Lesson Plan

Livestock and Horses:

Emergency Management for Large Animals

SART Training Media

Livestock and Horses:

Emergency Management for Large Animals

Lesson Plan

Prepared by: Jan Shearer, Dairy Extension Veterinarian,
Max Irsik, Beef Extension Veterinarian,
Dana Zimmel, Equine Extension Veterinarian,
College of Veterinary Medicine; University of Florida, Gainesville, Florida

Eric Hallman, Agricultural Safety Specialist,
Charles M. Brown, Information and Publications Specialist,
Carol J. Lehtola, Associate Professor,
Agricultural and Biological Eng. Dept. University of Florida, Gainesville, Florida

Published June 2007

SART Training Media are available for download from the Florida SART Web site <www.flsart.org>.

Contents

About Florida SART

SART is a multiagency coordination group consisting of governmental and private entities dedicated to all-hazard disaster preparedness, planning, response, and recovery for the animal and agriculture sectors in the state of Florida.

SART operates at the local level through county SART organizations.

SART utilizes the skills and resources of many agencies, organizations and individuals with its multiagency coordination group structure.

SART supports the county, regional, and state emergency management efforts and incident management teams.

SART Mission

Empower Floridians through training and resource coordination to enhance all-hazard disaster planning and response for animals and agriculture.

SART Goals

- Promote the active engagement of each county coordinator who is responsible for animal and agricultural issues
- Provide assistance in the development and writing of county ESF-17 plans
- Promote the establishment of a county SART to work as a multiagency coordination group to support emergency management and incident management teams
- Provide training for all SART and animal and agriculture personnel
- Identify county resources available for an emergency or disaster
- Work to comply with the National Incident Management System (NIMS) document

Subject: **Emergency management of large animals during a disaster requires a basic understanding of animal behavior, emergency management procedures, and preparedness. The top priority is always the safety of human caretakers.**

Introduction

This lesson plan, together with a workbook and PowerPoint presentation, form a unit in the SART training module for Livestock and Horses entitled Emergency Management for Large Animals. This lesson plan guides the instructor in delivering the educational portion of the workshop. For information on planning, organizing and publicizing the entire training event, consult the *Creating a County SART* Toolkit. The toolkit and other SART training materials are available on the Florida SART Web site: <www.flsart.org>.

The content of the lesson plan is outlined in the learning objectives outlined on the next page

Throughout the lesson plan, symbols in the margin indicate that a slide in the PowerPoint presentation is available for that section.

Approximately 70-80 minutes should be allocated for this program.

Session Outline

Part 1—Beginning the Workshop	5 minutes
Part 2—Learning Objectives and Importance	5 minutes
Part 3—Cattle Management in an Emergency Setting	30 minutes
Part 4—Horse Management in an Emergency Setting	20 minutes
Part 5—Highlight Key Resources	5 minutes
Part 6—Summary and Wrap-Up	5 minutes
Total	70 minutes

Learning Objectives

At the end of this unit, participants will be able to:

1. Define emergency management issues for large animals.
2. Explain the health and safety priority of personnel.
3 Describe the basics of cattle and horse behavior.
4. Identify emergency management procedures for cattle and horses.
5. Explain the principles of humane euthanasia for cattle and horses.
6. Describe key prevention and preparedness issues.
7. Identify key resources available for more information.

Learning Environment/Aids

To complete this lesson plan, you will need:

- The PowerPoint presentation *Emergency Management for Large Animals*.
- Optional: a companion publication, *Emergency Management for Large Animals: Participant Workbook*, is available. It contains copies of the PowerPoint slides and resource information

To conduct this training unit, you will need:

- A means to show the PowerPoint presentation: a computer with a projector. (Note: Master black and white copies of the slides are included at the end of this manual for use as a flipbook or, if you prefer, to make transparencies for use with an overhead projector.)
- Sufficient seating for all participants

Each participant will need:

- A pen or pencil
- Participant workbook or paper for notes

Before the Workshop

On the day of the workshop, check that all equipment needed is in place. Double-check that electronic media works on the equipment you have. Also, make certain that any materials for participants, such as paper, workbooks and pens/pencils, are available in sufficient numbers.

Part 1: Beginning the Workshop

Time: 5 minutes

Focus: Introducing participants to the concept of emergency management of large animals

SLIDES 1-3

Once all participants have taken their seats and have settled down, welcome them to the Emergency Management for Large Animals workshop. Thank them for attending and congratulate them on taking the time to learn about this important issue regarding large animals during disaster. Remind them that the best way to respond to an agricultural emergency situation is to have a foundation of knowledge on which to build.

During this introduction, you may choose to distribute the pre-test included in the manual. Make sure to explain to the participants that the pre-test is only meant to guide them; they will not be graded. Use of pre- and post-tests can help to evaluate how much knowledge participants gain during the session.

Depending on the size of the group, you may also choose for participants to introduce themselves, state their background, and why they are interested in this topic.

Part 2: Learning Objectives and Importance

Time: 5 minutes

Focus: Identify the learning objectives relating to large animals, the need for safety, and how large animals can cause injuries.

SLIDE 4

This lesson plan can be used with agricultural and non-agricultural audiences. Review the learning objectives with the participants. At the end of this training session, participants will be able to define emergency management issues for large animals, explain why the health and safety of caretakers is a top priority, describe the basics of cattle and horse behavior, identify emergency management procedures for cattle and horses, explain the principles of humane euthanasia for cattle and horses, describe key prevention and preparedness issues, and identify key resources available for more information.

Remind participants that the reason they are attending the workshop is because they realize the value of being prepared by having a disaster plan in place. Part of disaster planning is learning about appropriate issues in order to be able to successfully address them during emergencies. The information that they gain in this workshop will enhance their professional performance.

SLIDE 5

The primary objective during any emergency is to ensure the safety of human responders. This is doubly true when working around large animals, especially horses and cattle. When assisting these animals during an emergency situation keep in mind the following items:

- Your safety is the highest priority. You may be trying to help animals in need, but you are of no help to them if you yourself become injured or killed. You will distract others from doing their part as well.
- Don't endanger yourself or others by attempting a complicated rescue mission for animals. Trained responders are properly equipped to deal with many unusual situations. Florida SART even offers specialized training in how to work with large animals in various situations. This training can help provide successful rescue attempts for both the animal and the responder. Trained volunteers are also available throughout the state.

SLIDE 6

The highest priority is to avoid injury to yourself. Large animals in emergency situations can pose a serious hazard. During these situations they tend to become:

- Nervous, anxious, and could possibly be injured.
- Unpredictable – Animal behavior differs from animal to animal, and they do not think like humans.
- Dangerous – Animals react to their surroundings and events and do not consider your well being in their reaction.

It is important to learn how horses and cows can physically injure you in order to successfully avoid injuries from these large animals. Some might term this the mechanism or vector of the injury.

SLIDES 7-8

Horses can:

- Kick with either one or both of their back feet. This includes both roundhouse (out to the side) or straight back.
- Strike with the front feet.
- Bite with their teeth and bite hard! There have been instances where horses have bitten off ears and fingers and caused other permanent injuries.
- Use their large head to hit or push.
- Crowd and crush against fences, trees, or other horses.
- Run over you if there is no other way out. If they feel cornered or frightened, they are used to going through/over something as small as a person.

Cattle can:

- Kick with their back feet. Usually they use one foot, but they can use both feet simultaneously. They are also masters of the roundhouse kick. Do not feel that you are in a safe zone if you are standing next to one, since the hind foot can circle out to the side.
- Cause serious injury with their head. They have strong neck muscles and massive head bones that can be used in defense. They are not known for biting.
- Crowd and crush against fences, walls, trees, or other animals.
- Run over you if there is no other way out. If they feel cornered or frightened, they are used to going through/over something as small as a person.

Part 3: Cattle Management in an Emergency Setting

Time: 30 minutes

Focus: Examine the management of cattle during an emergency, including environmental factors, handling issues, basic needs, health concerns, restraint, treatment and euthanasia

SLIDES 9-10

This section will cover many factors that are involved with cattle handling, including environmental factors, handling issues, basic needs, health concerns, restraint, treatment and euthanasia. It is important to understand these issues so that you can better predict cattle needs and behavior during emergencies. Even more critical is that you can safely and correctly work with cattle during these times.

The next 8 slides will cover how cattle perceive their environment, including the "herd" instinct, vision type, hearing, and handling issues.

SLIDE 11

The "Herd Instinct" is a primary contributor to cattle behavior. Cattle are social animals that feel both more comfortable and safer in a group. They sense security in numbers. Originally, the herd instinct evolved as a means of protection against predators. Even today the herd instinct remains strong, and when a single animal becomes separated from the herd, it can quickly become stressed. With this in mind:

- Always try to move cattle in groups to avoid individual stress.
- An animal that is separated from the group will try to get back to the group, sometimes with dangerous results.

The maternal instinct is also strong in cattle. They will protect their young from perceived threats real or imagined.

SLIDE 12

Cattle have visual capabilities that are vastly different from those of humans. It is important to understand how cows see in order to work around them and herd them safely. Their eyes are located on each side of their head versus both in the front like humans.

Cattle have panoramic vision that allows them to see almost completely around themselves (310 to 360 degrees). Usually they have a "blind spot" directly

behind them in which they cannot see since their body and eye position blocks this view.

They have different vertical vision limits with only approximately 60 degrees of vertical sight, while humans have 140 degrees of vertical adjustment.

Cattle are very sensitive to unusual movement including:

- Sudden movements
- Bright colors
- Unusual objects

Additionally, their depth perception is poor and their ability to focus up close is poor.

SLIDES 13-15

How humans behave when handling cattle can have a big effect on cattle behavior. It is important to be calm, controlled, and exert confidence. When handling cattle, remember:

- A small flag on a stick is useful for moving or sorting cattle. This stick or flag extends the length of the arm and makes the handler appear larger/wider to the cow.
- Cattle respond negatively to abuse, loud noises, and other confusing situations.
- Keep noisy equipment away from cattle.
- Yelling at cattle increases the stress level of both cattle and the handler.
- Cattle are creatures of habit and following established daily routine will ease handling.
- Handle animals in groups if possible. A single animal may be hard to handle, so get it back into the group if possible.
- When handling cattle, all movements should be slow and deliberate.
- If cattle refuse to move, look for distractions which could include trash on the ground, something on a fence, or even other people who are trying to help.
- Mixing groups of cattle that have not been together before can add to their stress level.

