecting rare species
- Studying wildlife behavior and activity patterns
- Estimating population size

Benefits of using game cameras include:

- Animals don't need to be disturbed or captured to record data
- Less chance of altering the animal's behavior or scaring it
- Inexpensive
- Operate continually

Let's calculate an estimated population size for the pigs that we've caught on camera. We'll use a Capture-Mark-Recapture (CMR) method known as the Lincoln-Peterson index. To do this we need to know M , C , and R .

M = The # of animals marked in session 1

C = The total # of animals captured in session 2

R = The # of animals caught in session 2 that had marks

N = The population estimate

What is M ? _____ What is C ? _____ What is R ? _____
$$N = \frac{M \times C}{R}$$

So N equals? _____ This is the estimated population size for our pigs.

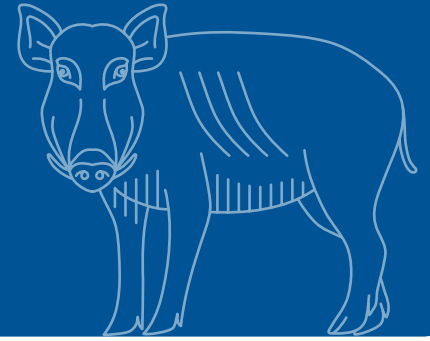
Game Camera Setup

One of the most important parts of any game camera study is good setup. A good setup includes:



- Good location – Position cameras along game trails, mineral licks, or bait stations
- Clear view – Make sure branches or vegetation aren't blocking the camera
- Height – Set the camera at an appropriate height for the wildlife species you want to photograph
- Direction – If possible, set the camera facing north or south, not east or west, to avoid glare from the sun

If you would like any game camera photos from the RCREC's 9th Youth Field Day & Expo, please contact Wes Anderson at wesleymanderson@ufl.edu. Please let him know the name of your group.

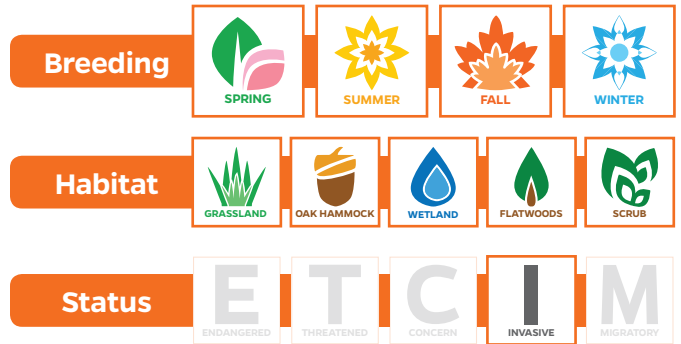


FERAL SWINE

Raoul Boughton · Bethany Wight

#001 Invasive Rangeland Vertebrate Factsheet Series

An Ecological and Agricultural Invader



SCIENTIFIC NAME: *Sus scrofa*

SYNONYMS: Wild Hog, Feral Hog, Wild Boar, Razorback, Piney Woods Rooter

HABITAT: All habitats with a water resource, especially agricultural areas and wetland/upland interface

PHYSICAL CHARACTERISTICS: Black, brown or brindled in color, juveniles striped

WEIGHT: Adults 75-250 lbs

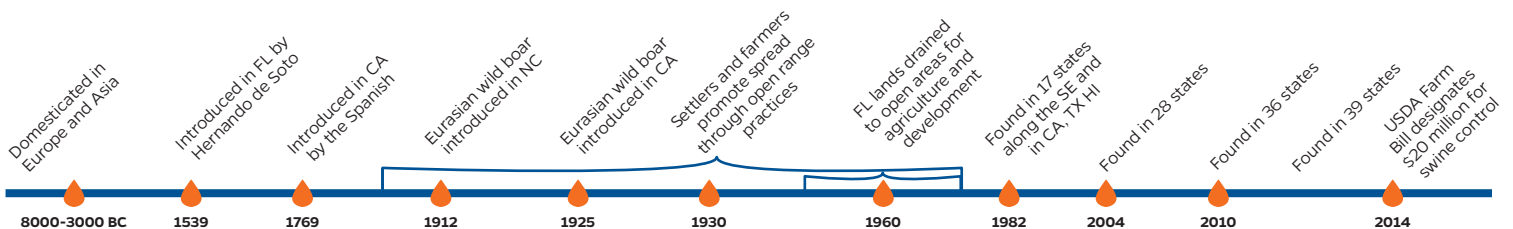
DEMOGRAPHIC RATE: 115 day gestation, able to produce 2 litter/year, 6-8 piglets/litter in the wild. Helps populations grow rapidly

LIFESPAN: Average of 1-2 years, known to live up to 9-10 years in the wild

DISPERSAL: Female and young stay together in groups called sounders. Mature males disperse, sometimes more than 100 miles. Female dispersal activities are unknown.

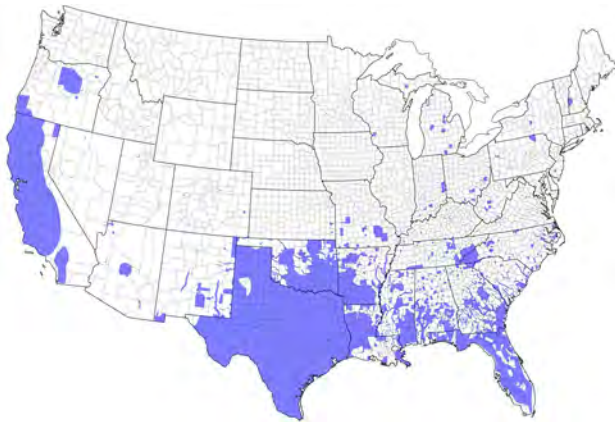


HISTORY: Feral swine are not native to the Americas and were introduced by Spanish explorers in the 1500s. In Florida, domesticated swine are thought to have first been introduced in 1539 by Hernando de Soto who settled Charlotte Harbor in Lee County. Later settlers and farmers used open range livestock practices, promoting the spread of swine. Feral swine are descendants of escaped/released domestic swine, hybrids of Eurasian wild boar x domestic swine, or wild boar in non-native habitat.



FERAL SWINE FAST FACTS

- Forage by rooting, which can negatively impact ecosystems
- No sweat glands, require water and shade to cool in hot environments
- One of the highest reproductive rate of mammals in North America
- Typically found in groups called sounders, males often solitary



Distribution of feral hogs in 2009. (Courtesy of Southeastern Cooperative Wildlife Disease Study)

DISTRIBUTION: Previously presumed to be limited to the south by harsh winters, they are now estimated to be breeding in 39 states, as far north as Michigan, North Dakota, and into Canada. The largest populations are found in Texas, California, Florida, and Hawaii. Population estimates in Florida are >500,000 which could be a great underestimate. Map courtesy of the SCWDS, University of Georgia.

Tracks



Signs of Feral Swine



Rooting along edge of wetlands common



Wallows in shady sites used often



Rubs on posts & trees likely used as scent marks



Swine tracks



Swine feces

How You Can Help

- Do not relocate or transport feral swine
- Control feral swine on your property
- Collaborate with neighbors to control large areas
- Work with you local wildlife agency

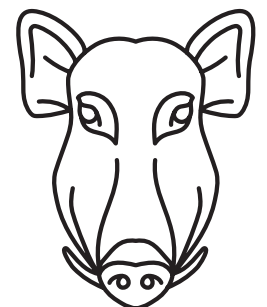
IMPACTS: The most common type of damage by feral swine is from rooting. When swine root to get food they burrow into the soil with their snouts to find roots, tubers, fungus, etc. This rooting loosens the soil, destroys native vegetation, and modifies the chemistry and nutrients of the soil. Feral swine can negatively impact not only natural ecosystems but also agricultural areas, livestock, and even residential areas. Feral swine also carry numerous diseases, some of which are transmittable to wild and domestic animals as well as humans.



Some wild boar have large tusks.

To learn more see these factsheets at www.rangelandwildlife.com

- Feral Swine Damage Cost
- Feral Swine on Your Property
- Feral Swine Diseases
- Dealing with Damaging and Dangerous Wildlife





WHITE-TAILED DEER

Connor Crank, Bethany Wight & Raoul Boughton

#003 Rangeland Wildlife Factsheet Series

Florida's Favorite Game Species



SCIENTIFIC NAME: *Odocoileus virginianus*

COMMON NAME AND TERMS: White-Tailed Deer, doe (adult female), buck (adult male), fawn (juvenile)

HABITAT: Most habitats, often along forest edges and gaps, in young forest stands, oak hammocks, grasslands, and agricultural pastures.

PHYSICAL DESCRIPTION: Reddish-brown to grey-brown, white throat and nose band, underbelly and underside of tail white, large pointed ears, tall standing up to 6ft. Juveniles spotted. Adult males annually shed and grow antlers.

WEIGHT: Average adults males 125 lbs., average adult females 95 lbs.

DEMOGRAPHIC RATE: 200 day gestation, average of 1 fawn/year in Florida.

LIFESPAN: Average 4-6 years in hunted areas and up to 10 years in non-hunted areas. Captive deer have lived for 20 years.

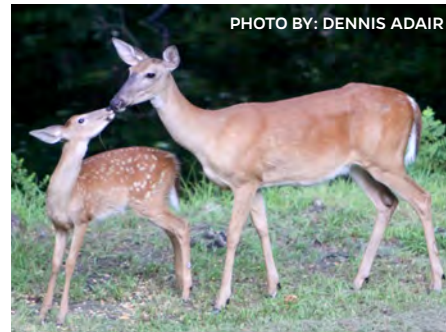
DISPERSAL: Average annual home range of 1 mi² for females and 2.5 mi² for yearling and adult males. Greatest dispersal is in yearling males who can travel up to 6 miles from their natal areas.



*Florida Key Deer is an endangered sub species

Did You Know?

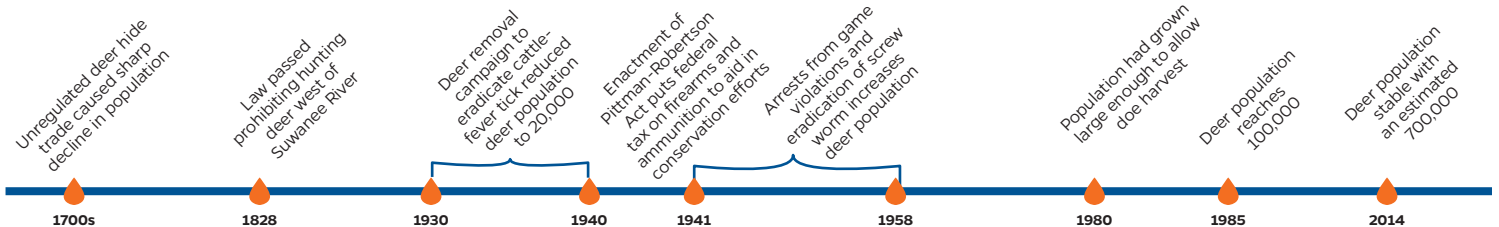
Antler growth is one of the fastest known types of mammalian tissue growth, growing up to ¼ inch per day.



HISTORY:

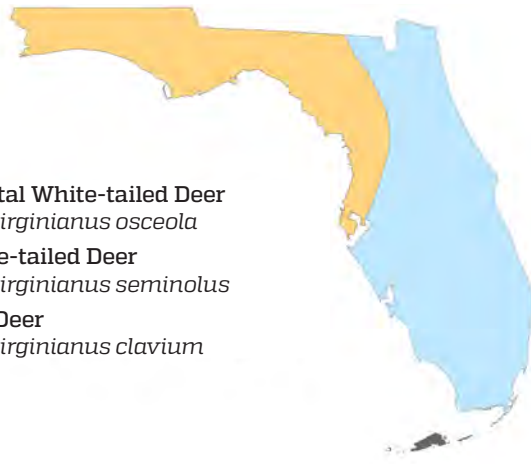
White-tailed deer are the most economically important game species in Florida. Deer in Florida have undergone major population

declines and increases. In the 1700s the unregulated deer hide trade and deer removal campaign caused historic populations to be reduced to 20,000. After the Pittman-Robertson Act and eradication of screw worm deer populations increased. Reintroduction of White-tailed deer by the Florida Fish and Wildlife Conservation Commission (FWC) has also helped increase deer populations. By 1985, 100,000 individuals were recorded and today an estimated stable population of 700,000 exists.



DEER FAST FACTS

- Scientific genus means “hollow tooth”
- In Florida, deer consume about 3% of their body weight, ~4 lbs a day
- Crepuscular, meaning they are most active at dawn and dusk
- Deer hunting created 8,196 jobs and generated \$48 million dollars in state and local taxes in 2011



-  Florida Coastal White-tailed Deer
Odocoileus virginianus osceola
-  Florida White-tailed Deer
Odocoileus virginianus seminolus
-  Florida Key Deer
Odocoileus virginianus clavium

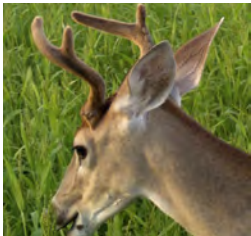
DISTRIBUTION: There are 30 subspecies of white-tailed deer in the Americas, with three in Florida (see map). Species are taxonomically divided into “subspecies” when they are capable of breeding and producing fertile offspring, but do not interbreed in nature due to factors such as geographic isolation (as is the case with the Key Deer).