SLIDES 16-18

Herding cattle is an important skill to understand. Moving groups of animals safely is a prime concern during emergency settings. Remember that your safety is paramount and that you cannot help others including animals if you yourself

become injured or killed.

Study the diagram and explain the positions to the audience. When trying to move cattle in a certain direction, here are some tips to remember:

- Locate the majority of the herd and concentrate on moving this nucleus, even though there may be a few stragglers on the outside or behind the majority.
- Start making a series of wide back and forth motions on the edge of the herd.
- Move in the pattern of a giant windshield wiper blade.
- When the majority of the heard has come together into a loose bunch, start increasing the pressure on the collective flight zone to start herd movement in the desired direction. Repeat the zig-zag pattern and reverse at each outside edge just slightly past the point of balance for the outlying animal.
- In order to continue the herd movement in the desired direction, the handler continues to zig-zag back and forth behind the animals.

LEARNING ACTIVITY

As an extra classroom activity you may consider including one of these if time permits. A more detailed understanding of animal movement would be beneficial to anyone that will be working around large animals. A practical activity illustrating Point of Balance and the Flight Zone will go a long way in helping participants to understand, remember, and practice the concepts learned above.

One activity would be to show the 13-minute video clip entitled Cattle Handling Safety developed at Oklahoma State University (available on the National Agricultural Safety Database Web site, www.cdc.gov/nasd). The video is described as follows: “Cattle are responsible for about two-thirds of all injuries caused by farm animals. Researchers at Oklahoma State University found that one-half of those beef producers who sustained an injury while working cattle felt the primary cause of the injury event was human error. This videotape provides practical, on-site advice on how to avoid becoming an injury statistic. This tape will examine the best techniques for moving and working cattle safely, understanding the animal’s flight zone and how cattle are likely to react to common situations. We will take you on-site to a typical working facility and examine its good points and those areas needing improvement.” The video’s direct URL is: http://www.cdc.gov/nasd/videos/v001401-v001500/v001435.html

A second option for an additional hands-on demonstration would be to arrange for a live animal handling activity. If facilities allow for a safe demonstration, you may want to consider having a trained cattle handler demonstrate the principles of point of balance and flight zone with a live animal. The presence of a live animal in a visual and hands-on activity will further reinforce the educational value of this unit. Participants will better understand and retain the knowledge that they learned. It may be possible to substitute a smaller animal such as sheep or other reactive animal in order to demonstrate the herding principles, while still remaining in a classroom.

SLIDE 19

Cattle well-being is always important but even more so during an emergency. The care of animals depends on proper understanding of their needs. If these needs are addressed, the animal care and welfare concerns involving cattle will be fulfilled.

The next 15 slides will cover cattle nutrition, environment/housing, and health concerns.

SLIDE 20-21

Cattle are ruminants. A ruminant is defined as characteristically having a stomach divided into four compartments and chewing a cud consisting of regurgitated, partially digested food. Cattle are able to utilize and digest food such as hay and grass that would be useless to non-ruminants. When considering their nutritional needs during emergency, keep in mind:

- If possible, provide access to grass pastures.
- Hay may be fed as necessary to supplement or in place of pasture.
- Cattle enjoy equine sweet feeds, which can be substituted if needed. Feed 6-8 pounds per animal per day.
- In an emergency situation, cattle can survive for days without feed.
- A nursing calf needs no additional feed other than what is supplied by its mother.
- Orphan calves can be fed a commercial milk replacer. Usually this comes in a dry powder form and must be mixed with fresh/clean water before use. Plan for availability of water for the milk replacer. Remember to feed 8% of the calf's body weight per day in milk replacer. Patience is often required when feeding orphans.

SLIDE 22

Water is a critical nutritional need of all living creatures. Cattle need continuous access to water throughout the day, and cannot go without water for an extended period (more than 24 hours). This is regardless of the feed that is available. Fortunately, during an emergency, cattle can utilize standing water as well as fresh water. Do not use brackish or salty water.

SLIDE 23

Water availability is not only critical but the amount also becomes important. Large animals (and some small ones too) require much more water than one might think. Consider the amount of water that will be necessary when planning for emergencies and how the water will be transported, stored, and accessed. The daily water needs (in gallons per head) for various animal species are presented for comparison:

- Beef cattle 7-12
- Dairy cattle 10-16
- Horses 8-12
- Swine 3-5
- Sheep and Goats 1-4
- Chickens 8-10 per 100 birds
- Turkeys 10-15 per 100 birds

Remember that hot temperatures or heat stress conditions could increase water consumption by 20-30%.

SLIDE 24

Environment and shelter is an important consideration for emergency planning. The majority of beef cattle in Florida are reared in a range environment. In this situation, providing shade and a drained pasture should be adequate. Fencing should also be adequate to confine animals to a specified area. Fencing could include make-shift materials such as wire, wood, cloth fence ribbon, etc.

SLIDE 25

In summary, the critical needs of cattle during an emergency are:

- Grass in an open pasture
- Available water
- Adequate fencing

SLIDES 26-31

Environmental disasters do not generally cause medical emergencies for cattle. More typically, lack of available water may leave some animals dehydrated, or if for prolonged periods, dead. The lack of shade and water may lead to heat stress and/or heat stroke.

It is important to understand heat stress and to recognize the symptoms. Signs of heat stress include:

- Rapid respiration
- Open mouth breathing
- Head down or extended
- Animal is usually standing
- Elbows held away from the body
- Cattle may bunch together during stress

Heat stroke may include all of the above plus the animal becomes very depressed, goes down, and progresses towards death.

Heat stress may be precipitated by:

- Lack of available shade and water
- Moving animals during periods of high temperature and humidity
- Combination of temperature and humidity that determines the severity of the heat stress

The Temperature-Humidity Index (THI) should be used as a guide to heat stress in cattle. Show and explain the THI chart on slide 30 to help the audience understand the relationship of temperature and humidity. The following 3 levels can be used in relation to cattle heat stress:

- Above 75 THI Alert
- Above 80 THI Danger
- Above 84 THI Emergency

As the THI goes up, cows generally decrease feed consumption and milk production.

A Heat Stress Management Plan should be in place to address heat stress should it occur. The plan should follow these guidelines:

- Have ample water available including a capable delivery system. 2-3 gallons per 100 lbs of mass is recommended. Providing large enough quantities of water to remote locations may take considerable planning. It is always better to have planned and developed the water system prior to an actual emergency.

- If utilizing a watering trough, provide at least 3 linear inches of trough space per animal.
- Avoid handling animals if at all possible, since handling will increase stress levels.
- Improve air flow if possible. Natural or mechanical means can both be effective.

SLIDES 32-34

When cattle are gathered together from various operations, such as during an emergency situation, the risk of infectious disease can increase. Infectious diseases are those which are passed from animal to animal, often via mucus, feces, or aerosol vapor. Infectious disease issues may be difficult to address by treating individual animals, and if this is the case, often the entire herd could be medicated through the water or feed.

Some of the more common health concerns would include:

Health Concern	**Treatment (call a veterinarian)**
Bloat or diarrhea	Manage nutritional concerns
Pneumonia	Broad spectrum antibiotics, such as Baytri, Nuflor, Excede, AS 180, Tetradure
Mastitis (dairy cows)	Antibiotics, milk cow
Lacerations	Can be treated
Fractures	May require Euthanasia
Analgesia	Banamine

SLIDE 35

Cattle are large animals and due to their size, strength, and unpredictable behavior, require the use of proper restraint when providing treatment. There are many different forms of restraint, including both physical and chemical. The important point here is to plan ahead for potential need for restraint. Some of the more common tools for restraint are:

- Squeeze chutes
- Corrals
- Rope halters
- Lariats
- Tail restraints
- Nose tongs – Remember to use only with a rope halter
- Sedatives and anesthetics

The next 5 slides will cover some of these forms of restraint that are commonly used. These will include both physical and chemical forms.

SLIDES 36-38

There are differing kinds of physical restraints that can be successfully used with cattle. They each may have their appropriate place depending on where or why a cow must be restrained.

Rope halter

- Should be applied properly to work effectively
- The portion that draws should go under the jaws
- Should be used on cattle and not horses

Lariat

- Good for catching loose animal
- Animal must be secured after being caught – not a permanent restraint

Portable chute with head restraint

- Experienced workers should operate the chute
- Do not stand in front of chute
- Do not use excessive force that could cause discomfort or injury
- Be watchful to keep arms and legs in safe zones while working around the chute

Tail jack

- Will immobilize the hind quarters for examination or treatment purposes

SLIDES 39-40

Chemical restraint is typically administered by injection, via hypodermic needle, blow gun, or powered dart gun. All of these forms of restraint require training in their respective method. In the case of a powered dart gun, specialized training is required to avoid injury to the animal. Xylazine (Rompun) is a proven drug for chemical restraint. Usage guidelines are as follows:

- IV dosage ranges from 0.05 to 0.22 mg/kg of mass
- IM dosage ranges from 0.1 to 0.44 mg/kg
- At these levels, Xylazine is safe with sedation and analgesia for 0.5 to 2 hours

Concerns and precautions for use of Xylazine:

- Use only under the supervision of a veterinarian
- Causes decreased heart and respiratory rates
- Bloat
- Avoid usage in debilitated cattle
- Animals are unable to cool themselves when treated, so use caution under high temperatures

The antidote for Xylazine is Tolazine at 0.4 to 4.0 mg/kg of mass. An antidote should be used when the effects of xylazine need to be reversed. Again, the advice and supervision of a veterinarian are essential.

SLIDE 41

Emergency Medical Treatment is that which is unplanned and for which one is often unprepared. During emergency situations, it is always best to consider and utilize local resources that can help with the treatment. Some of these resources may provide expertise while others may be able to provide needed equipment or manpower. Possible resources include:

- Veterinarian
- Area ranchers
- Cowboys
- Law enforcement
- Emergency responders

Remember that proper restraint for the animal will be critical in helping to avoid injury to both the animal and yourself.