BIOLOGY AND BEHAVIOR: White-tailed deer are herbivores, with diets of leaves, twigs, stems, flowers, acorns, fruits, mushrooms, and aquatic plants. Similar to cattle, deer are ruminants with 4 stomachs and 65 feet of intestines to process their food. The nutrient-poor sandy soil of Florida can result in relatively low populations of deer but agricultural areas often provide high quality forage. Deer breeding season is commonly referred to as the “rut” and consists of three stages: the pre-rut, the rut, and the post-rut. Bucks typically spend one day with a female, and then move on to find another receptive doe. Male deer reach sexual maturity at 1.5 years and females first reproduce their 2nd year. Mortality is primarily due to hunting with over 120,000 deer hunted annually, but vehicle collision and sometimes disease can also be large factors.

Tracks and Scat



Pre-rut



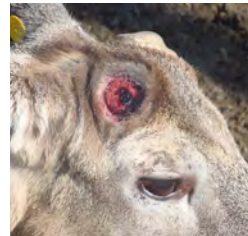
Increasing day-length and testosterone trigger antler growth covered in “velvet.”

Rut



Bucks rub antlers to remove velvet and often spar to assert dominance. Doe go into estrous.

Post-rut



Antlers are shed and new antlers start growing soon after.

How You Can Help

- Develop a habitat management plan to maintain stable population levels
- Use food plots to supplement deer feed and attract deer to an area

KEY DEER IN FLORIDA: Key Deer are an endangered subspecies of white-tailed deer that only exist in the Florida Keys. Their ancestors are thought to have crossed to the keys via a land bridge during the Wisconsin Glaciation. Geographic isolation on islands led to local adaptation and key deer became the smallest subspecies in North American with males weighing a mere ~ 65lbs and females ~ 55lbs. Key deer have a high salt water tolerance, low birth rates, and are more solitary. Due to hunting and habitat loss, only 25 Key Deer existed in 1955. Conservation efforts including a complete hunting ban (1939) and the establishment of National Key Deer Refuge (1967) have since allowed Key Deer populations to reach 700-800 individuals. Continued habitat loss and degradation are still major risks to the population.



PHOTO BY: KRISTIN LAJEUNESSE

See more factsheets at www.rangelandwildlife.com and www.edis.ifas.ufl.com

QDMA's Trail-Camera Survey Computation Form



Bucks^U (unique) → Bucks^U ÷ Bucks^T (total) = Pop. Factor

Does^T (total) → × = Does^U

Fawns^T (total) → × = Fawns^U

Bucks^U × Correction Factor = Bucks

Does^U × = Does

Fawns^U × = Fawns

Adjusted Population Estimates

Carry Down to Additional Formulas

For a 14-day survey, enter a correction factor of **1.11**
 For a 10-day survey, enter a correction factor of **1.18**
 *Assuming camera density of 1 per 100 acres.



Does ÷ Bucks = Does per Buck

Fawns ÷ Does = Fawns per Doe

Acreage Surveyed ÷ Total Pop. = Acres/Deer

Total Pop. × 640 = ÷ Acreage Surveyed = Deer/Square Mile

Notes on Using this Computation Form:

Total Deer: In sorting photos from a 14-day survey, count the total number of antlered bucks, total number of does, and total number of fawns (deer under 1 year of age). "Total" includes known repeats, so an individual deer photographed 10 times in one visit would count 10 times toward the "total" number.

Unique Bucks: This is the number of unique, individual bucks that appear in your total set of photos from the 14-day survey period. For example, you may have a total of 1,000 photos of bucks, and this number includes 30 unique bucks photographed multiple times each.

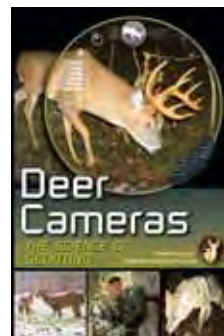
Unidentified: Remember to be conservative in your sorting. If you cannot confidently identify a deer as a buck, doe or fawn, do not include it in the "total" numbers for your survey.

Year: _____

Survey Dates: From: _____ To: _____

Property: _____

Acres: _____



This computation form is taken from the pages of *Deer Cameras: The Science of Scouting*, a 242-page book available from the Quality Deer Management Association (QDMA).

The book includes four chapters devoted to the trail-camera survey method, including planning, set-up, sorting photos, aging deer, interpreting results, and the answers to many frequently asked questions regarding surveys.

To order:
www.QDMA.com
(800) 209-3337
 \$24.95 plus S/H



© Copyright 2015 by QDMA. This document is intended for single-copy printing for individual use. It may not be sold, republished, altered for reprinting, or reproduced in mass quantity without the express written consent of the QDMA.

Injection Techniques Locations and Needle Choice
Max Irsik DVM, MAB
Beef Cattle Extension Veterinarian
University of Florida College of Veterinary Medicine
irsikm@ufl.edu

Nearly 20 years ago, USDA-FSIS, The National Cattlemen's Association, State Livestock Associations and others began efforts to reduce injection site lesions found at slaughter. These injection site lesions were often found in the more expensive cuts of beef. In response Beef Quality Assurance (BQA) meetings and other educational programs were undertaken to inform producers and veterinarians of problems being found at harvest at the retail level and by consumers.

Cattle are injected with a variety of animal health products; vaccines, bacterins, antibiotics, anthelmintics, analgesics and vitamins. Giving injections properly improves animal welfare, product response and beef quality. Injections should be administered in the injection triangle of the neck. The landmarks for the injection triangle are: the lower boundary is the cervical vertebra located in the middle of the neck, the upper boundary is below the nuchal ligament, located 3 inches below the top line, the posterior boundary is in front of the slope of the shoulder. The nuchal ligament lies on top of the animal's neck and supports the head. It should be avoided due to a limited blood supply. Any product injected into it would be poorly absorbed with an increased potential for adverse reactions. A structure to avoid in front of the shoulder is the prescapular lymph node located at point of the shoulder. This lymph node can be bruised by an animal coming into a chute rapidly and hitting the head gate too hard. Bruising of this node can cause significant swelling in the area lameness and a compromise to the immune response. The two main muscles located in the injection triangle and available for intramuscular (IM) injections are triangular in shape. These muscles are wider toward the shoulder and thinner toward the animals head. Besides being wider at the shoulder they are also thicker at the shoulder. This injection triangle leaves a fairly limed site for injections but giving injections into the triangle keeps them out of the more valuable areas of the carcass such as the top butt and round.

When administering injections they should be at least four inches apart. If two injections are to be given in the same side of the neck, one injection needs to be given in the front area of the triangle and the second at least a hand's width behind the first injection.

No more than ten ml of any product should be given at any one injection site when the product is administered IM. A smaller volume may be given to lighter calves. Giving more than ten ml at one site may decrease the products efficacy due to increased inflammation and decreased absorption. Subcutaneous (SQ) injections may not be limited to ten ml per injection site. Some antibiotics are labeled such that more than ten ml can be administered per SQ site. However if not specified on the label limit SQ injections to ten ml per site.

If a product is labeled for both a IM and SQ administration, the SQ route is preferred. When administering a SQ injection a 16 or 18 gauge 1/2 to 5/8 inch needle is the preferred choice. An 18-gauge needle should be used for lighter animals and a 16 gauge for heavier animals. It is important how far the needle goes through the skin in a SQ injection. The cutaneous muscle tightly adheres to the skin and it is easy to inject into this muscle even with a shorter needle. For IM injections a 1 to 1½ inch needle is indicated depending upon the size of the animal. For lighter animals a 1 inch needle would be adequate with a 1½ utilized for heavier animals. Other areas may be occasionally suggested as being available for SQ or IM injections, however only the injection triangle should be utilized and other areas avoided. One noted exception is the injection site for Excede, label directions indicate it is to be placed at the base of the ear. It is important that producers and veterinarians are familiar with product labels and directions for routes of administration.

Only sharp needles should be used for giving injections. Dull or worn needles cause tissue damage to the hide and muscle. At a minimum needles should be changed every time a syringe is filled. When treating an animal, a new sterile needle should be utilized for each animal and for each injection administered when treating that animal. If a needle becomes bent or broken never straighten it and continue to use it. This needle has been weakened and could easily break off in the animal. A broken needle left in an animal is a significant concern for the animal and for the food it produces. Any burred needle should be replaced immediately as it can cause increased tissue damage and pain on injection.

Beef Quality Assurance is the responsibility of every cattle producer and veterinarian. The proper administration of animal health products is one component of a BQA program. By utilizing BQA practices animal welfare and consumer acceptance of beef is enhanced.

In summary injections guidelines are:

1. Give all injections in front of the shoulder in the injection triangle.
2. Multiple injections should be given at least four inches apart.
3. No more than 10 ml should be given when using the IM route. When using the SQ route, follow label instructions for the volume administered at each site.
4. Use the most food friendly route of administration. If a product has a option for a SQ or IM route of administration, the SQ route should e chosen.
5. Change needles often – after every 10 injections. Sooner if the needle becomes damaged or dull.

The following beef cattle sheets are from:

“Beef Cattle Lesson Plans”

For use in the education of school-age children in the beef cattle industry.

Designed by Kitty Halloran and Cheyenne Love

For Fort Hope

The complete publication can be viewed here:

<http://digitalcommons.calpoly.edu/cgi/viewcontent.cgi?article=1028&context=ascisp>



Cattle Terminology



Bull- Adult male used for breeding

Cow- Adult female that has had babies

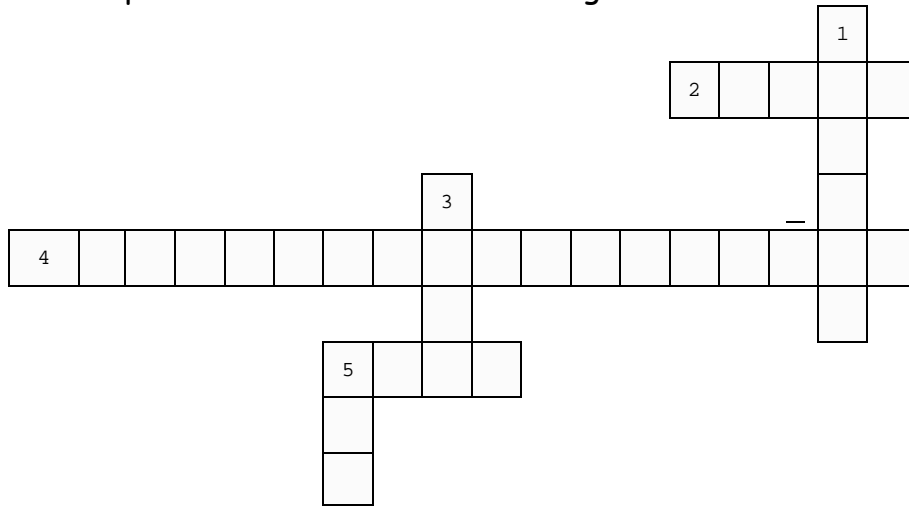
Steer- Male that cannot be used for breeding

Heifer- Young female that has not had babies yet

Calf- A male or female baby

Chute/Chute System- Holds cattle for many things

Complete the crossword below using the above terms!



• **Down**

- 1. Young female that has not had babies yet
- 3. Adult male used for breeding
- 5. Adult female that has had babies

• **Across**

- 2. Male that cannot be used for breeding
- 4. Holds cattle for many things
- 5. A male or female baby

Terminology Matching Game

Draw a line to match the term to the picture!

Cow (Hint: Who is with a baby?)

Bull (Hint: Who looks the toughest?)

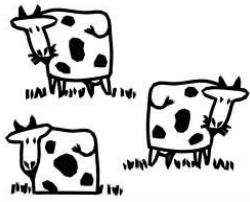
Chute/Chute System (Hint: Which photo shows cattle being held?)

Steer (Hint: He is the same color as the bull, but doesn't look as tough!)

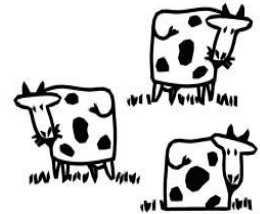
Heifer (Hint: She is the same color as the cow, but she doesn't have a baby with her!)

Calf (Hint: Which photo shows a baby?)





Safe Cattle Handling



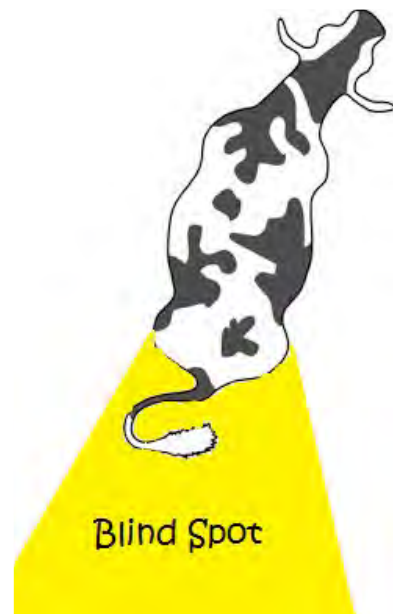
It is very important to know how to safely approach, lead, and herd cattle!

Did you know?

- ❖ Cattle like to stay together; they hate being separated from their friends!
- ❖ It is best to move cattle in large groups! The best way is seen in Picture 1. Moving in a zigzag pattern behind the herd is the easiest and safest way to move them!
- ❖ Do not stand right behind cattle! They have a blind spot, which makes it so they cannot see directly behind them, just like us! (see Picture 2).
- ❖ When leading a single animal with a halter, always stand to the left of the animal's head!



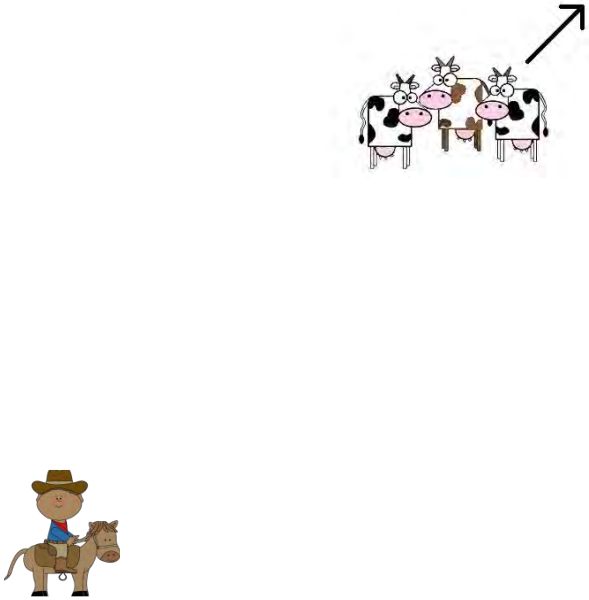
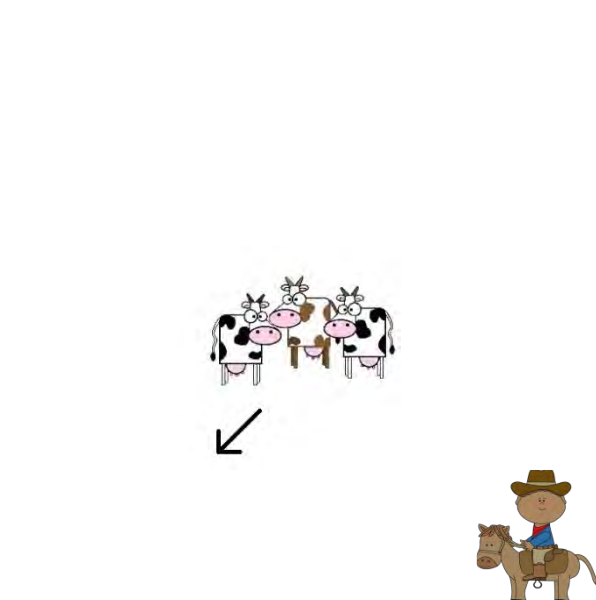
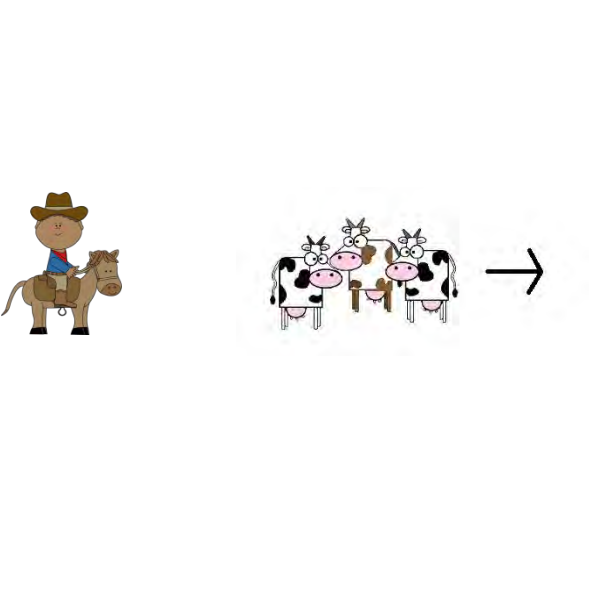
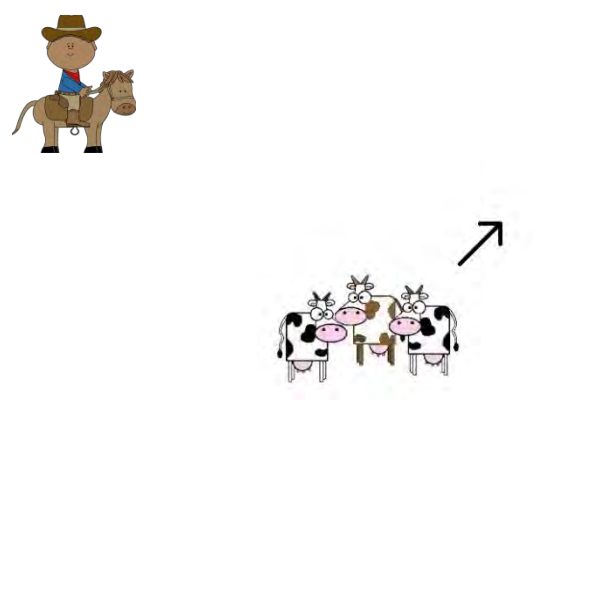
Picture 1



Picture 2

Cattle Handling Game

Draw arrows or lines to show how the cowboy should move to get the Cattle herd to go in the direction of the arrow!

Cattle Identification

- What are brands?
 - They are a way for ranchers to identify their cattle using special markings
 - Ranchers create their own unique brand to tell the difference between their cattle and cattle from a different ranch.

- Examples:



- What are the different types of brands?
 - There are a bunch of different ways a rancher can design a brand
 - The symbols can include a number, letter, or common shape
 - One thing to remember is to keep the design simple! Simple designs are easier to read and less painful for the cattle

- Examples:



- Where do you put a brand?
 - Brands can be put either on the hindquarters or the shoulder of the cow
 - Brands can also be put on either the right or the left side of the cow

- Examples:



- There are other ways to identify the cow too!
 - Ear tags are a very common means of identification
 - Tattoos, while less common, are also another option

- Examples:



Reading a Brand

Rules:

1. Left to Right

2. Top to Bottom

3. Outside to Inside

R "R"


 Quarter Circle R

 Circle R

 Tumbling R

 Half Diamond R

 Diamond R


 Lazy R

 Rafter R

 Box R

 Reverse R

 Bar R

 Walking R

 Flying R

 Running R

Name the Brand?

1.  _____

2.  _____

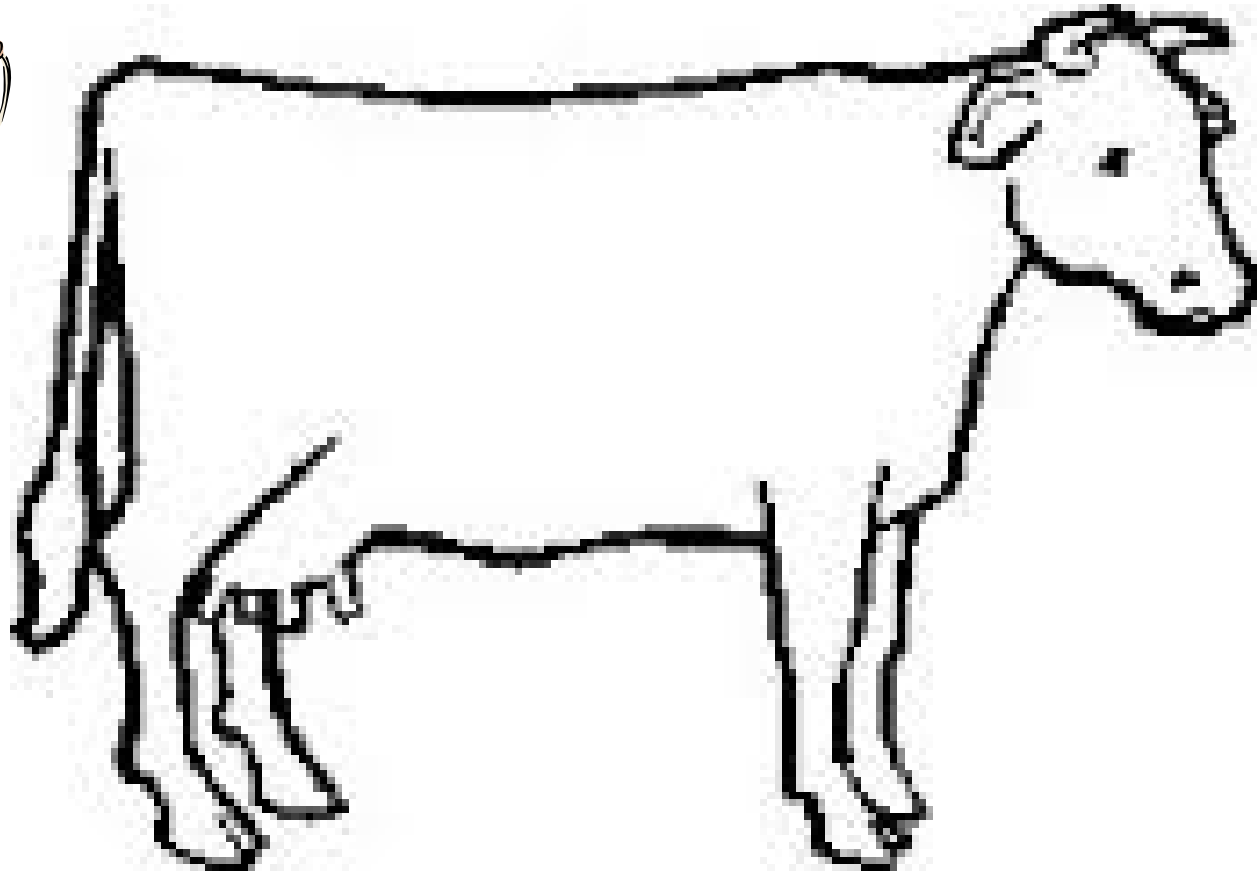
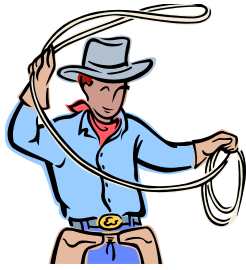
3.  _____

4.  _____

5.  _____

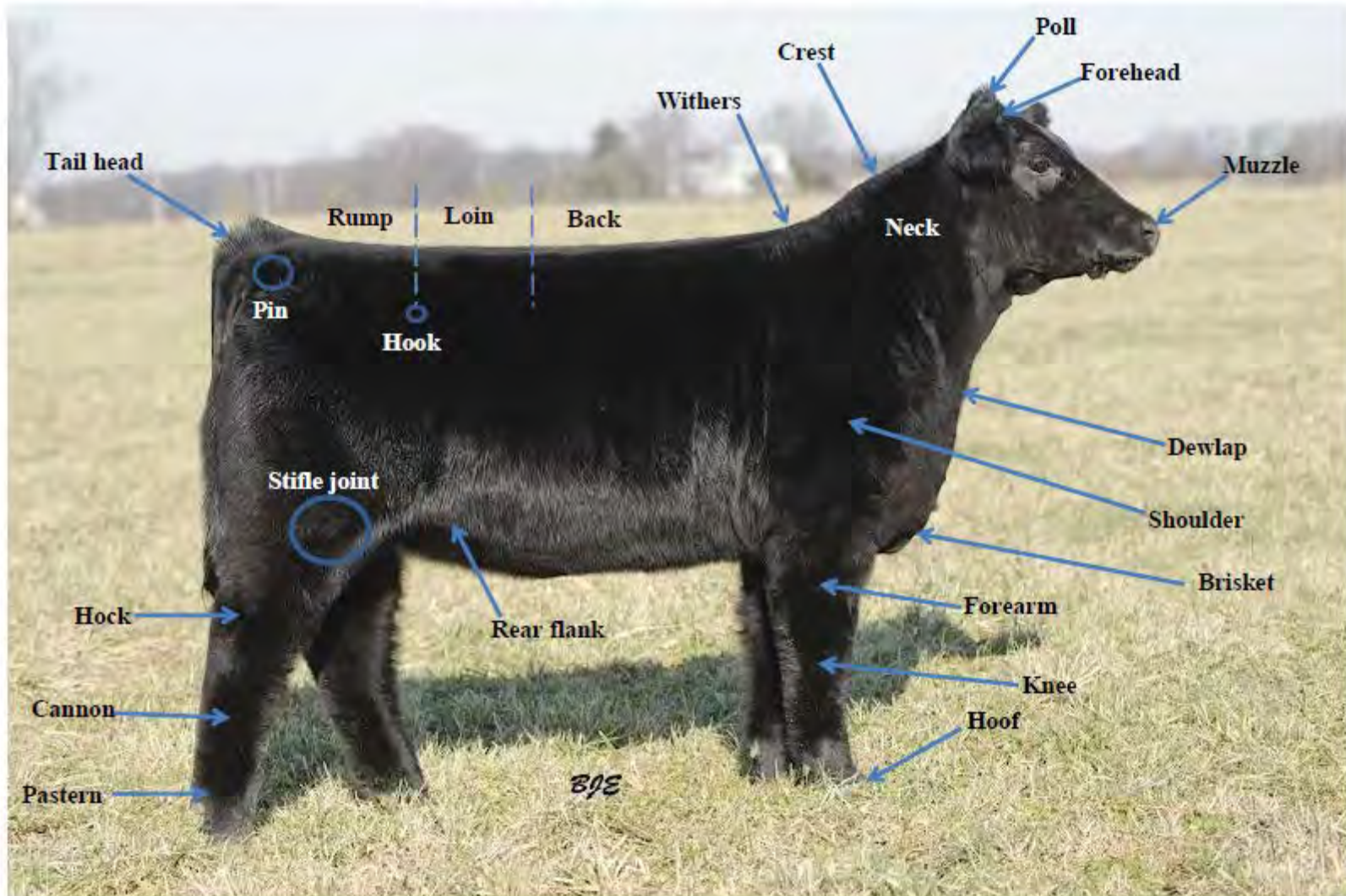


BUILD YOUR OWN BRAND! USE THE TECHNIQUES WE LEARNED IN CLASS. BE CREATIVE, AND HAVE FUN! HERE'S A HINT IF YOU ARE STUCK: LOTS OF RANCHERS USE THEIR INITIALS TO MAKE THEIR BRANDS.