SLIDES 42-43

Treatment vs. Euthanasia. All farmers, ranchers, animal owners, and veterinarians would prefer to use treatment options in order to save/heal an animal. Under certain severe conditions, the nature of the injury or disease to the animal will be terminal eventually, and it is more humane to destroy the animal instead of letting it suffer a long and protracted death. Euthanasia is defined as the action of killing the animal for reasons considered to be merciful.

Actions involving debilitated or injured cattle may fall into either the category of treatment or euthanasia. Euthanasia may be the most humane alternative when dealing with seriously ill or injured cattle. Decision making criteria include:

- Pain and distress of the animal

- Likelihood of recovery
- Ability to get feed and water
- Diagnostic information
- Welfare for the animal – humane considerations

SLIDE 44

Humane Euthanasia by Gunshot or Penetrating Captive Bolt --- Properly applied, euthanasia by either gunshot or penetrating captive bolt causes less fear and anxiety and induces a more rapid, painless, and humane death than can be achieved by most other methods.

SLIDES 45-47

Euthanasia by gunshot is usually the most practical under farm or ranch conditions. Most farms do not have access to a captive bolt gun, but most farms do have some type of firearm. Knowing what type of firearm and what caliber is important. Also, knowing where to position the firearm/shot is important.

There are many different calibers for both handguns and rifles. Each different caliber will have a different level of energy depending on the mass of the bullet and the velocity that it is traveling. In order to humanely and quickly dispatch an animal, a caliber with sufficient energy must be used. Also, a bullet of appropriate construction must be used so that it can penetrate into the vital area of the animal. Remember that the skull of a cow or horse is large and has dense bone structure.

For young or smaller animals, the .22 Long Rifle caliber may be sufficient. The .22 Long Rifle cartridge is chambered in both rifles and handguns. When using a .22 LR caliber for dispatching animals, solid bullets should be used since hollow point bullets may expand on impact and not penetrate into the vital area.

For larger and adult animals, a more powerful round will be required. The 9mm Luger cartridge should be considered the minimum level for large animals. It will not have sufficient energy for large bulls, elk, etc. Common handgun calibers that would be more appropriate include the .357 Magnum, .44 Magnum, .45 ACP, and .45 Long Colt calibers. For animals the size of large bulls, a high powered rifle or a shotgun slug will work the best.

LEARNING ACTIVITY

REAL LIFE STORY – You may want to share this story as an example of how the proper firearm type can be important in a real life emergency. It also demonstrates the importance of understanding how to use firearms (or other means) to safely and humanely dispatch an animal. Not all firearms can be counted on to dispatch an animal in a timely fashion and may in fact create a hazardous situation.

A farm owner kept an adult bull on his farm for natural breeding of his beef cows. He had raised this bull from the time that it was young, and it had never shown signs of serious aggression. One day while the farmer was working in the pasture, the bull attacked him. As is common with bull attacks, the large bull used his massive head to knock the farmer down to the ground. It then used his head to crush him down into the earth. The massive weight and strength of the bull crushed the victim's chest and prevented him from breathing. It is unknown how long the bull continued this, but when the victim was discovered, he was dead, and located just inside of the fence on the ground. The bull was nearby standing guard over his victim. He was agitated, drooling, and full of rage. He was protective of his "kill", and would not leave the area. When emergency medical responders arrived at the scene, they could not access the victim due to the vigilance of the bull. Local police officers responded to the scene as well. When an attempt to remove the victim to outside of the fence was attempted, the bull tried to come through the fence and attack the rescuers. Police then attempted to dispatch the bull in an effort to stabilize the scene and to protect the emergency responders. The police were armed with Glock model 17 pistols in 9mm caliber. These hold 17 rounds per magazine. A number of complete magazines were fired into and at the bull without fatal results. The bull was obviously wounded but not fatally and became even more enraged. The situation was deteriorating quickly and the bull was really trying to get through the fence to attack the responders. Just at this time the coroner responded to the scene. He was a retired state trooper, and out of old habit carried a 12-gauge shotgun (with solid shotgun slugs) in the trunk of his car. He immediately assessed the situation, retrieved the slug shotgun, and dispatched the bull with 2 shots from close range. It is fortunate for all involved that he had a firearm with sufficient energy to dispatch an enraged bull.

Many individuals do not know where to position a shot for the best results – this is not something that you would have to think about unless put into the position of dispatching a large animal. Proper positioning for the pistol or rifle includes:

- Hold the firearm 6-12 inches away from the intended target.
- Aim so that the direction of the bullet will be perpendicular to the skull to avoid a ricochet. Be careful of what is behind your target in case the bullet is deflected off the animal. Make sure that no one is nearby when you fire.

For captive bolt guns, hold the device firmly against the head over the intended location. The captive bolt gun does not fire a bullet, instead a blank power charge pushes a bolt out from the gun for a distance of only a few inches, which extends and then retracts back into the gun. These are safer for use, and are commonly used in slaughter houses and meat packing plants.

It is important to locate the best entry point on the animal. For cattle, it is not "between the eyes" as many would believe. It is actually located above that point and can be found by locating the intersection of two lines connecting the eye to the opposite base of the horn. This location will allow direct access into the brain. See the diagram with line intersection and brain location.

SLIDES 48-49

In summary, closing thoughts on cattle issues:

- During an environmental disaster, cattle may have emergency needs for food, water, shelter, and medical concerns.
- Leaving cattle alone is often the best option in emergencies. It will keep their stress levels down and allow them to adjust. Obviously this option is only acceptable if their basic needs are being met.
- If they are in trouble or need help, look for assistance.
- Cattle owners, ranchers, and cowhands are often the best prepared people to handle the emergency needs for their herds.
- If producers need assistance from disaster relief personnel, volunteers providing that assistance need to have a basic understanding of beef cattle.

Part 4: Horse Management in an Emergency Setting

Time: 20 minutes

Focus: Examine the management of horses during emergencies, including horse behavior, nutrition, hurricane management, injuries, treatment and euthanasia

SLIDES 50-51

This section will cover many factors that are involved with horse management, including horse behavior, nutrition, hurricane management, injuries, emergency treatment and euthanasia. It is important to understand these issues so that you can better predict horse needs and behavior during emergencies. Even more critical is that you can safely and accurately work with horses during these times.

The next 25 slides will relate to horse management. The next 10 slides will specifically address horse behavior, nutrition, and basic hurricane preparation.

SLIDE 52

Horse behavior is best understood from the perspective that horses have a well-developed fight-or-flight instinct. Their first response to a threat is to flee, although they are known to stand their ground and defend themselves or their offspring in cases where flight is not possible, such as when a foal is being threatened.

Their physiology is also suited to the accomplishment of a number of work- and sport-related tasks. Humans domesticated horses thousands of years ago and they have served humans ever since. Through selective breeding, some breeds of horses have become quite docile, particularly certain large draft horses. On the other hand, most light horse riding breeds were developed for speed, agility, alertness and endurance; building on the natural qualities of their wild ancestors.

Horses are highly social herd animals that like to be in groups. When in the wild, groups often consist of a dominant mare, other mares, their foals and other younger horses. Additionally, there is usually one dominant stallion in a herd with other less dominant stallions present. When in a domesticated herd, it is usually necessary to separate mares and foals from other horses. The stallion is kept separated from the herd.

Horses can be territorial in respect to each other and their environment, including pasture area and barn space.

SLIDES 53-54

Horses require proper nutrition in order to stay healthy and strong. One component of this is the need for good quality hay. Hay is an essential component of a balanced horse diet and is needed for proper rumination. Some of the hay types that would satisfy this requirement are:

- Coastal Bermuda grass hay
- Timothy hay
- Orchard grass hay
- Alfalfa or peanut hay

Round hay bales should generally be avoided for use as horse hay since round bales can contain spoiled sections. It is more common for round bales to contain molds and/or spoiled sections than do small square bales. Usually high quality horse hay is baled into small bales for ease of handling and feeding. Adult horses, of approximately 1000 pounds, need 10-15 pounds of hay per day.

In an emergency feeding setting, hay is acceptable as a sole feed source. Feed grain may be needed for lactating mares, young animals, or severely underweight animals. Grain may also be useful in attracting horses in order to "catch" them or corral them after escape.

SLIDE 55

Water is the most essential nutrient that horses require. Like cattle, horses cannot live long without water. They may live for a few days without feed, but need water daily. Each horse requires at least 10 gallons of water per day. It is a good idea to store 12-18 gallons per head per day.

SLIDES 56-58

Horse farms should prepare before hurricane season. Max Mayfield, Director of the National Hurricane Center states, "Preparation through education is less costly than learning through tragedy".

Some steps that can help minimize the impact of hurricane horse disasters include:

- Take a Polaroid (or digital and print a copy for your file) picture of each horse. It's a good idea if the photo shows animal and owner together.
- Label each horse including these options:
  -- Luggage tag on halter
  -- Microchip

  - -- Brand/tattoo
  - -- Clip phone number into coat
- Make sure that all immunizations are current including:
  - -- West Nile Virus
  - -- Eastern Equine Encephalitis
  - -- Tetanus Toxoid
- Keep documents handy
  - -- Coggins test
  - -- Health Certificate

Important horse documents should be kept in a secure and central location. It is a good idea to keep a second copy of these documents with your emergency horse kit, and ready for quick relocation.

SLIDES 59-61

During a hurricane, certain questions are difficult to answer:
Should animals be evacuated?

- Floods – Can cause livestock to suffer, develop diseases, or die. In severe situations, large animals can be washed away and drown in flowing water.
- Severe winds -- Can cause buildings to collapse, trees to knock down fences and power lines, small objects to become airborne projectiles.

Where can horses go?
The Sunshine State Horse Council has good information on their Web site: www.sshc.org.
The SSHC Web site contains evacuation and disaster information and also includes the following types of specific information:

- Emergency Evacuation Relocation List (searchable)
- Available space for temporary evacuation of horses
- Donors of space for horses that might need to be evacuated and relocated on a temporary basis in the event of an emergency condition, such as a fire or impending hurricane

When to travel?