Put your brand on the cow! Also put an ear tag or tattoo in it's appropriate place.

Parts of the Beef Cow



Anatomy and Conformation

Conformation: the structure of cattle- how their bodies are put together

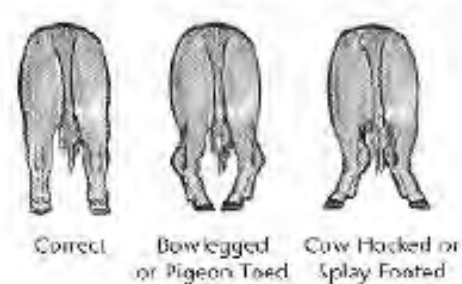
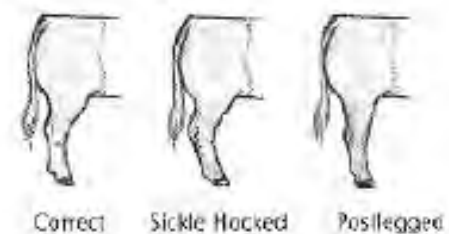
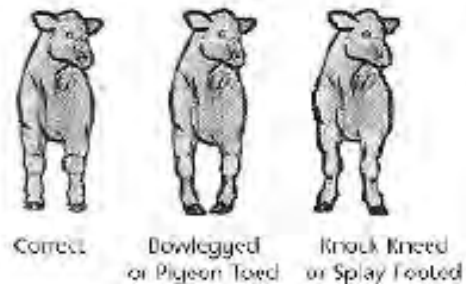
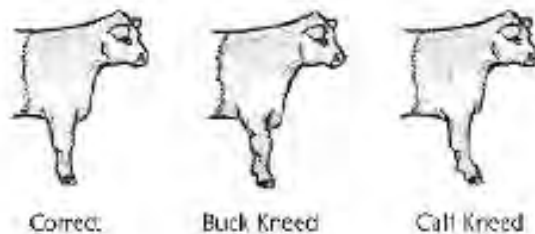
All cattle are built very much the same, but often there are many variations that leads to "good" conformation and "bad" conformation.

Where are the major areas to look at when judging conformation?

- Head
- Neck
- Topline (down their back)
- Legs

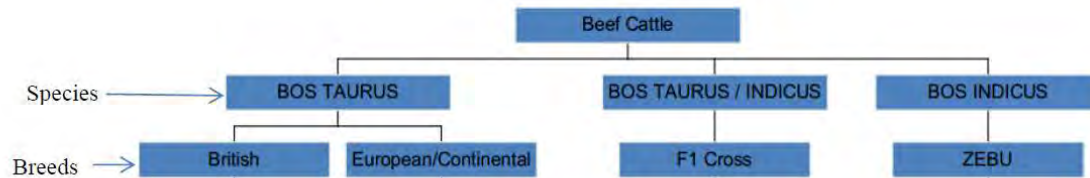
What is *good* conformation?

- Head
 - Matches the body: not too large, not too small
 - Fits the gender: females should have a feminine shape, males should look more manly
- Neck
 - Flows smoothly into shoulders
 - Long
- Topline
 - Long
 - Flat
- Legs
 - Long
 - Correct angles



Breeds of Cattle

Cattle Classification



The Zebu Breed:

Brahman:

- Native to Africa and Southeast Asia
- Heat tolerant
- Parasite resistant
- Hump on the withers
- Large, droopy ears
- Colors range from white to gray
- Poor meat quality



British Breeds:

- Superb maternal traits
 - ~ fertility
 - ~ longevity
 - ~ high milk production
- Early puberty
- Less muscle mass

Angus:

- Black
- Most popular breed in the US



Hereford:

- Red with white points
- Horned or polled
- Low maintenance



~
Shorthorn:

- ~ Red to white in color
- ~ Can also be a “roan” color



European/ Continental Breeds:

- ~ Superb paternal traits
 - ~ fast growth rate
 - ~ large muscle mass
 - ~ large body size

Simmental:

- ~ Most popular continental breed in US
- ~ Light red to dark red with white points
- ~ Mostly black now in the US



Limousin:

- ~ Excellent growth and muscle mass
- ~ Golden red to red brown in color



Charolais

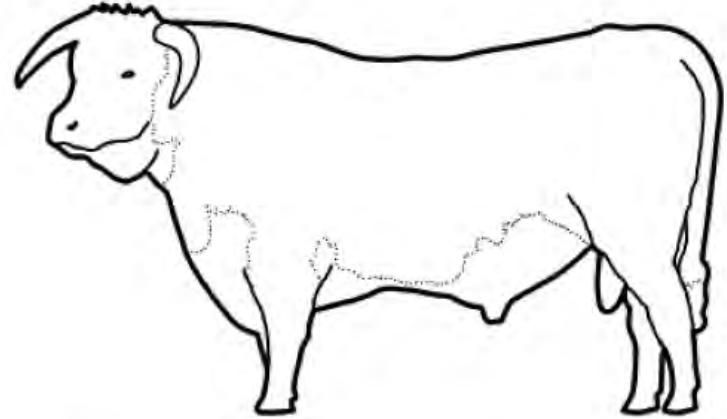
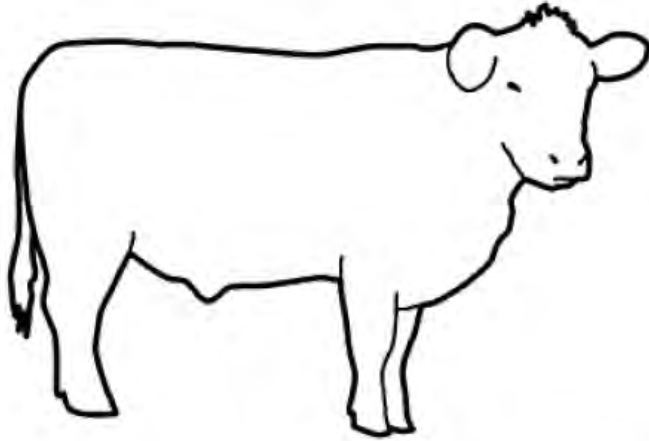
- ~ White to cream colored
- ~ Known for growth and muscle



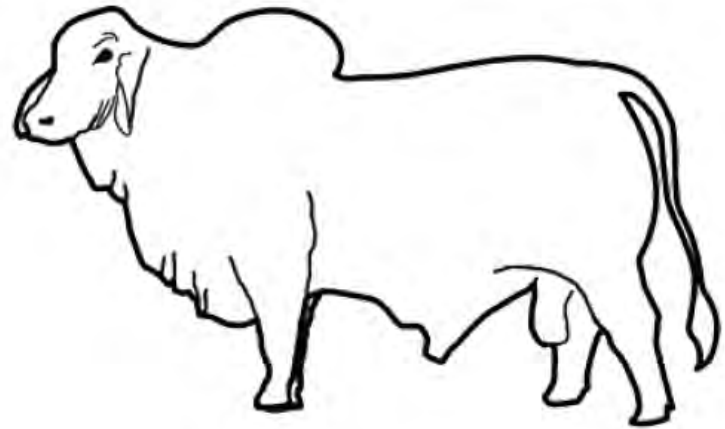
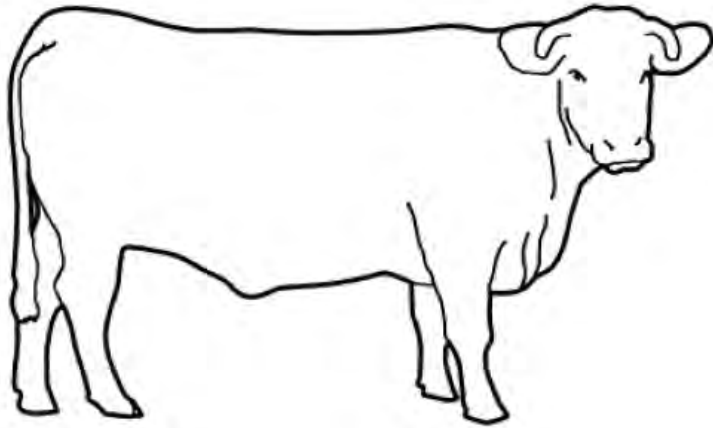
What's your favorite breed?



Color and Label the Breeds



Hereford Black Angus Charolais Brahman



Cattle Digestion

How do cattle turn grass into tasty beef that we later enjoy?

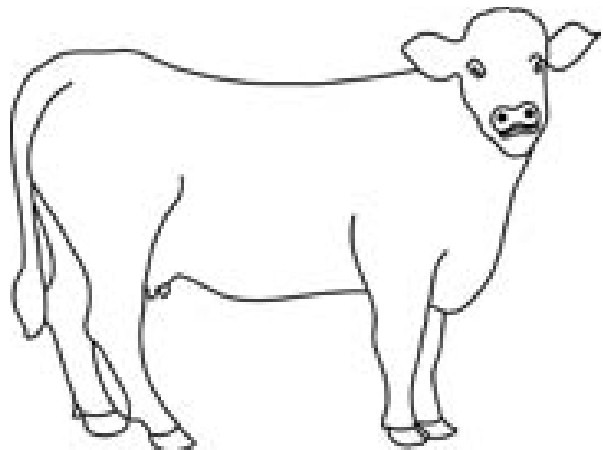
In humans, food goes into our mouths, down our throats, and into our stomachs. Cattle are different in one main way- we have 1 stomach and they have 4*!

Did you know?

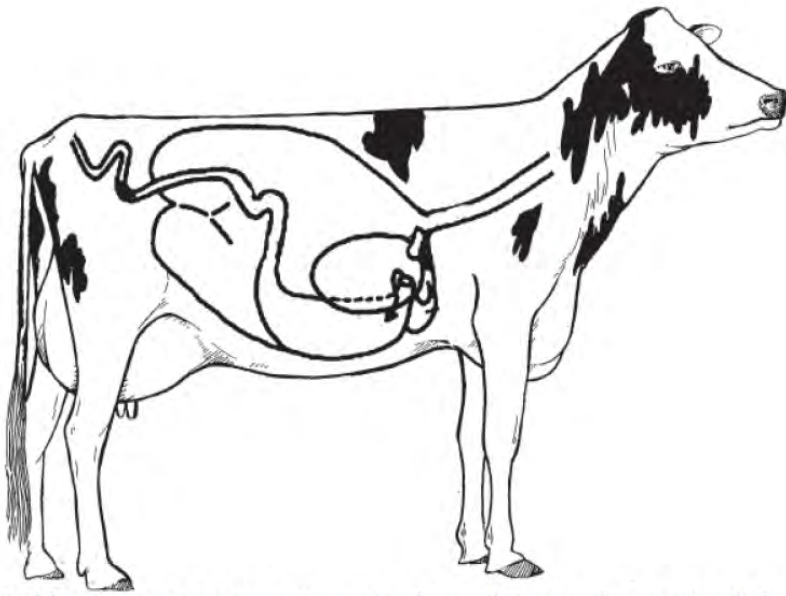
- **This unique digestive system of cattle makes them “ruminants”**
- **Because cattle have 4 stomachs*, they can digest things humans cannot! (It would not be nice for us to try to eat grass or hay!)**
- **In one of the cow’s stomachs, there are “little animals” called microorganisms, that help a cow get all the nutrients it can from its food**

Draw the following path on the cow outline...