- 48 hours before hurricane winds hit the area. Loading and traveling with horses will require extra time to negotiate heavy traffic.
- Winds greater than 40mph are dangerous and can cause horse trailers to jack knife or tip over during travel.

SLIDES 62-63

Keep horses out of barns that are not safe!
Slide 62 depicts a barn that has been crushed by a tree during a storm. Horses should be left outside during these times, especially if the structure is weakened or pre-damaged.

Move horses from flood prone areas before it is too late!
Slide 63 depicts a flooded paddock. Horses should be moved out of flooded pastures in order to help prevent contact with snakes and/or fire ants.

SLIDES 64-65

Flooded pastures are often the result of hurricane and storm activity. While normal drainage can usually remove the standing water, it may be some time before pastures are back to their normal dry condition. During this period, horses may be exposed to unusual animal hazards.

- Water moccasin snakes may take up temporary residence in flooded pastures resulting in increased snake/horse encounters.
- Fire ants will move to high, dry ground and may increase the risk of exposure to horses that are also on the dry ground.

The pictures depict a horse that has suffered a snake bite.

SLIDE 66

Electrical systems can be damaged and can cause hazards to animals during hurricane and heavy storms. Transmission lines and transformers can attract lightning strikes. High winds can knock down transmission lines which can openly arc on the ground, presenting a deadly hazard to both humans and animals. For these reasons it is recommended to:

- Turn off power supply to barn and horse facilities during heavy storms.
- Do not put horses out in pastures with overhead power lines during these times.
- Check electric fences to make sure they are working properly. If damaged they may be an electrocution hazard.

SLIDE 67

Drinking water becomes a critical issue during emergencies. When the electrical service is down, water supply pumps will not pump water. Remember that you will need to provide horses with at least 10 gallons of water per day for each horse. Plan to store 12-18 gallons of water per day per animal. You may need to provide an electric generator in order to pump water from the well to the distribution system. Large garbage cans can be used as a temporary water reservoir, and liners can help to provide a water-tight, clean interior.

SLIDE 68

Fences are often damaged during storm activity. Trees can fall on them, debris can accumulate against them, or animals may be driven through them when stressed. A safe, secure pasture is important in animal containment. It is recommended to walk the perimeter of the pasture and visually inspect that the fence is intact. Repairs should be made immediately if horses are to be kept in the pasture.

SLIDE 69

Triage comes into play when you have an emergency situation involving multiple animals or victims. Triage is defined as a system designed to produce the greatest benefit from limited treatment facilities for casualties, by giving full treatment to those who may survive and not to those who have no chance of survival and those who will survive without it.

In regard to horses in this situation, the animal that is the most critical but with the best chance of living should be attended to first.

SLIDE 70

Traumatic injuries often occur unexpectedly with horses. Some simple rules can help to minimize their impact:

- Apply pressure if there is excessive bleeding
- Keep all wounds clean – hose with clean water if needed
- Tetanus toxoid can be a factor
- Seek veterinary care as soon as possible

SLIDE 71

Even without signs of acute injury, horses can develop health/disease problems during times of stress and or disaster. During these times you may require rapid changes in management practices and feedstuffs. Monitor horses for:

- Signs of colic – flank watching, rolling
- Laminitis – reluctance to move due to sore feet

Seek veterinary care as soon as possible

SLIDES 72-76

The next 5 slides deal with Euthanasia.

All farmers, ranchers, animal owners, and veterinarians would prefer to use treatment options in order to save/heal an animal. Under certain severe conditions the nature of the injury or disease to the animal will be terminal eventually and it is more humane to destroy the animal versus having it suffer a long and protracted death. Euthanasia is defined as the action of killing the animal for reasons considered to be merciful.

General issues to consider include:

- Sustained injuries may necessitate humane euthanasia
- Best performed by a veterinarian or under veterinary guidance
- Veterinary assistance may not be available during large scale emergency, therefore very important to understand issues involved

Important considerations include:

- When euthanasia is necessary, always minimize animal distress as much as possible
- For animals who are accustomed to human contact, the presence of humans may be reassuring
  - -- Penetrating captive bolt may be preferred
  - -- Exsanguination
- . For wildlife, human contact causes fear and greater distress
  - -- Gunshot may be preferred
  - -- Gunshot permits the least amount of human contact

Aesthetic concerns of euthanasia:

- Despite being humane, both captive bolt and gunshot are aesthetically displeasing procedures
- Involuntary movement of the animal will most likely occur after the procedure. Some issues include:
  - -- “Kill the head, the body dies slowly” – Temple Grandin
  - -- Exsanguination (the draining of blood) requires several minutes and is visually uncomfortable to observe.
- These procedures should be conducted away from the public view, especially since many will not fully understand the principles of euthanasia.

Death should be confirmed by the evaluation of the following physical parameters over a period of several minutes:

- Lack of a heartbeat --- a pulse is normally not present in these circumstances
- Lack of respiration --- breathing may be erratic in an unconscious animal
- Lack of a corneal reflex

- Lack of movement over a period of several hours --- rigor mortis should set in

Unacceptable methods of euthanasia include the following, which are forbidden under Florida law (Florida Statutes 828.12):

- Manually applied blunt trauma to the head, such as a large hammer
- Injection of any chemical substance not labeled for use for euthanasia. (This is where the services of a licensed veterinarian can be crucial.)
- Injection of air into a vein
- Electrocution, as with 120- or 220-volt electrical power.

In general, euthanasia is a difficult decision and a complicated action that may be required in severe circumstances. It is difficult for animal owners to accept and often harder for the general public, who only sees the final outcome. The proper understanding and mental preparation for this critical issue is vitally important. It is hoped by all involved that euthanasia of large animals will never have to be carried out. We must keep in mind that our work is done in the best interest of the animals, and we must realize that in certain severe cases, euthanasia is more humane for the suffering animal than all other options.

Part 5: Highlight Resources

Time: 5 minutes

Focus: Identify key resources that participants can easily access for additional information

SLIDES
77-80

Animals in Disasters

Caring for Livestock After Disaster. Scott Cotton and Ron Ackerman. Colorado State University, 2006.

- Part 1: http://www.ext.colostate.edu/pubs/livestk/01814.html
- Part 2: http://www.ext.colostate.edu/pubs/livestk/01815.html
- Part 3: http://www.ext.colostate.edu/pubs/livestk/01816.html

Preparing to Evacuate Your Farm, Safety Measures When Flooding is Expected http://www.cdc.gov/nasd/docs/d001401-d001500/d001487/d001487.html

FEMA Course: Livestock in Disasters.
http://training.fema.gov/emiWeb/IS/is111.asp

USDA-APHIS Veterinary Services division publication, "Animal Health Hazards of Concern During Natural Disasters" published in Feb. 2002 is available at the following link. The goal of the publication is to "describe some of the natural disasters that have occurred in the U.S. during recent years and to review some infectious and noninfectious hazards that are perceived to be related directly to natural disasters. http://www.aphis.usda.gov/vs/ceah/EmergingAnimalHealthIssues_files/hazards.PDF

Helping Four Legged Friends Survive the Storm, 18 minutes, University of FL, This video shares the insights of veterinarians and others in providing relief to animals affected by disasters.
http://www.cdc.gov/nasd/videos/v001401-v001500/v001438.html

The Sunshine State Horse Council has good information relating to horse evacuation and disaster on their Web site and can be found at www.sshc.org

Disaster Preparedness for Animals

Disaster Planning Tips for Pets, Livestock and Wildlife. Humane Society of the United States, June 2002. http://www.ohsep.louisiana.gov/factsheets/PlanningTipsPetsLivestockWildlife.htm

Disaster Preparedness Guidelines for Livestock Owners. Indiana State Public Board of Animal Health.
http://www.in.gov/boah/pdfs/LivestockSAVE.pdf

Disaster Preparedness Guidelines for Horse Owners. Indiana State Board of Animal Health.
http://www.in.gov/boah/pdfs/HorseSAVE.pdf

Guidelines for the Development of a Local Animal Care Plan in Emergencies, Disasters, and Evacuations. Heath, Sebastian E. Ph.D. D.V.M., Purdue University, School of Veterinary Medicine.
http://www.animaldisasters.com/planning_guidelines.htm

Animal Handling

Livestock Handling and Transport, Second Edition. Grandin, Temple. Ph.D. CABI Publishing, 2000. Available through many on-line booksellers. Third edition scheduled for release in August 2007. Related on-line resource from Temple Grandin:
http://www.grandin.com/behaviour/transport.html.

Safe Ground Handling of Horses, http://www.cdc.gov/nasd/docs/d001101-d001200/d001109/d001109.html

Animal Handling Safety, http://www.cdc.gov/nasd/docs/d001801-d001900/d001823/d001823.html

Behavioral Principles of Livestock Handling. Grandin, Temple. Ph.D., Colorado State University, 1989. With 1999 and 2002 updates: http://www.grandin.com/references/new.corral.html.

Cattle Handling Safety in Working Facilities. Hubert, D.J. et.al. Bulletin F-1738 Oklahoma State University Cooperative Extension fact sheet. http://www.cdc.gov/nasd/docs/d001801-d001900/d001810/d001810.html

Cattle Handling Safety, 13 minutes, SW Center for Ag. Health, TX. Examines the best techniques for moving and working cattle safely, understanding the animal's flight zone and how cattle are likely to react to common situations. http://www.cdc.gov/nasd/menu/video/video2.html
Livestock Safety for Kids, 11 minutes, SW Center for Ag. Health, TX. This video uses young people to illustrate the right way to interact with livestock and stay safe. http://www.cdc.gov/nasd/videos/v001401-v001500/v001434.html

Agencies with Animal Resources

FDACS, Division of Animal Industry. http://www.doacs.state.fl.us/ai/

Florida Dept. of Agriculture and Consumer Services (FDACS). http://www.doacs.state.fl.us

National Agricultural Safety Database (NASD), The information contained in NASD was contributed by safety professionals and organizations from across the nation and provides a national resource for the dissemination of information. http://www.cdc.gov/nasd/

Florida Dept. of Community Affairs, Div. of Emergency Management. http://www.floridadisaster.org

State Veterinarian Office contact information for each state. http://www.aphis.usda.gov/vs/sregs/official.html

United States Dept. of Agriculture (USDA). http://www.usda.gov

University of Florida Institute for Food and Agricultural Sciences Extension publication resource (EDIS) offers many fact sheets for various veterinary and animal health issues. http://edis.ifas.ufl.edu/Departement_Veterinary_Medicine http://edis.ifas.ufl.edu/TOPIC_Livestock_by_Animal

University of Florida IFAS Extension Disaster Handbook. http://disaster.ifas.ufl.edu

World Organization for Animal Health (OIE). http://oie.int

Part 6: Summary and Wrap-Up

Time: 5 minutes

Focus: Review the learning objectives that have been accomplished and encourage a commitment to SART

SLIDE 81

You and your audience have had a busy and educational hour, but it is almost over. Prior to answering general questions, provide a summary to the participants of what they have just learned.