Mouth/Throat/Stomach 1 with microorganisms/Stomach 2/Stomach 3/Stomach 4



***Technically, cows have only 1 large stomach with 4 “compartments!”**

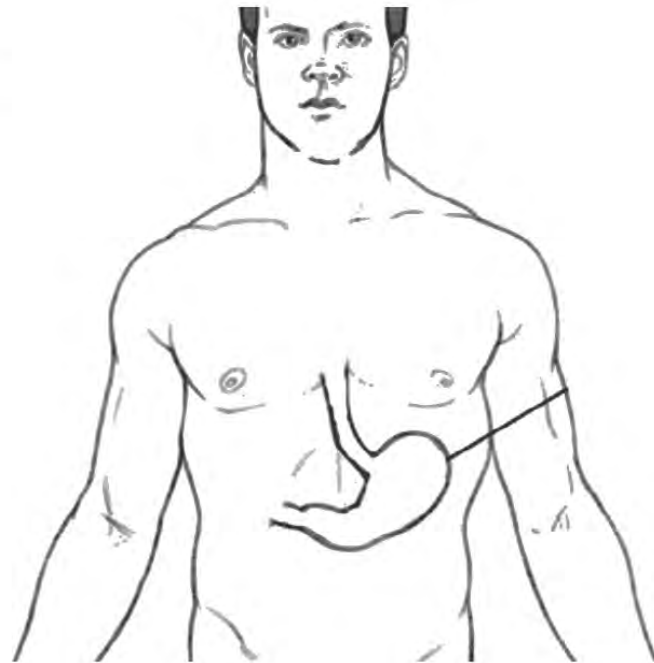


1. What differences can you see between the man's stomach and the cow's?

2. How many compartments does the man's stomach have? _____

3. How many compartments does the cow's stomach have? _____

4. How do the man's stomach and the cow's work differently?





Vaccinations



There are 3 “basic protection” vaccines recommended for all cattle...

- 1. Clostridial**
- 2. Respiratory**
- 3. Deworm**

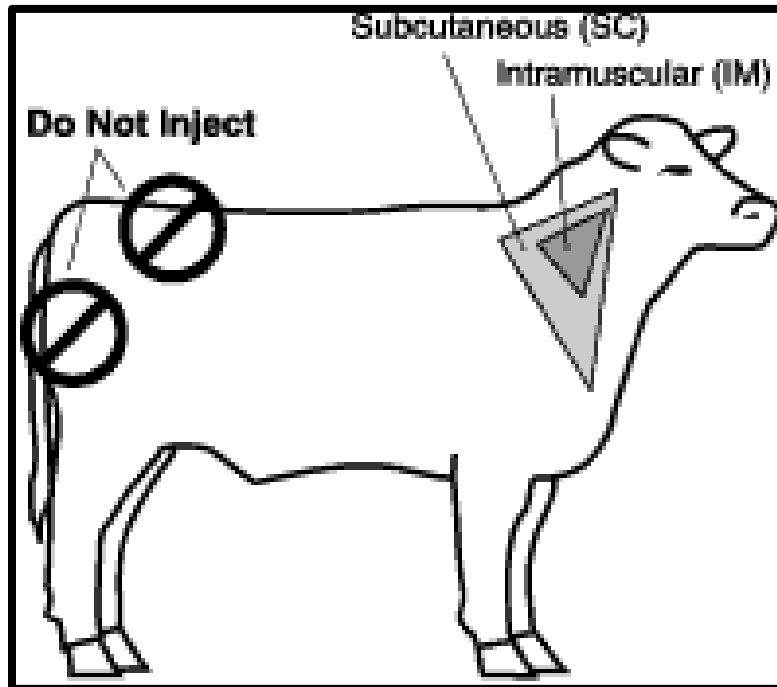
Vaccines must be handled properly!

- Follow the label (this one is the most important!)**
- Check expiration date**
- Refrigerate after mixing the vaccine**
- Double check how long the vaccine will be effective after mixing and refrigeration**

The 2 types of vaccines are “intramuscular” or “IM” (the vaccine goes into the animals’ muscle) and “subcutaneous” or “SubQ” (the vaccine goes directly under the skin)

The proper location to vaccinate?

The neck!



Why is the neck the proper place to vaccinate cattle?

(Hint: How might the “Do Not Inject” locations affect meat quality?)

Some other vaccination tips...

- **It is important to “tent” the skin before a SubQ vaccine**
- **An IM needle is 1-1.5 inches long, whereas a SubQ needle is .75-1 inch long**
- **The needle should be inserted at a 90-degree angle to the neck for IM and a 45-degree angle to the neck for SubQ**



Cattle Handling Safety in Working Facilities

Daniel J. Hubert
Research Assistant

Raymond L. Huhnke
Professor and Extension Agricultural Engineer

Sam L. Harp
Associate Professor and Extension Agricultural Engineer

For those who work in production agriculture, there are inherent physical risks prevalent on a daily basis. In fact, agricultural occupations are consistently ranked as some of the most dangerous in industry. This is not surprising, as most farmers and ranchers consider the physical difficulties of their daily tasks as "just part of the job." A quick review of literature shows that one of the least investigated areas in agricultural safety relates to beef cattle handling. A 1997 study conducted by the Biosystems and Agricultural Engineering Department at Oklahoma State University described conditions associated with 150 cattle handling injury cases on 100 Oklahoma cow-calf operations. The study showed that more than 50 percent of injuries in these situations were due to human error, while equipment and facilities accounted for about 25 percent of the perceived causes. In most cases, a better understanding of how an animal may respond to human interaction and to its immediate surroundings will help keep the worker from becoming an injury victim.

The Human Element

Human error is the primary cause of many types of accidents. These errors in judgement and action are due to a variety of reasons, but occur most when when people are tired, hurried, upset, preoccupied, or careless. Remember that human physical, psychological, and physiological factors greatly affect the occurrence of life threatening accidents. Using this information in combination with proper cattle handling techniques can reduce the risk of injury.

Animal Behavior

Understanding cattle behavior can help farm and ranch workers avoid dangerous situations. Temple Grandin, Colorado State University animal behavior specialist, states that "handling practices can be less stressful to the animals and safer for the handler if one understands the behavioral characteristics of livestock." An animal's physical structure, psychological makeup, environment, and individual personality can influence behavior.

An animal's senses function like those of a human; however, most animals detect and perceive their environments very differently as compared to the way humans detect and

Oklahoma Cooperative Extension Fact Sheets
are also available on our website at:
<http://osufacts.okstate.edu>

perceive the same surroundings. While cattle have poor color recognition and poor depth perception, their hearing is extremely sensitive relative to humans. Knowing these characteristics, one can better understand why cattle are often skittish or balky in unfamiliar surroundings.

Animal Vision

Cattle have panoramic vision, meaning they can see in all directions, except directly behind, without moving their head. Additionally, cattle have poor depth perception, especially when they are moving with their heads up. In order to see depth, they have to stop and put their heads down. For this reason, unfamiliar objects and shadows on the ground are the primary reasons for cattle balking and delaying the animals behind them. This is why it is important for handling and working facilities be constructed to minimize shadows.

Cattle have a tendency to move toward the light. If working cattle at night, use frosted lamps that do not glare in the animal's faces. Position these lights in the area where moving cattle, such as a trailer or barn.

Flight Zone

Moving a group of cattle takes some knowledge and understanding of the animal's "flight zone." The flight zone is an animal's personal space. When a person penetrates the flight zone, the animal will move. Conversely, when one retreats from the flight zone, the animal will stop moving. Understanding the flight zone is the key to easy, quiet handling of cattle.

The size of an animal's flight zone depends on its fearful or docile behavior, the angle of handler's approach, and its state of excitement. Work at the edge of the of flight zone at a 45 to 60 degree angle behind the animal's shoulder (Figure 1). Cattle will circle away. The flight zone radius can range from five to over 25 feet for feedlot cattle and as far as 300 feet for range cattle. If one is within their flight zone, the animal moves away or retreats.

When moving cattle, avoid approaching them directly. Try to work them close to the point of balance, moving back and forth on a line parallel to the direction the animal is travelling.

Additional Handling Tips

In addition to the flight zone, an understanding of the "herd instinct" is important. Cattle follow the leader and are motivated to follow each other. Each animal should be able to see others ahead of it. Make single file chutes at least 20 feet long, or 30 to 50 feet for larger facilities. Don't force an

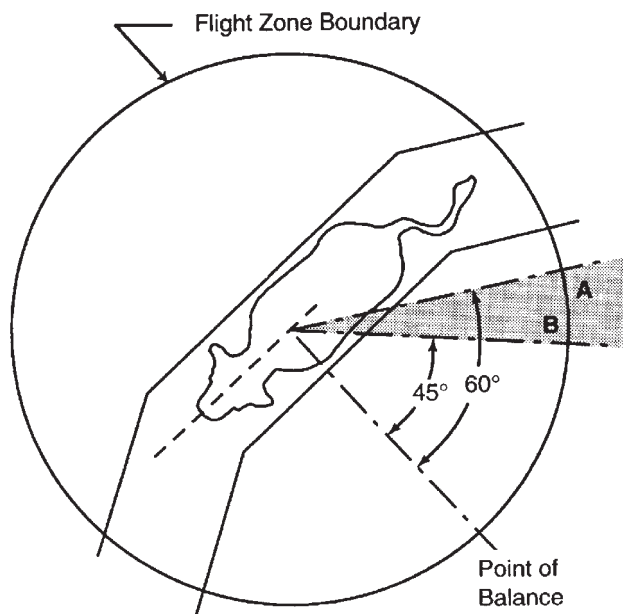


Figure 1. Cattle flight zone.

Note: Animal movement stops if handler is in position "A". Handler moves to position "B" to start movement.

animal in a single file chute unless it has a place to go. If the cow balks, it will continue balking.

In crowding pens, consider handling cattle in small groups up to ten head. The cattle need room to turn. Use their instinctive following behavior to fill the chute. Wait until the single file chute is almost empty before refilling. A crowding gate is used to follow the cattle, not to shove against them. If a lone animal refuses to move, release it and bring it back with another group. An animal left alone in a crowding pen may become agitated and attempt to jump the fence to rejoin the herd.

Corral Systems Design

Corral and working facilities are constructed to confine cattle safely and efficiently for close observation and to perform routine health and management procedures. Good cattle handling systems make working livestock easier with limited manpower. The operation of any cattle facility depends on cattle behavior, corral design, and the skill and technique of the handler.

Holding and Sorting

Pens

Pens serve several purposes, including catching and holding cattle being worked, sorting cattle into groups, and holding cattle being quarantined. When designing and constructing pens for working facilities, consider the following:

- Provide at least 20' x 20' per head for mature cattle.
- Size pens for a maximum of about 50 head of mature cattle.
- Larger, wider pens can make effective sorting difficult for a single worker.

- Pens too small or narrow can result in workers entering the animal's flight zone. The smallest pen dimensions should be no less than 16 feet.
- Too few pens can make separating animals difficult. This can also put workers at risk, as they must physically enter pens with large numbers of agitated animals. Consider adding in a 1 4-inch wide pass-through for worker escape in pen corners.
- Use proper gate placement to facilitate animal movement from pen to pen and to other areas. Poor animal movement puts workers at risk by having to force the movement. If there are too few gates, some animals can become separated. Thus, when animals enter the alley, separated herd mates will follow along the inside of the pen. This is often referred to as "backwash." There may be problems guiding these pen-bound animals back to the exit gate as their herd mates move away from them down the alley. Separated animals can become confused or agitated, putting workers at further risk.

Sorting Facilities and Alleyways

Keep the design of sorting facilities and alleyways simple. They should provide adequate catch pen space to accommodate cattle being moved to and from holding areas. Several pens are usually preferred over one large holding pen. More pens allow larger groups to be sorted into smaller, more manageable sized groups. For most small operations, a single alley is used for sorting, as well as moving cattle to and from the working area. Depending on the number of holding pens, an additional return alley may be beneficial. This return alley allows for a continuous flow of cattle from holding to working areas and back to their original pen.

Alley width should be 12 to 14 feet with a 10-foot minimum. Wider alleys can make it easier for cattle to escape. Pens that are too narrow fail to give the animals room enough to maneuver. The double-gate system allows the movement of cattle out of holding pens and into the sorting alley with cattle headed in the desired direction (Figure 2). This greatly reduces sorting time and prevents animal backwash.

Working Facilities

Crowding Area

The crowding area should be designed and located so cattle can be easily moved into this area from a common sorting alley that is fed by adjacent holding pens. A circular crowding area with totally enclosed sides and crowding gate is effective because the only escape route visible to the cattle is through the working or loading chute exits. This facilitates animal flow and worker safety. For safest results in cattle movement and ease of cleaning, use a roughened, broom finish concrete floor to provide an all-weather surface.

The crowding gate should also be solid and designed to prevent animals from reversing the gate's direction. Do not overload the crowding area. Too many animals make the process more difficult on the handlers, as animals can block the chute entrance. Do not enter a crowding area with animals if they become bunched. Release pressure from the gate to allow for some movement to free the bottleneck.

A catwalk around the outside of the crowding pen allows workers to maneuver animals toward the chute while avoiding

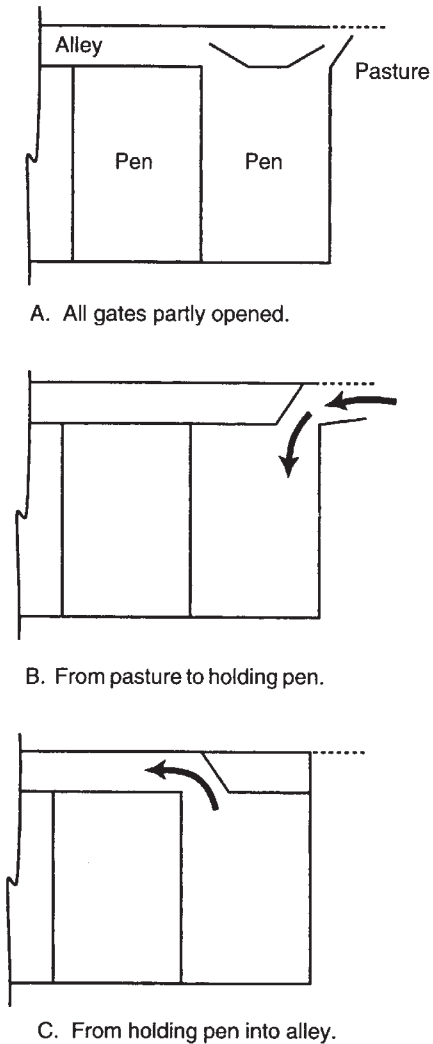


Figure 2. Double-gate system

direct animal contact. Position the catwalk about 36 inches below the top of the fence.