In summary, let us keep in mind four basic principles that we have learned:

1. In an emergency, human safety is of the utmost importance.
2. Prevention and preparation are the keys.
3. Providing animals with adequate shelter, water, and food is critical in the immediate aftermath of an emergency.
4. Treating injured animals may not be feasible without help from trained professionals.

It is recommended that you summarize the seven learning objectives that were covered during the unit. Go over each and make sure that the participants understand each of the objectives. If not, briefly cover the important points for that objective.

1. Define emergency management issues for large animals
2. Explain the health and safety priority of personnel
3. Describe the basics of cattle and horse behavior
4. Identify emergency management procedures for cattle and horses
5. Explain the principles of humane euthanasia for cattle and horses
6. Describe key prevention and preparedness issues
7. Identify key resources available for more information

SLIDE 82

Thank the audience for their attention and participation. Congratulate them for their commitment to the SART endeavor and on their desire to be part of the solution.

At this point in the program, you may choose to have the participants take the Post-Test provided in the resources section of this Lesson Plan. Remember to review the answers to the test questions after all participants have completed the test. It may be most beneficial to review these as a group in order to maximize the educational impact.

A content-specific Evaluation is provided in the Resources section of this Lesson Plan. The generic Evaluation, available in the Creating a County SART training unit, can be utilized as well. As the presenter, you should decide which evaluation best meets the needs of your program. Please have the participants complete an evaluation at the conclusion of this unit. Encourage participants to be as honest and forthright as possible as it helps you, the presenter, make adjustments to future presentations.

Participant's Evaluation of *Emergency Management for Large Animals*

Please circle the number that best expresses your opinions about the following statements.

		FULLY DISAGREE	DISAGREE	NEUTRAL	AGREE	FULLY AGREE
1.	The training unit's format was appropriate.	1	2	3	4	5
2.	The information presented was useful to me.	1	2	3	4	5
3.	The time it took to complete this unit was acceptable.	1	2	3	4	5
4.	The PowerPoint slides accurately presented the information.	1	2	3	4	5
5.	I can explain the safety priority of personnel.	1	2	3	4	5
6.	I can describe the basics of cattle and horse behavior.	1	2	3	4	5
7.	I understand the principles of humane euthanasia for cattle and horses.	1	2	3	4	5
8.	I can name the three critical requirements of large animals in an emergency.	1	2	3	4	5

9. We welcome your comments about this program:

_____

_____

_____

_____

_____

Please use the back of this sheet for any further comments.

Thank you for your time!

Emergency Management for Large Animals Participant Pre-Test

This pre-test is intended to gauge the level of knowledge that you have before participating in the Emergency Management for Large Animals training. Please answer all of the following questions to the best of your ability.

1. Whose safety is of the utmost importance during an emergency? Circle one:

   Veterinarian Animal Yours Water Moccasin

2. During an emergency, cattle need _____, _____, shelter, and possible medical need.

3. _____ is the action of killing the animal for reasons considered to be merciful, and may be the most humane alternative when dealing with seriously ill or injured cattle.

4. Name two unacceptable methods of euthanasia that are prohibited by Florida State law _____, _____

5. _____ are the masters of the "Roundhouse" kick.

6. Horses and cattle prefer to not be alone and like being with others of their kind. This is commonly referred to as being a _____ animal.

7. What organization keeps information including an Emergency Evacuation Relocation List for horses? _____

8. What are the keys to emergency management for large animals? Please circle two:

   Prevention Money Hay Preparation Stock trailers

9. _____ should be consulted before issuing any drugs/medications to injured or sick large animals.

Emergency Management for Large Animals Participant Post-Test

This post-test is intended to gauge the level of knowledge that you have after participating in the Emergency Management for Large Animals training. Please answer all of the following questions to the best of your ability.

1. Whose safety is of the utmost importance during an emergency? Circle one:

   Veterinarian Animal Yours Water Moccasin

2. During an emergency, cattle need _____, _____, shelter, and possible medical need.

3. _____ is the action of killing the animal for reasons considered to be merciful, and may be the most humane alternative when dealing with seriously ill or injured cattle.

4. Name two unacceptable methods of euthanasia that are prohibited by Florida State law _____, _____

5. _____ are the masters of the "Roundhouse" kick.

6. Horses and cattle prefer to not be alone and like being with others of their kind. This is commonly referred to as being a _____ animal.

7. What organization keeps information including an Emergency Evacuation Relocation List for horses? _____

8. What are the keys to emergency management for large animals? Please circle two:

   Prevention Money Hay Preparation Stock trailers

9. _____ should be consulted before issuing any drugs/medications to injured or sick large animals.

Answer Key to *Emergency Management for Large Animals* Pre- and Post-Tests

1. Your safety is the most important. The primary objective during any emergency is to insure the safety of human responders. This is doubly true when working around large animals especially horses and cattle. You may be trying to help animals in need, but you are of no help to them if you yourself become injured or killed.

2. Cattle (like all animals) need food, water, and shelter during emergency situations. When injuries or illness occur, treatment is also necessary.

3. Euthanasia is the action of killing the animal for reasons considered to be merciful, and may be the most humane alternative when dealing with seriously ill or injured cattle.

4. Unacceptable methods of euthanasia include the following which are forbidden under Florida law (Florida Statutes 828.12): Manually applied blunt trauma to the head, such as a large hammer, Injection of any chemical substance not labeled for use for euthanasia, Injection of air into a vein, Electrocution, as with 120 or 220 volt electrical power.

5. Cattle can kick with their back feet. Usually they use one foot, but they can use both feet simultaneously. They are also masters of the roundhouse kick. Do not feel that you are in a safe zone if you are standing next to one, since the hind foot can circle out to the side.

6. The "Herd Instinct" is a primary contributor to cattle and horse behavior. Cattle are social animals that are both more comfortable and feel safer in a group. They sense security in numbers. Originally, the herd instinct evolved as a means of protection against predators.

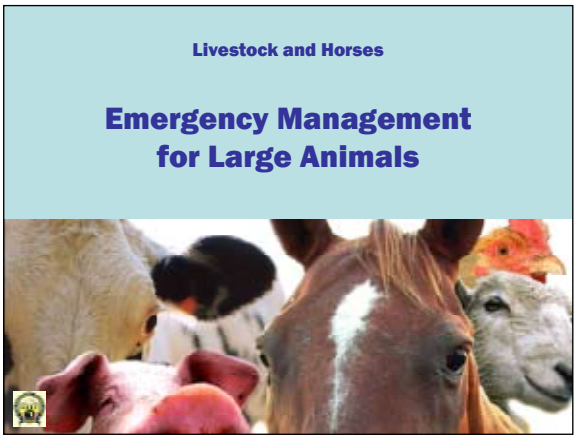
7. The Sunshine State Horse Council has good information on their Web site and can be found at www.sshc.org Their Web site contains evacuation and disaster information and also includes; Emergency Evacuation Relocation List (Searchable), available space for temporary evacuation of horses, donors of space for horses that might need to be evacuated and relocated on a temporary basis in the event of an emergency condition such as a fire or impending hurricane

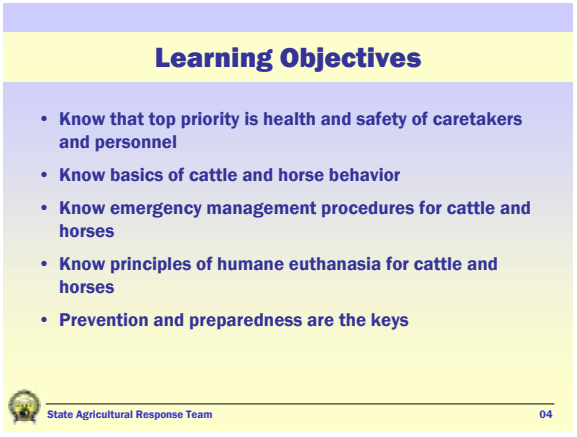
8. Prevention and Preparation are the two vital keys to emergency management.

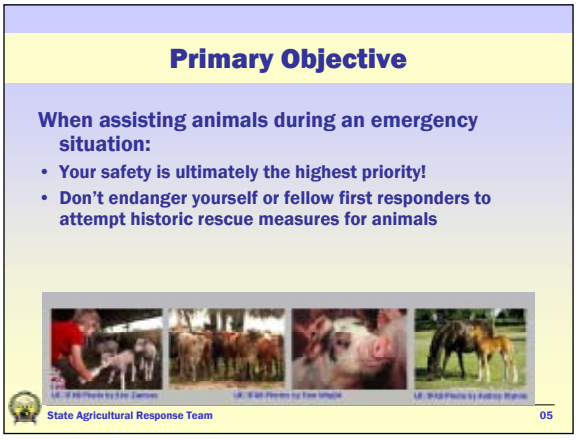
9. A veterinarian should be consulted before issuing any drugs/medications to injured or sick large animals. Most drugs can only be given by prescription, and others are restricted for administration by veterinarians only.