Working Chute

The working chute should also be curved with totally enclosed sides. Cattle move more freely because they cannot view the handlers or squeeze chute until they approach the palpation cage or rear gate of the squeeze chute.

Sloped sides in the working chute restrict the animal's feet and legs to a narrow path, which in turn reduces balking and helps prevent an animal from turning around. Sloping sides work well in most cow-calf operations because different sizes of cattle can be worked efficiently in the same chute. Recommended width for the bottom of the chute is 16 inches, while the top should be about 28 inches (see Table 1). For large-framed cattle, the top width dimension for cattle over 1200 pounds should be increased two inches. To accommodate large-framed bulls, it may be necessary to increase the top width by four inches or more.

Overhead restrainers prevent cattle from rearing up, turning around, or falling over backward in the chute. Restrainers are generally located 60 inches above the floor of the chute. Some restrainers can be adjusted to accommodate different cattle heights. Restrainers are more effective if adjusted to keep an animal's head down. Emergency release panels are highly recommended with or without the use of overhead restrainers. Release panels can be constructed as movable crowding chute side panels that can be opened to release animals that have fallen in the chute and become lodged.

Solid side panels on working chutes hamper the use of the traditional scotch pole to prevent cattle from backing up. With solid-sided chutes, backstops are normally suspended or mounted from above. All backstops work on the same principle. The metal tee-pipe is hinged so that it releases in the direction of the flow toward the squeeze chute, but will not hinge back beyond vertical in reverse. Most pipe backstops are telescoped so that they can be adjusted up or down to accommodate cattle of different heights. Backstops should be adjusted to block an animal six to eight inches below the top of the tailhead. Backstops are normally held in a vertical

Table 1. Working chute dimensions.

Animal Size			
	To 600 lbs	600-1200 lbs.	Over 1200 lbs. and cow calf operation
Working chute with Vertical Sides			
Width	18"	20-24"	26-30"
Length (min.)	20'	20'	20"
Working Chute with sloping Sides			
Width at bottom, inside clear	13"	15"	16"
Width at top, inside clear	20"	24"	28"
Length (min.)	20'	20'	20'
Working Chute Fence			
Height (min.)	45"	50"	60"
Depth of posts in ground (min.)	30"	30"	30"

position using chains or rubber bumpers. Bumpers have the advantage of holding down the noise when the stop falls back into position. A noisy stop can cause cattle to balk.

Inserting pipes through the sides to the working chute to prevent animals from backing up can be hazardous to workers. If backstops are not installed and pipes must be used, be sure the pipe is **between** the cattle and worker. If not, a worker can be caught between the pipe and the chute or fence if the person is not properly positioned and the animal backs up before the pipe is extended through the chute. Also, avoid standing on the fence or rails or extending arms and hands between or over fencing.

Squeeze chute

A squeeze chute is necessary for restraining cattle. Make sure workers are familiar with possible pinch points on the chute. It is important to be aware of the positioning of handles that open and close the headgate, sides, and tailgate. These are commonly described as "head-knockers" and "jawbreakers." Also, inspect the rope in rope-and-pulley devices and replace it if there are any signs of fraying. Finally, avoid contact with animals if they are not properly restrained. If an animal is not properly caught and restrained by the squeeze chute, release the animal and bring it through the chute again.

Summary

The proper design, construction and operation of a cattle handling facility is important to ensure safe working conditions for animals and humans. Understanding the inherent behavior of cattle, plus working them slowly and quietly, will reduce

injuries and help make an operation run more smoothly and efficiently.

A more in-depth discussion on the design and construction of cattle handling facilities is available in "Modern Corral Design." For a copy of this publication, stop by the local county Cooperative Extension office. If ordering, send \$6.00 for each copy (\$5.00 for the book plus \$1.00 for postage and handling) payable to PBIS (Plans and Building Information Service) at the following address:

PBIS
Biosystems and Agricultural Engineering Department
214 Agriculture Hall
Oklahoma State University
Stillwater, OK 74078-6021

References

- Apple, Ken, Raymond L. Huhnke and Sam L. Harp. 1995. "Modern Corral Design." Oklahoma State University Extension Circular E-938, Stillwater, OK.
- Borg, Robert. 1993. "Corrals for Handling Beef Cattle." Alberta Agriculture, Food and Rural Development, Edmonton, Alberta, Canada.
- Grandin, Temple. 1989. "Behavioral Principles of Livestock Handling." *The Professional Animal Scientist*, 5(2).

Acknowledgement

Funding for this publication provided by the Southwest Center for Agricultural Health, Injury Prevention, and Education, The University of Texas Health Center at Tyler.

Oklahoma State University, in compliance with Title VI and VII of the Civil Rights Act of 1964, Executive Order 11246 as amended, Title IX of the Education Amendments of 1972, Americans with Disabilities Act of 1990, and other federal laws and regulations, does not discriminate on the basis of race, color, national origin, gender, age, religion, disability, or status as a veteran in any of its policies, practices, or procedures. This includes but is not limited to admissions, employment, financial aid, and educational services.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Robert E. Whitson, Director of Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Vice President, Dean, and Director of the Division of Agricultural Sciences and Natural Resources and has been prepared and distributed at a cost of 20 cents per copy. 0203

HANDLING HORSES

Ashley Fluke

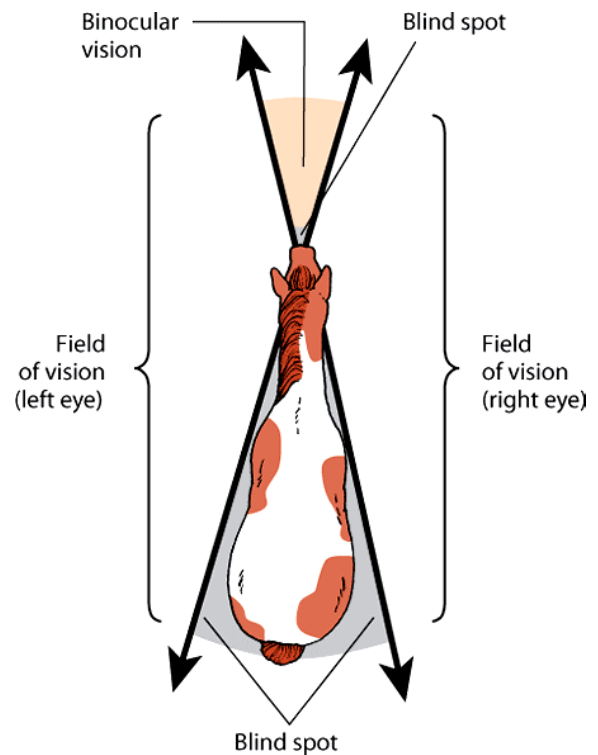
UF/IFAS Osceola County Extension

Nature Of The Beast

Horses prefer to be in groups and want to feel there is a leader amongst them. They find safety in numbers. Horses react to stressful situations with a “Fight-or-Flight” response. This is an innate behavior of prey animals. They prefer to flee from a dangerous situation (flight) but will defend themselves if it becomes necessary (fight). It is important to understand this instinct and be able to recognize when a horse feels threatened or scared.

Respect * Responsibility * Reaction

Understanding how a horse thinks and respecting what they are capable of is a very important first step. Being responsible while handling horses will make for a safe and productive interaction. Reacting to each situation with a calm demeanor and attention to the horse’s disposition will help to provide a trusting relationship between horse and handler.



©Photo by Merk & Co., Inc.

Eye Sight

Horses see independently out of each eye and have a large scope of vision. However, they have blind spots directly in front of and behind themselves. They are sensitive to motion and pick it up well but have poor depth perception which can cause them to be reluctant to enter water. It’s important to let a horse know when it is being approached through gentle sounds and then touch.

What can Rotational Grazing do for my Farm?

Chris Prevatt and Dr. Philippe Moriel, UF/IFAS Range Cattle REC, and James McWhorter, Highlands Co. Extension



Rotational grazing is defined as a grazing method that utilizes repeating periods of grazing and rest among two or more paddocks or pastures. Rotational Grazing, also called prescribed or managed grazing, is a management-intensive system of raising livestock on subdivided pastures called paddocks. Livestock are regularly rotated to fresh paddocks at the right time to prevent overgrazing and optimize grass growth. Rotational grazing doubles as a system of grassland management, providing exceptional erosion and runoff control on uplands as well as stream corridors. It offers a productive alternative for marginal, erosion-prone or flood-prone cropland and other environmentally sensitive land, including overgrazed pastures. Rotational grazing also provides built-in manure management. Manure on healthy, well-managed grassland decomposes into the soil rather than running off. Rotating livestock from paddock to paddock allows time for manure to be incorporated into the soil. The manure helps maintain soil fertility for new grass growth, eliminating the need to store, process, haul or spread manure as a nutrient.

One key element of this style of grazing is that each grazed area must contain all elements needed for the animals (water source, shade). Having fixed feeding or watering stations defeats the rotational aspect, leading to degradation of the ground around the water supply. Rotational grazing requires skillful decisions and close monitoring of its consequences. Modern electric fencing and innovative water-delivery devices are important tools. Feed costs decline and animal health improves when animals harvest their own feed in a well-managed rotational grazing system. Rotational grazing does offer substantial benefits to cattle

producers. Some of these benefits include improved animal productivity, increased plant persistence, conservation of environmental resources, and improved animal temperament.



Forages are often inefficiently utilized when pastures are continuously stocked (Andre, 2003). Many times cattle will only utilize 40-60% of the forage in a pasture with the rest either refused or wasted. There are many reasons for this waste. Cattle will heavily graze areas close to shade or water and ignore more distant areas. Animals also prefer young, tender, and leafy portions of forages and refuse stemmy mature material when allowed a choice. When there is an excessive amount of forage present, cattle frequently return to grazed areas to utilize fresh regrowth and refuse a large amount of previously ungrazed forage because it is too tough. It is certainly possible to increase stocking rate and decrease hay and fertilizer inputs using rotational stocking. Stocking rate increases of 35-60% have been reported in the scientific literature. However, as a general rule, stocking rates can be increased by 10-25% over several years as your pastures and forage management skills improve. There are situations where rotational stocking is not particularly helpful from an animal performance perspective. Forcing cattle to eat forage to a predetermined height eliminates their ability to select high quality

leaves and often reduces individual animal performance (daily gain per head). This is particularly true when animals with high nutrient requirements like stocker cattle or replacement heifers are rotationally grazed on bermudagrass or bahiagrass. Remember that although individual animal performance is reduced, it is possible to increase stocking rate resulting in higher gain per acre. For producers grazing animals with lower nutrient requirements, like mature cows, this can be a great advantage. While increased animal production is often what sells rotational stocking to producers, plant performance is also improved. Many plants respond well to short grazing and long rest periods. Rest periods allow plants to produce new leaves which collect energy, transform it into sugars, and store these sugars so that more leaves can be produced following the next grazing cycle. Not only is regrowth potential improved, but root depth and stand life are improved as well.

BASIC ANIMAL NUTRITION

John Arthington, PhD
University of Florida – IFAS

Basic nutrition is science-based, not magic. Optimal nutrition will not cause your animals to perform at a level that surpasses their genetic potential, but poor or inadequate nutrition will play the largest role in hindering the health and performance of your animal. Much like human athletes, the nutrition of high-performance animals is confounded by many factors. Stress incurred through weaning, transportation, vaccination, and co-mingling alters the nutritional needs of animals. This may be most pronounced in animals bred to achieve maximum levels of production. For these animals, nutritional programs are and will continue to be one of the most influential and yet dynamic components of any successful animal-rearing program.

Overview of Basic Nutrition

There are six basic nutrients required by all animals:

- | | | |
|-----------------|------------|-------------|
| 1. Water | 3. Protein | 5. Minerals |
| 2. Carbohydrate | 4. Lipid | 6. Vitamins |

1. Water

This may surprise many of you; however, water is the MOST important component in the whole nutritional framework. It is absolutely essential that animals have access to a daily supply of clean, fresh water. It is advisable that each water source be tested. In many cases you and your family are drinking it too; it's a win / win. Water is important for many bodily functions including, 1) transport of nutrients, 2) chemical reactions and 3) regulation of body temperature.

2. Carbohydrates

The main function of carbohydrate is to provide energy to fuel the body. This nutrient is found in the starchy components of grains and is measured by a caloric (calorie) value. The term carbohydrate describes a large group of sugar-based compounds, which are ultimately composed of glucose-unit building blocks.

Most nutritionists will refer to feed quality as total and digestible energy. For instance, plant tissue is an excellent source of energy through carbohydrates; however, this energy form is a poor source of digestible energy for birds and pigs. Grains, on the other hand, are more suitable sources of carbohydrate nutrition for these animals.