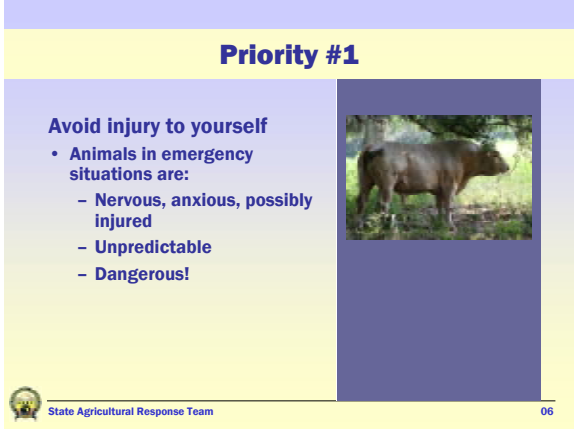
PowerPoint Slides

Slides 1-6









PowerPoint Slides

Slides 7-12

Avoid Injuries from Horses

Horses

- Can "kick" with either one or both back feet – Roundhouse (out to the side) or straight back
- Can "strike" with front feet
- Can bite and "bite hard"
- May hit you with their head
- Will crowd or crush
- Will run over you if they have no other way out

State Agricultural Response Team 07

Avoid Injuries from Cows

Cows

- Kick with back feet – usually one foot, but sometimes with both – Bovines are "masters of the roundhouse"
- Will hurt you with their head
- Will crowd and/or crush
- Don't bite
- Will run over you if they have no other way out

State Agricultural Response Team 08

Cattle Management in an Emergency Setting

State Agricultural Response Team 09

Management of Emergencies in Cattle

How cattle perceive their environment

- Safety in numbers – the "herd instinct"
- Vision
- Hearing
- Handling
  - Flight zones
  - Point of balance

State Agricultural Response Team 10

The Herd Instinct

- Cattle sense security in numbers
  - Always move cows in groups
  - An animal separated from the group will try to get back to the group
- Maternal instinct is strong
  - Cows and horses will protect their young

State Agricultural Response Team 11

Vision in Cattle

Because of the location of their eyes:

- Cattle have panoramic vision (310-360 degrees)
- Blind spot is directly behind their head
- Vertical vision
  - Cattle – 60 degrees
  - Humans – 140 degrees
- Sensitive to unusual movements
- Depth perception is poor
- Ability to focus on items close up is poor

State Agricultural Response Team 12

PowerPoint Slides

Slides 13-18

Cattle Handling 1

- A small flag on a stick is useful for moving or sorting cattle
- Cattle respond negatively to abuse, loud noises, and other confusing situations
- Keep noisy equipment away from cattle

State Agricultural Response Team 13

Cattle Handling 2

- Yelling at cattle increases the stress level of both cattle and handler
- Cattle are creatures of habit – An established daily routine will ease handling
- Handle animals in groups – A single animal may be hard to handle, get back into a group if possible

State Agricultural Response Team 14

Cattle Handling 3

- Handler's movements should be slow and deliberate
- If cattle refuse to move, look for distractions
  - –Something on a fence
  - –Trash on the ground
  - –Other people trying to help!
- Mixing groups of cattle can add to the stress of these animals

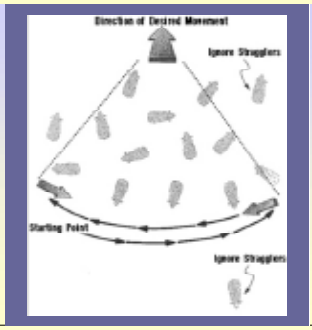
State Agricultural Response Team 15

Herding Cattle 1

Starting to move cattle

- Locate majority of the herd
- Start making a series of wide back and forth motions on the edge of the herd
- Move in the pattern of a giant windshield wiper

– Bud Williams

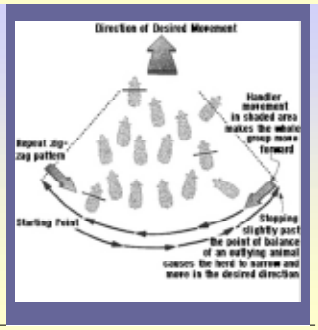


State Agricultural Response Team 16

Herding Cattle 2

When the majority of the herd has come together into a loose bunch, increase pressure on the collective flight zone to initiate movement in the desired direction

– Bud Williams



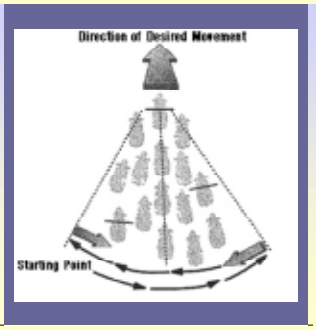
State Agricultural Response Team 17

Herding Cattle 3

To continue movement in the desired direction, the handler continues to zig-zag back and forth behind the animals

– Bud Williams

Bud Williams is well-known among cattle owners for his guidance on animal handling.



State Agricultural Response Team 18

PowerPoint Slides

Slides 19-24

Cattle Well-being and Care

- Even in an emergency setting, animals will have basic needs that must be met
- In order to know how to care for animals, their needs must be known and understood
  - Nutrition
  - Environment or Housing
  - Health concerns
- If these are addressed, animal care and welfare concerns involving cattle are fulfilled

State Agricultural Response Team 19

Needs: Nutrition 1

Cattle are ruminants – they are able to utilize food such as hay and grass

- If possible, provide access to grass pastures
- Hay may be fed as necessary
- Cattle enjoy equine sweet feeds (6-8 lbs per head per day)

State Agricultural Response Team 20

Needs: Nutrition 2

- In an emergency situation, cattle can survive for days without feed
- Calves being nursed by cows need no additional feed other than what is supplied to their mothers
- Orphan calves can be fed a commercial milk replacer
  - Feed 8% of calf's body weight of reconstituted milk replacer
  - Patience is required when feeding orphans

State Agricultural Response Team 21

Needs: Water 1

- Cattle need access to water 24 hours per day
- Regardless of the amount of feed given to cattle during an emergency, cattle cannot go without water for an extended period of time (more than 24 hours)
- Cattle can utilize standing water as well as fresh water (but not brackish or salt water)

State Agricultural Response Team 22

Needs: Water 2

Water Needs for Various Species
(gallons per head per day)

Beef cattle	7-12	
Dairy cattle	10-16	
Horses	8-12	
Swine	3-5	
Sheep and Goats	1-4	
Chickens	8-10	per 100 birds
Turkeys	10-15	per 100 birds

Extreme hot-heat stress could increase high values by 20-30 percent

State Agricultural Response Team 23

Needs: Environment and Housing

- A majority of beef cattle are reared in a range environment. Providing drained pasture with available shade should be adequate
- Fencing should be adequate to confine animals to a specified area

State Agricultural Response Team 24

PowerPoint Slides

Slides 25-30

Needs Summary

- Grass in an open pasture (trees)
- Available water
- Adequate fencing

State Agricultural Response Team 25

Cattle Health Concerns and an Environmental Disaster

- Generally, there are few if any medical emergencies for beef cattle during environmental disasters
- Lack of available water may leave some animals dehydrated
- Lack of shade and water may lead some animals to heat stress and heat stroke

State Agricultural Response Team 26

Heat Stress Symptoms

- Signs of heat stress
  - Rapid respiration, open-mouth breathing
  - Head down or extended
  - Animal is usually standing
  - Elbows held away from the body
- Heat stroke
  - All of the above – plus – animal becomes very depressed, goes down and progresses toward death
- Cattle often respond to stress by bunching together, even with heat stress

State Agricultural Response Team 27

Heat Stress

- Lack of available shade and water may lead to heat stress in cattle
- Moving animals during periods of high temperature and humidity may also lead animals to heat stress or heat stroke
- Often for cattle during times of heat stress, the best thing to do is leave cattle alone (provide shade if possible)

State Agricultural Response Team 28

Heat Stress

- It is the combination of temperature and humidity that determines the severity of the heat stress
- Use the temperature-humidity index (THI) as a guide to heat stress
  - Above 75 THI: ALERT – Cows decrease feed consumption and milk production
  - Above 80 THI: DANGER – Heat stress for cattle on pasture
  - Above 84 THI: EMERGENCY – Fatal heat stress can occur

State Agricultural Response Team 29

Temperature-Humidity Index (THI)

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

Normal < 74 | Alert: 75-78 | Danger: 79-83 | Emergency > 84

State Agricultural Response Team 30

PowerPoint Slides

Slides 31-36

Heat Stress Management Plan

- Have ample water available – 2-3 gallons per 100 lbs weight and make sure of delivery capability
- If watering from a trough, allow 3 inches of linear space per animal
- Avoid handling cattle if at all possible
- Improve air flow, if possible

State Agricultural Response Team 31

Cattle Health Concerns

- Emergency conditions where cattle are gathered from various operations can increase the risk of infectious disease
- Difficult to treat individual animals
  - Can medicate the group through water or feed

State Agricultural Response Team 32

Most Common Health Concerns 1

Health Concern	Treatments (Call veterinarian)
• Bloat • Diarrhea	• Manage nutritional concerns
• Pneumonia	• Broad spectrum antibiotics – Baytril – Nuflor – Excede – AS 180 – Tetradure

State Agricultural Response Team 33

Most Common Health Concerns 2

Health Concern	Treatments
• Mastitis – Dairy cows	• Antibiotics • Milk cow
• Lacerations	• Can be treated
• Fractures	• May require euthanasia
• Analgesia	• Banamine

State Agricultural Response Team 34

Proper Restraint!