3. Protein

Protein is composed of several single, repeating units called amino acids. When amino acids are linked together in a specific sequence they form proteins. Protein is an integral nutrient for tissue growth and repair, as well as, support for important physiological functions such as reproduction and immunity. In many cases, high protein grain byproducts contribute to both the energy and protein value of a diet.

As nutritional sciences become more advanced we have become able to supplement synthetic amino acids to animal diets. This is best illustrated by the common use of synthetic lysine and methionine in manufactured swine and poultry diets. When evaluating the protein quality of a swine diet it is more important to consider the ratio and content of essential amino acids versus the protein concentration alone. In fact, pigs do not have a specific protein requirement. Instead, pig diets are formulated around a specific amino acid requirement, the most limiting of which is lysine.

4. Lipid

Fats and oils are the most common sources of lipids in animal diets. This nutrient is characterized by its dense energy value. Subsequently, fats are supplemented to diets to increase the energy concentration without increasing overall diet bulk. Lipids are also essential for the efficient absorption of fat-soluble vitamins, as well as, the production of natural steroids.

5 and 6. Vitamins and Minerals

This area of nutrition is often considered the micronutrient section. In some cases, little is understood about the true micronutrient needs of animals; let alone high-performance animals. Consequently, vitamin and mineral nutrition is often viewed as a key component, which can make large differences in an animal's overall performance.

Vitamin nutrition is divided into two categories, fat-soluble and water-soluble. Fat-soluble vitamins can be stored within the body and called upon when needed to fuel metabolic functions. Water-soluble vitamins are not readily stored and must be consumed on a regular basis to avoid deficiency complications.

Common Fat Soluble Vitamins: Vitamins A, D, E, and K

Common Water Soluble Vitamins: Vitamins B and C

Mineral nutrition is also divided into two categories, macro-minerals and trace minerals. Distinction between these categories is based primarily on the concentration required in the daily diet. Careful attention to mineral nutrition is essential to optimize all physiological functions, such as: reproduction, growth, immunity, and endurance. Many minerals, especially trace minerals, may become toxic when supplemented at levels beyond requirement. Further, the excessive supplementation of one mineral may result in a forced deficiency of another.

Common Macro-Minerals: Calcium, Phosphorus, Potassium, and Magnesium

Common Trace Minerals: Copper, Zinc, Selenium, and Manganese

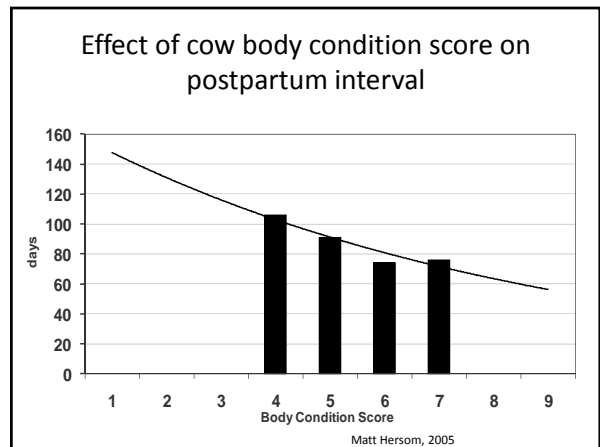
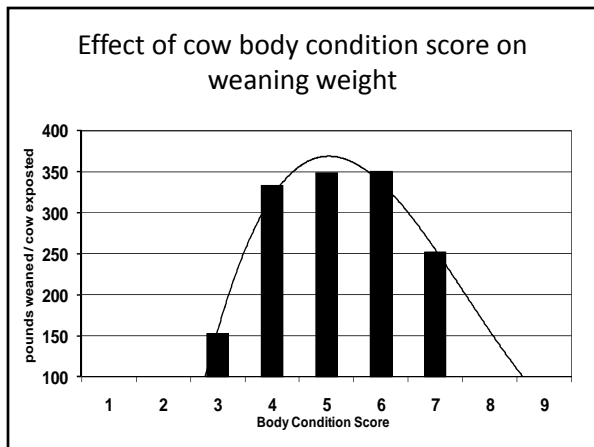
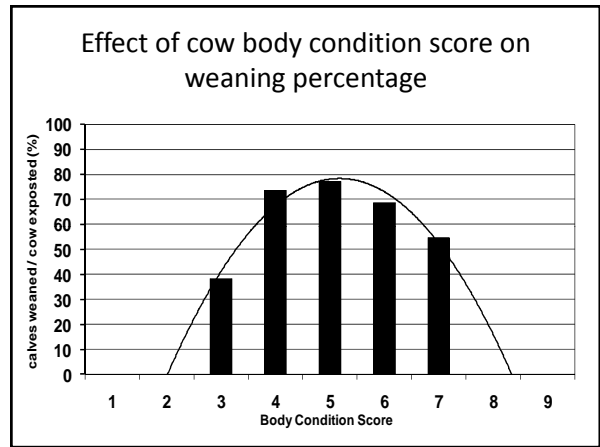
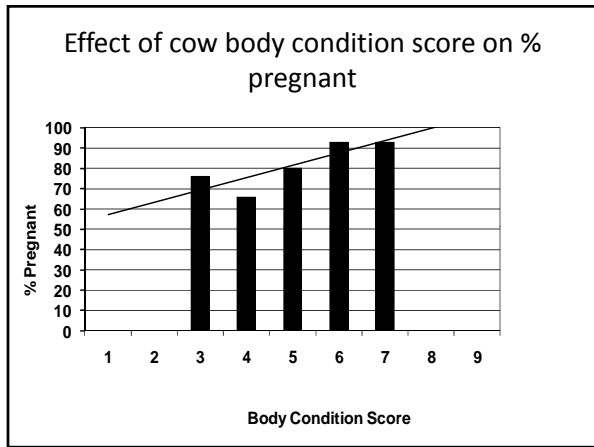
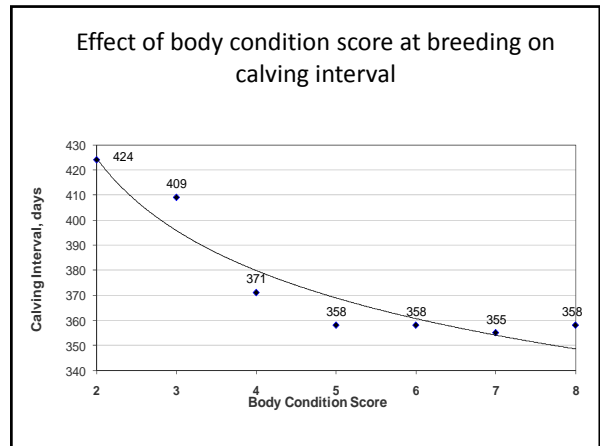
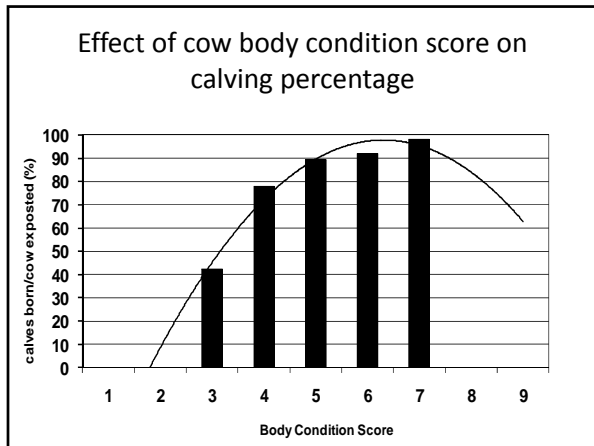
Body Condition Scoring Of Beef Cattle

Dr. Matt Hersom, Extension Beef Cattle Specialist, UF/IFAS, Dept. Animal Sciences

Body condition score of beef cows is an indicator of nutritional status and is related to cow productivity and cow herd income. Poor body condition has been shown to:

- Increase number of days to estrus
- Require more services per conception
- Lower percentage of pregnant cows
- Increase calving interval
- Lower milk production
- Lower weaning weight of calves
- Decrease income and reduce overall profitability

Body Condition Score	Appearance of Cow
1	Emaciated – Bone structure of shoulder, ribs, back, hooks and pins sharp to touch and easily visible. Little evidence of fat deposits or muscling.
2	Very Thin – Little evidence of fat deposits but some muscling in hindquarters. The spinous processes feel sharp to the touch and are easily seen with space between them.
3	Thin – Beginning of fat cover over the loin, back, and foreribs. Backbone still highly visible. Processes of the spine can be identified individually by touch and may still be visible. Spaces between the processes are less pronounced.
4	Borderline – Foreribs not noticeable; 12 th and 13 th ribs still noticeable to the eye, particularly in cattle with a big spring of rib and ribs wide apart. The transverse spinous processes can be identified only by palpation (with slight pressure) to feel rounded rather than sharp. Full but straightness of muscling in the hindquarters.
5	Moderate – 12 th and 13 th ribs not visible to the eye unless animal has been shrunk. The transverse spinous processes can be felt with firm pressure to feel rounded – not noticeable to the eye. Spaces between processes not visible and only distinguishable with firm pressure. Areas on each side of the tail head are fairly well filled but not mounded.
6	Good – Ribs fully covered, not noticeable to the eye. Hindquarters plump and full. Noticeable sponginess of the covering of foreribs and on each side of the tail head. Firm pressure required to feel transverse processes.
7	Very Good – Ends of spinous processes can only be felt with very firm pressure. Spaces between processes can barely be distinguished at all. Abundant fat cover on either side of tail head with some patchiness evident.
8	Fat – Animal taking on a smooth, blocky appearance; bone structure disappearing from sight. Fat cover thick and spongy with patchiness likely.
9	Very Fat – Bone structure not seen or easily felt. Tail head buried in fat. Animal's mobility may actually be impaired by excess amount of fat.



Poisonous Plants

Dr. Brent Sellers and Dr. Sarah Lancaster, UF IFAS Range Cattle REC

Why do plants contain poisonous substances? Well, let's think about a plant. It cannot move, meaning they have to sit in one place and deal with their environment. So, they need to be able to defend themselves. Plants do this in a variety of ways, but one common way is through chemical production within the plant. These chemicals are sometimes poisonous to humans and/or animals. Sometimes these poisonous chemicals are found throughout the plant, only in certain parts of the plant, or are only present in unripened fruit.

Obviously, it is to our benefit to learn as much as possible about plants, especially if you enjoy the outdoors. Plants can look very similar and it's important to be able to identify the toxic species from the non-toxic species. For example, Mexican prickly poppy looks like a thistle; however, it is not a thistle and thistles are generally non-toxic. In other plants, certain growth stages are safer than others. One common plant that is found in Florida and has this characteristic is common pokeweed. This plant is fairly non-toxic during the early stages of growth in the spring, but becomes toxic as the plant matures. In other plants, you can only eat the ripe fruits, but the green fruits are usually poisonous (green tomato is an example, but you would need to eat a lot – remember fried green tomatoes).

How plants poison:

1. Ingestion – A person/animal eats part of a poisonous plant.
2. Contact – A person/animal touches a plant that causes skin irritation.
3. Absorption/Inhalation – A person/animal absorbs the poison through the skin or inhales it into the respiratory system.

There is a range to plant poisoning. Some plants cause only minor discomfort (upset stomach, headaches), while others can cause death. A common question is “How poisonous is this plant?” It is extremely difficult to know how poisonous a particular plant is because:

1. Some plants require contact with a large amount of the plant before noticing any adverse reaction, while others may cause death with only a very small amount.
2. Every plant varies in the amount of toxin produced due to different growing conditions as well as the age of the plant (older plants tend to contain more poison – but this is not always true).
3. Every person/animal has a different level of sensitivity to toxic substances.

It is very difficult to know if an unknown plant is poisonous or not. Some people will watch animals to see if they will eat an unknown plant. Does this mean that humans can eat the same plant that animals eat? Not necessarily. There are several misconceptions about poisonous plants:

1. *Watch the animals and eat what they eat.* While this is usually true, some animals can eat plants that are poisonous to humans.

2. *Boil the plant in water and any poisons will be removed.* This is true for young shoots of common pokeweed as well as some other plants, but boiling does not remove all poisons of some plants.
3. *Plants with a red color are poisonous.* Some plants that are red are poisonous, but not all. Many poisonous plants are not red.

Reading these common misconceptions, it is easy to see that there is no “golden rule” that tells us if a plant is poisonous. Learning as much as possible about plant species is the only way you will know if a plant is poisonous.

Reasons plants contain poisonous or potentially poisonous compounds:

1. Plants cannot move, but they defend themselves through “chemical warfare” or through other means (thorns, prickles, irritants).
2. Discourage herbivores from eating it by making compounds that discourage, sicken, or kill a herbivore:
 - a. Discouragement: compounds which make the plant taste bitter
 - b. Sicken: compounds which cause nausea, diarrhea, etc.
 - c. Kill: compounds that results in death
3. Timing and place of chemical production is often well choreographed to manipulate animal behavior. For example, the green tomato contains tomatine, which causes intestinal irritation. This discourages animals from eating the fruits when seeds are immature. After ripening, the toxic compound decreases and animals will find it attractive, eat the fruit and spread the seed.
4. Some animals and insects use toxic plants to their advantage. For example, the monarch butterfly uses milkweed nectar as a food source. Milkweed contains a cardiac glycoside. Birds that prey on monarch butterflies often leave the butterflies alone if they have been feeding on milkweed, because the butterflies have a bitter taste.
5. Animals are not the only target. Some plants also make compounds that are lethal to other plants. This is called allelopathy.