- Tools of the trade
  - Squeeze chutes
  - Corrals
  - Rope halters
  - Lariats
  - Tail restraint
  - Nose tongs – Use only with a rope halter
  - Sedatives/anesthetics
- Plan ahead

State Agricultural Response Team 35

Cattle Restraint 1

- Rope Halter
  - Apply properly
  - The part that draws goes under the jaws
  - Made for cattle not horses
- Lariat
  - Assumes that there is something that can secure the animal after being caught

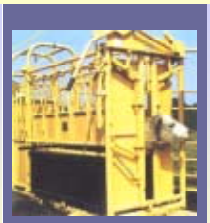
State Agricultural Response Team 36

PowerPoint Slides

Slides 37-42

Cattle Restraint 2

- Portable chute with head restraint
  - Experienced people should operate the chute
  - Do not stand in front of chute
  - Do not cause discomfort with excessive pressure



State Agricultural Response Team 37

Cattle Restraint 3

- Tail jack
  - Will immobilize the rear quarters for examination purposes

State Agricultural Response Team 38

Chemical Restraint 1

- Xylazine (Rompun)
  - IV usage ranges from 0.05 to 0.22 mg/kg
  - IM dosage is 0.1 to 0.44 mg/kg
  - At these dosages, Xylazine is safe – Sedation and analgesia for 30 minutes to 2 hours

State Agricultural Response Team 39

Chemical Restraint 2

- Concerns and Precautions
  - Use under the supervision of a veterinarian
  - Decreased heart and respiratory rates
  - Bloat
  - Avoid usage in debilitated cattle
  - Watch out when used in high temperatures – Animals unable to cool themselves
- Antidote – Tolazine: 0.4 to 4.0 mg/kg

State Agricultural Response Team 40

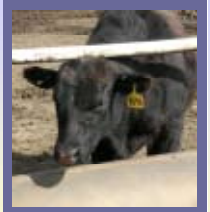
Emergency Medical Treatment

- Consider and utilize local resources
  - Veterinarian
  - Cowboys
  - Area ranchers
  - Law enforcement
- Proper restraint will be critical to avoid injury to animal and yourself

State Agricultural Response Team 41

Treatment or Euthanasia?

- Actions involving debilitated or injured cattle may fall into either the category of treatment or euthanasia
- Euthanasia may be the most humane alternative when dealing with seriously injured or ill cattle



State Agricultural Response Team 42

PowerPoint Slides

Slides 43-48

Treatment or Euthanasia?

- Criteria in the decision making should include:
  - Pain and distress of the animal
  - Likelihood of recovery
  - Ability to get feed and water
  - Diagnostic information
  - Welfare for the animal; humane considerations

Euthanasia of Cattle

Humane Euthanasia by Gunshot or Penetrating Captive Bolt

Properly applied... **"euthanasia by either gunshot or penetrating captive bolt causes less fear and anxiety and induces a more rapid, painless, and humane death than can be achieved by most other methods."**

Euthanasia by Gunshot

Under farm or ranch conditions:

"Gunshot is the most practical method"

- .22 caliber long rifle bullet
  - Sufficient for young animals
  - Hollow points may not penetrate the skull
- 9 mm, .357, or similar caliber is required for adult or mature animals
  - Bulls, adult cows, mature horses, mature elk and deer

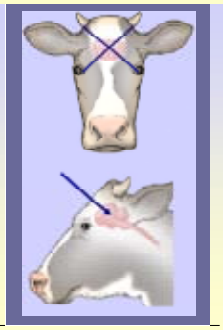
Euthanasia: Positioning

- Proper positioning of a firearm (pistol or rifle)
  - Should be held within 6-12 inches of the intended target
  - Position or aim the firearm so that direction of the bullet is perpendicular to the skull to avoid ricochet
- Positioning of the penetrating captive bolt
  - Hold the device firmly against the head over the intended site

Euthanasia: Anatomical Landmarks

Projectile point of entry

- Wrong -- "between the eyes"
- Right -- In cattle, at the intersection of two imaginary lines drawn from the corners of the eyes to the base of the opposite horn



Closing Thoughts on Cattle 1

- During an environmental disaster, cattle may have emergency needs for food, water, shelter, and medical concerns
- Often the best option concerning cattle in emergency situations is to leave them alone
- If they are in harm's way, look for help

PowerPoint Slides

Slides 49-54

Closing Thoughts on Cattle 2

- Owners of beef cattle, ranchers and cowhands are often the best prepared people to handle the emergency needs for their herds
- If producers do need assistance from disaster relief personnel, volunteers providing that assistance need to have a basic understanding of beef cattle

State Agricultural Response Team 49

State Agricultural Response Team 50

Horse Management 101

- Behavior
- Nutrition
- Basic Hurricane Preparation

State Agricultural Response Team 51

Understanding Horse Behavior

- Horses like to be in groups
- They can be territorial
- Separate mares and foals from other horses
- Separate stallions

State Agricultural Response Team 52

Horse Nutrition

- Horses need good quality hay
  - Coastal-bermuda grass hay
  - Timothy hay
  - Orchard grass hay
  - Alfalfa or peanut hay
- Round bales should be avoided

State Agricultural Response Team 53

How much should you feed?

- Adults (1000 lbs) need 10-15 pounds of hay per day (1/4 to 1/5 bale)
- In emergency setting, grain is not necessary, except for lactating mares, juvenile animals, or severely underweight horses

State Agricultural Response Team 54

PowerPoint Slides

Slides 55-60

Water

- Most essential nutrient
- Minimum of 10 gallons per horse per day

State Agricultural Response Team 55

Hurricane Preparation for Horse Farms

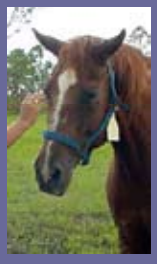
Preparation through education is less costly than learning through tragedy.

– Max Mayfield,
Director, National Hurricane Center

State Agricultural Response Team 56

Horse Identification

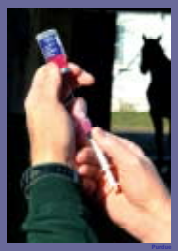
- Take Polaroid picture of each horse with its owner
- Label horse
  - Luggage tag on halter
  - Microchip
  - Brand/tattoo
  - Clipper phone number into coat



State Agricultural Response Team 57

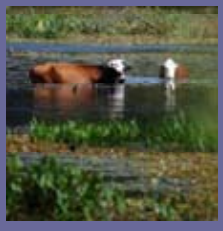
Before Hurricane Season...

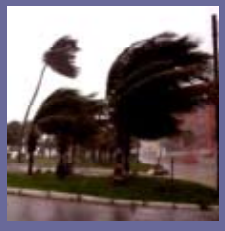
- Current immunizations
  - West Nile Virus
  - Eastern Equine Encephalitis
  - Tetanus Toxoid
- Keep documents handy!
  - Coggin's test
  - Health Certificate



State Agricultural Response Team 58

Should they evacuate?





State Agricultural Response Team 59

Where can horses go?

Contact...

Sunshine State Horse Council

- http://www.sshc.org/

State Agricultural Response Team 60

PowerPoint Slides

Slides 61-66

When to travel?

- 48 hours before hurricane force winds hit the area
- Winds greater than 40 mph are dangerous

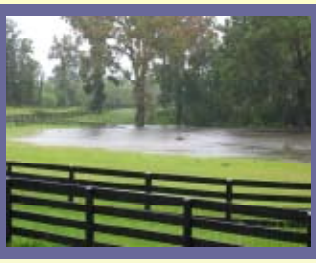
State Agricultural Response Team 61

Lessons from 2004

Keep horses out of barns that are not safe!

State Agricultural Response Team 62

Lessons from 2004



Move horses from flood-prone areas

State Agricultural Response Team 63

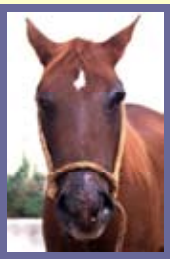
Flooded Pastures

- Water moccasin snake encounters are likelier in flooded pastures
- Fire ants will move to high, dry ground as will the horses and increase risk of exposure

State Agricultural Response Team 64

Snake Bite

Before therapy



1 week later

Also, beware of fire ants!

State Agricultural Response Team 65

Electricity

- Turn off power to barn
- Do not put horses in a pasture with power lines overhead

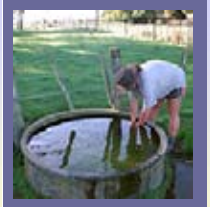
State Agricultural Response Team 66

PowerPoint Slides

Slides 67-72

Drinking Water

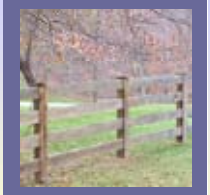
- 12-18 gallons per horse per day
- Generator for well
- Large garbage cans with liners



State Agricultural Response Team 67

Fences

- Walk the perimeter of the pasture and make sure that fences are intact and can contain the animals



State Agricultural Response Team 68

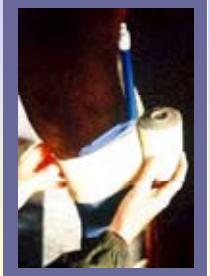
Emergency Treatment: Triage

- When presented with the situation, the animal that is the most critical but with the best chance of living should be attended to first

State Agricultural Response Team 69

Traumatic Injuries

- Apply pressure if excessive bleeding
- Keep all wounds clean – Hose with clean water
- Tetanus toxoid
- Seek veterinary care



State Agricultural Response Team 70

Signs to Watch For

- Emergency situations may require rapid changes in management practices and feedstuffs
- Monitor horses for signs of colic (flank watching, rolling) and laminitis (reluctance to move due to sore feet) as these may be associated with changes
- Seek veterinary care as soon as possible

State Agricultural Response Team 71

Euthanasia

- In some cases, sustained injuries may necessitate humane euthanasia
- Best performed by a veterinarian or under veterinary guidance
- However, such assistance may not be readily available

State Agricultural Response Team 72

PowerPoint Slides

Slides 73-78

Important Considerations

When euthanasia is necessary, always minimize animal distress as much as possible

- Presence of humans may be reassuring for animals accustomed to human contact -- penetrating captive bolt/exsanguination (bleeding out) may be preferred
- For wildlife, human contact causes fear and greater distress -- gunshot may be preferred
  - Gunshot permits the least amount of human contact

State Agricultural Response Team 73

Aesthetic Concerns

Humane euthanasia by gunshot or penetrating captive bolt...