Types of Poisonous Compounds and Plants:

1. Plants that cause illness or death.
 - a. Alkaloids. These are nitrogen-bearing alkaline chemicals that originate in plants. They are derived from amino acids, the building blocks of proteins, which especially affect the nervous system. At least 40% of all plant families include plants that contain these compounds. Many plants have different alkaloids present, each with a specific activity. Some alkaloids are useful medicines; others are harmful, even fatal. Most are bitter tasting. The liver, with the assistance of enzymes, processes the alkaloids that enter the body, rendering some harmless, while making others more toxic. One common alkaloid, which many of us seek daily, is caffeine.
 - i. elderberry
 - ii. jimsonweed
 - iii. Mexican prickly poppy

- b. Cardiac glycosides. Glycosides are toxins in which at least one sugar molecule is linked with oxygen to another compound, often nitrogen-based. They become harmful when the sugar molecule is stripped off, as in the process of digestion.
 - i. elderberry
 - ii. clover
 - iii. bracken fern
 - iv. oleander
 - v. lima beans (ones in the store are not poisonous-toxin has been reduced by plant breeding techniques)

- c. Cyanide. Cyanogenic glycosides are present in many plants and are converted to hydrogen cyanide or prussic acid when plant cells are damaged. The concentration of cyanogenic glycosides within a plant is variable: growth stage, moisture and time of day can all influence plant cyanogenic glycoside levels. Fertilization and herbicide application can increase cyanogenic glycoside concentrations. Chronic cyanide poisoning from eating sublethal doses over time causes loss of nerve function. Acute cyanide poisoning causes death.
 - i. cherry species
 - ii. johnsongrass
 - iii. many fruit trees (leaves and seeds)

- d. Others
 - i. Castor bean: ricin
 - ii. Pokeweed: phytoaccigenin and phytolaccatoxin
 - iii. Rosary pea: abrin
 - iv. Avocado: unidentified (seeds, leaves, twigs, bark)

2. Plants that cause milder discouragement.

- a. Oxalic acid. Oxalates are unstable salts of oxalic acid. When eaten, they break down to release the highly poisonous acid. The sour flavor of sorrel (*Rumex* species), wood sorrel (*Oxalis*), and even rhubarb is due to the presence of the acid. Some plants may contain differing amounts of potassium or calcium salts, rendering them unsafe, particularly in the buckwheat and goosefoot families.
 - i. yellow woodsorrel
 - ii. rhubarb (not common in Florida)
 - iii. philodendron
 - iv. caladium

- b. Saponins. Saponins are glycosides with a distinctive foaming characteristic. They are found in many plants, but get their name from the soapwort plant (*Saponaria*), the root of which was used historically as a soap. Some saponins reduce the feed intake and growth rate of nonruminant animals while others are not very harmful. For example, the saponins found in oats and spinach increase and accelerate the body's ability to absorb calcium and silicon, thus

assisting in digestion. Certain pasture weeds contain substantial quantities of dangerous saponins and result in life threatening toxicities for certain animal species.

- i. bagpod
 - ii. coffee weeds
 - iii. purple sesban
 - iv. yucca
 - v. asparagus fern
- c. Tannins. Tannins are naturally occurring plant compounds. Their main characteristic is that they bind and precipitate proteins. They can have a large influence on the nutritive values of many foods eaten by humans and animals. Tannins are common in grapes, persimmon, blueberry, tea, legume forages, and legume weeds (hemp sesbania).
- i. hemp sesbania
 - ii. corn
 - iii. grapes
 - iv. persimmon
 - v. blueberry

Poisonous Plant References

Books:

Poisonous Plants of the Southeastern United States – University of Florida, Circular SP57.
Contact the IFAS Bookstore: <http://www.ifasbooks.ufl.edu/merchant2/>
Approximate cost: \$10

A Guide to Plant Poisoning of Animals in North America by A.P. Knight and R.G. Walter.
Approximate cost: \$70

Websites:

Cornell University: <http://www.ansci.cornell.edu/plants/index.html>

Purdue University:
http://www.extension.purdue.edu/extmedia/WS/WS_37_ToxicPlants08.pdf

University of Pennsylvania: <http://cal.vet.upenn.edu/projects/poison/index.html>

Common Plants that are Toxic to Livestock in Florida

Common Name	Genus and Species
atamasco lily	<i>Zephyranthes atamasca</i>
autumn sneezeweed	<i>Helenium autumnale</i>
bitter sneezeweed	<i>Helenium amrum</i>
black cherry	<i>Prunus serotina</i>
black locust	<i>Robinia pseudoacacia</i>
black nightshade	<i>Solanum nigrum</i>
bladderpod	<i>Glottidium vesicarium</i>
bracken fern	<i>Pteridium aquilinum</i>
buttercup	<i>Ranunculus sardous</i>
castor bean	<i>Ricinus communis</i>
chinaberry	<i>Melia azederach</i>
Chinese tallow tree	<i>Sapium sebiferum</i>
Choke cherry	<i>Prunus virginiana</i>
coffee senna	<i>Senna occidentalis</i>
common buttonbush	<i>Cephalanthus occidentalis</i>
common cocklebur	<i>Xanthium strumarium</i>
common yarrow	<i>Achillea millefoium</i>
creeping indigo	<i>Indigofera spicata</i>
eastern baccharis	<i>Baccharis hlimifolia</i>
fetterbush	<i>Leucothoe axillaris, racemosa</i>
fly poison	<i>Amianthium muscaetoxicum</i>
great laurel	<i>Rhododendron maximum</i>
hairy vetch	<i>Vicia villosa</i>
horsenettle	<i>Solanum carolinense</i>
jimsonweed	<i>Datura stramonium</i>
johnsongrass	<i>Sorghum halepense</i>
lantana	<i>Lantana camara</i>
laurel cherry	<i>Prunus caroliniana</i>
maleberry	<i>Lyonia ligustrina</i>
Mexican pricklepoppy	<i>Argemone mexicana</i>
milkweed	<i>Asclepias spp.</i>
mountain laurel	<i>Kalmia latifolia</i>
mustard	<i>Brassica spp.</i>
oleander	<i>Nerium oleander</i>
perilla mint	<i>Perilla frutescens</i>
poison hemlock	<i>Conium maculatum</i>
poison ivy	<i>Toxicodendron radicans</i>
poison oak	<i>Toxicodendron toxicarium</i>
poison sumac	<i>Toxicodendron vernix</i>
pokeweed	<i>Phytolacca americana</i>
rattlebox	<i>Sesbania punicea</i>
red buckeye	<i>Aesculus pavia</i>
red maple	<i>Acer rubrum</i>
redroot pigweed	<i>Amaranthus retroflexus</i>
hemp sesbania	<i>Sesbania exaltata</i>
showy crotalaria	<i>Crotalaria spectabilis</i>
sicklepod	<i>Senna obtusifolia</i>
spotted water hemlock	<i>Cicuta maculata</i>
St. John's wort	<i>Hypericum spp.</i>
sweet clover	<i>Melilotus spp.</i>
sweetshrub	<i>Calycanthus floridus</i>
yellow jessamine	<i>Gelsemium sempervirens</i>

WHAT IS SOIL?

Soil Science Society of America
<http://www.soils4kids.org/about#>

Soils are complex mixtures of minerals, water, air, organic matter, and countless organisms that are the decaying remains of once-living things. It forms at the surface of land - it is the "skin of the earth." Soil is capable of supporting plant life and is vital to life on earth.

Soil, as formally defined in the Soil Science Society of America Glossary of Soil Science Terms, is:

1. The unconsolidated mineral or organic material on the immediate surface of the earth that serves as a natural medium for the growth of land plants.
2. The unconsolidated mineral or organic matter on the surface of the earth that has been subjected to and shows effects of genetic and environmental factors of: climate (including water and temperature effects), and macro- and microorganisms, conditioned by relief, acting on parent material over a period of time.

So then, what is dirt? Dirt is what gets on our clothes or under our fingernails. It is soil that is out of place in our world - whether tracked inside by shoes or on our clothes. Dirt is also soil that has lost the characteristics that give it the ability to support life - it is "dead."

Soil performs many critical functions in almost any ecosystem (whether a farm, forest, prairie, marsh, or suburban watershed). There are seven general roles that soils play:

1. Soils serve as media for growth of all kinds of plants.
2. Soils modify the atmosphere by emitting and absorbing gases (carbon dioxide, methane, water vapor, and the like) and dust.
3. Soils provide habitat for animals that live in the soil (such as groundhogs and mice) to organisms (such as bacteria and fungi), that account for most of the living things on Earth.
4. Soils absorb, hold, release, alter, and purify most of the water in terrestrial systems.
5. Soils process recycled nutrients, including carbon, so that living things can use them over and over again.
6. Soils serve as engineering media for construction of foundations, roadbeds, dams and buildings, and preserve or destroy artifacts of human endeavors.
7. Soils act as a living filter to clean water before it moves into an aquifer.

Soil Profile

There are different types of soil, each with its own set of characteristics. Dig down deep into any soil, and you'll see that it is made of layers, or horizons (O, A, E, B, C, R). Put the horizons together, and they form a soil profile. Like a biography, each profile tells a story about the life of a soil. Most soils have three major horizons (A, B, C) and some have an organic horizon (O).

The horizons are:

O - (humus or organic) Mostly organic matter such as decomposing leaves. The O horizon is thin in some soils, thick in others, and not present at all in others.

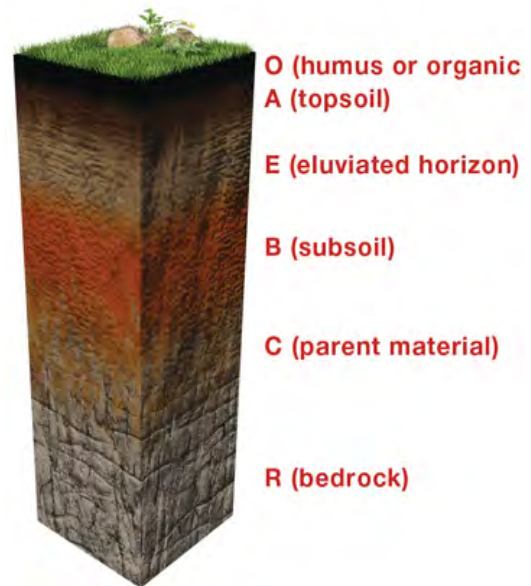
A - (topsoil) Mostly minerals from parent material with organic matter incorporated. A good material for plants and other organisms to live.

E - (eluviated) Leached of clay, minerals, and organic matter, leaving a concentration of sand and silt particles of quartz or other resistant materials - missing in some soils but often found in older soils and forest soils.

B - (subsoil) Rich in minerals that leached (moved down) from the A or E horizons and accumulated here.

C - (parent material) The deposit at Earth's surface from which the soil developed.

R - (bedrock) A mass of rock such as granite, basalt, quartzite, limestone or sandstone that forms the parent material for some soils - if the bedrock is close enough to the surface to weather. This is not soil and is located under the C horizon.



~ Web Resources ~

Electronic Data Information Source (EDIS) –

EDIS is the Electronic Data Information Source of UF/IFAS Extension, a collection of information on topics relevant to you: profitable and sustainable agriculture, our environment and natural resources, 4-H and other youth programs, Florida-friendly landscapes, communities that are vibrant and prosperous, and economic well-being and life quality for individuals and families.

<http://edis.ifas.ufl.edu/>

Florida Automated Weather Network (FAWN) -

Weather data is collected every 15 minutes at 43 sites located across Florida.

<http://fawn.ifas.ufl.edu/>

Florida Cow-Calf Management Guide 2nd Edition -

Designed as a complete resource for the production and management of the small cattle herd in Florida, this informative, completely illustrated 120-page book includes chapters on how to get started managing a viable cattle operation, planning a breeding program, feeding, forages, managing reproduction, maintaining a healthy herd, good management practices, marketing feed calves and budgeting. Includes SP 145, Body Condition Scoring of Beef Cattle, a pocket-sized field identification guide.

<http://edis.ifas.ufl.edu/features/handbooks/cowcalf.html>

Internship Opportunities

If you are interested in an agricultural internship, visit this helpful resource on the Florida Cattlemen's Association website.

<http://www.floridacattlemen.org/internship-opportunities/>

UF IFAS Range Cattle REC –

Learn about upcoming events, see program and contact information for faculty members, and view media resources in the virtual classroom.

<http://rcrec-ona.ifas.ufl.edu/>

<http://rcrec-ona.ifas.ufl.edu/vclassroom.shtml>

UF IFAS Range Cattle REC - Rangeland Wildlife and Ecosystems Program Website

<http://www.rangelandwildlife.com/>

UF IFAS Extension – Solutions for your life –

Each Florida County has an extension office. Do you know about yours? Follow this link to locate your local office and find out about the services they offer. Here you will also learn about the Research Centers and Demonstration Sites in Florida.

<http://solutionsforyourlife.ufl.edu/map/>