- Despite being humane, both are aesthetically displeasing procedures
- Involuntary movement will occur
  - "Kill the head; the body dies slowly" – Temple Grandin
  - Exsanguination requires several minutes and is visually uncomfortable to observe
- These procedures should be conducted out of the public view

State Agricultural Response Team 74

Confirmation of Death

Death should be confirmed by evaluation of the following physical parameters over a period of several minutes

- Lack of a heartbeat
  - A pulse is normally not present under such circumstances
- Lack of respiration
  - These may be erratic in an unconscious animal
- Lack of a corneal reflex
- Lack of movement over a period of several hours
  - The presence of "rigor mortis"

State Agricultural Response Team 75

Unacceptable Methods of Euthanasia

The following are forbidden under Florida law (Florida Statutes 828.12)

- Manually applied blunt trauma to the head, such as a large hammer
- Injection of any chemical substance not labeled for use as a euthanasia agent
- Injection of air into a vein
- Electrocution, as with a 120- or 200-volt electrical power

State Agricultural Response Team 76

Resources

Animals in Disasters

- Caring for Livestock after Disaster, Colorado State Univ. (Part 1, Part 2, and Part 3)
- Preparing to Evacuate Your Farm When Flooding is Expected [Link]
- FEMA Course: Livestock in Disasters [Link]
- Animal Health Hazards of Concern during Natural Disasters (USDA-APHIS) [Link]
- Helping Four-Legged Friends Survive the Storm (Univ. of Florida video) [Link]
- Sunshine State Horse Council – Evacuation Resources [Link]

State Agricultural Response Team 77

Resources

Disaster Preparedness for Animals

- Disaster Planning Tips for Pets, Livestock and Wildlife (HSUS) [Link]
- Disaster Preparedness Guidelines for Livestock Owners (Indiana Public Board of Animal Health) [Link]
- Disaster Preparedness Guidelines for Horse Owners (Indiana Public Board of Animal Health) [Link]
- Guidelines for the Development of a Local Animal Care Plan in Emergencies, Disasters, and Evacuations (Purdue Univ.) [Link]

State Agricultural Response Team 78

PowerPoint Slides

Slides 79-84

Resources

Animal Handling

- Livestock Handling and Transport. Temple Grandin. [2d edition; 3d edition due 8/2007]
  - Related on-line resource from Grandin [Link]
- Safe Ground Handling of Horses [Link]
- Animal Handling Safety [Link]
- Behavioral Principles of Livestock Handling [Link]
- Cattle Handling Safety in Working Facilities [Link]
- Cattle Handling Safety [on-line video]
- Livestock Safety for Kids [on-line video]

State Agricultural Response Team 79

Resources

Agencies with Animal Resources

- Florida Division of Animal Industry [Link]
- Florida Dept. of Agriculture and Consumer Services [Link]
- National Agricultural Safety Database [Link]
- Florida Division of Emergency Management [Link]
- List of US States' Veterinarian Offices [Link]
- US Dept. of Agriculture [Link]
- Univ. of Florida Extension publication source [Link]
  - College of Veterinary Medicine [Link]
  - Livestock [Link]
- Univ. of Florida IFAS Disaster Handbook [Link]
- World Organization for Animal Health [Link]

State Agricultural Response Team 80

Summary

- In an emergency, your safety is of the utmost importance
- Prevention and preparation are the keys
- Providing animals with adequate shelter, water, and food is critical in the immediate aftermath of an emergency
- Treating injured animals may not be feasible without help from trained professionals

State Agricultural Response Team 81

Thank You!

SART Training Media

Notes

PowerPoint Slides — Handout Pages

The *Emergency Management for Large Animals* PowerPoint slides are reproduced on the following pages at reduced size with space for participant notes.

(Also included in the participant workbook for *Emergency Management for Large Animals*, available on the SART Web site:

Slides 1-3

Livestock and Horses

Emergency Management for Large Animals

Emergency Management for Large Animals

Prepared by

Jan Shearer
Dairy Extension Veterinarian

Max Irsik
Beef Extension Veterinarian

Dana Zimmel
Equine Extension Veterinarian

University of Florida, College of Veterinary Medicine / IFAS

The authors wish to express their appreciation to the various agencies and individuals that have supplied images for this presentation.

Slides 4-6

Learning Objectives

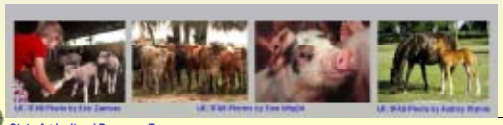
- Know that top priority is health and safety of caretakers and personnel
- Know basics of cattle and horse behavior
- Know emergency management procedures for cattle and horses
- Know principles of humane euthanasia for cattle and horses
- Prevention and preparedness are the keys

State Agricultural Response Team 04

Primary Objective

When assisting animals during an emergency situation:

- Your safety is ultimately the highest priority!
- Don't endanger yourself or fellow first responders to attempt historic rescue measures for animals



State Agricultural Response Team 05

Priority #1

Avoid injury to yourself

- Animals in emergency situations are:
  - Nervous, anxious, possibly injured
  - Unpredictable
  - Dangerous!

State Agricultural Response Team 06

Slides 7-9

Avoid Injuries from Horses

Horses

- Can "kick" with either one or both back feet – Roundhouse (out to the side) or straight back
- Can "strike" with front feet
- Can bite and "bite hard"
- May hit you with their head
- Will crowd or crush
- Will run over you if they have no other way out

State Agricultural Response Team 07

Avoid Injuries from Cows

Cows

- Kick with back feet – usually one foot, but sometimes with both – Bovines are "masters of the roundhouse"
- Will hurt you with their head
- Will crowd and/or crush
- Don't bite
- Will run over you if they have no other way out

State Agricultural Response Team 08

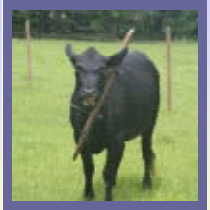
State Agricultural Response Team 09

Slides 10-12

Management of Emergencies in Cattle

How cattle perceive their environment

- Safety in numbers – the "herd instinct"
- Vision
- Hearing
- Handling
  - Flight zones
  - Point of balance



State Agricultural Response Team 10

The Herd Instinct

- Cattle sense security in numbers
  - Always move cows in groups
  - An animal separated from the group will try to get back to the group
- Maternal instinct is strong
  - Cows and horses will protect their young

State Agricultural Response Team 11

Vision in Cattle

Because of the location of their eyes:

- Cattle have panoramic vision (310-360 degrees)
- Blind spot is directly behind their head
- Vertical vision
  - Cattle – 60 degrees
  - Humans – 140 degrees
- Sensitive to unusual movements
- Depth perception is poor
- Ability to focus on items close up is poor

State Agricultural Response Team 12

Slides 13-15

Cattle Handling 1

- A small flag on a stick is useful for moving or sorting cattle
- Cattle respond negatively to abuse, loud noises, and other confusing situations
- Keep noisy equipment away from cattle

State Agricultural Response Team 13

Cattle Handling 2

- Yelling at cattle increases the stress level of both cattle and handler
- Cattle are creatures of habit – An established daily routine will ease handling
- Handle animals in groups – A single animal may be hard to handle, get back into a group if possible

State Agricultural Response Team 14

Cattle Handling 3

- Handler's movements should be slow and deliberate
- If cattle refuse to move, look for distractions
  - –Something on a fence
  - –Trash on the ground
  - –Other people trying to help!
- Mixing groups of cattle can add to the stress of these animals

State Agricultural Response Team 15

Slides 16-18

Herding Cattle 1

Starting to move cattle

- Locate majority of the herd
- Start making a series of wide back and forth motions on the edge of the herd
- Move in the pattern of a giant windshield wiper

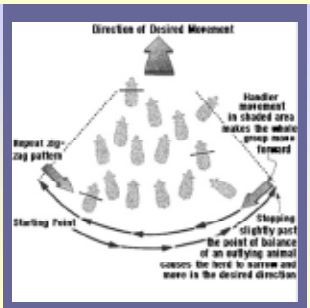
-- Bud Williams

State Agricultural Response Team 16

Herding Cattle 2

When the majority of the herd has come together into a loose bunch, increase pressure on the collective flight zone to initiate movement in the desired direction

-- Bud Williams



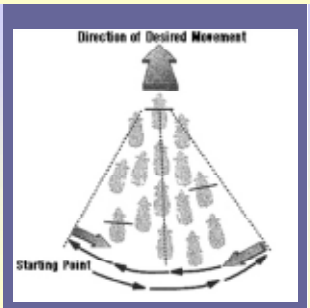
State Agricultural Response Team 17

Herding Cattle 3

To continue movement in the desired direction, the handler continues to zig-zag back and forth behind the animals

-- Bud Williams

Bud Williams is well-known among cattle owners for his guidance on animal handling.



State Agricultural Response Team 18

Slides 19-21

Cattle Well-being and Care

- Even in an emergency setting, animals will have basic needs that must be met
- In order to know how to care for animals, their needs must be known and understood
  - Nutrition
  - Environment or Housing
  - Health concerns
- If these are addressed, animal care and welfare concerns involving cattle are fulfilled

Needs: Nutrition 1

Cattle are ruminants – they are able to utilize food such as hay and grass

- If possible, provide access to grass pastures
- Hay may be fed as necessary
- Cattle enjoy equine sweet feeds (6-8 lbs per head per day)

Needs: Nutrition 2

- In an emergency situation, cattle can survive for days without feed
- Calves being nursed by cows need no additional feed other than what is supplied to their mothers
- Orphan calves can be fed a commercial milk replacer
  - Feed 8% of calf's body weight of reconstituted milk replacer
  - Patience is required when feeding orphans

Slides 22-24

Needs: Water 1

- Cattle need access to water 24 hours per day
- Regardless of the amount of feed given to cattle during an emergency, cattle cannot go without water for an extended period of time (more than 24 hours)
- Cattle can utilize standing water as well as fresh water (but not brackish or salt water)

Needs: Water 2

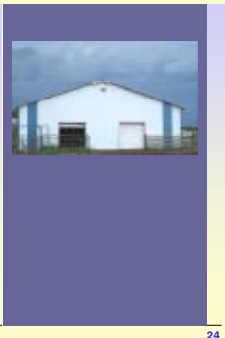
Water Needs for Various Species
(gallons per head per day)

Beef cattle	7-12	
Dairy cattle	10-16	
Horses	8-12	
Swine	3-5	
Sheep and Goats	1-4	
Chickens	8-10	per 100 birds
Turkeys	10-15	per 100 birds

Extreme hot-heat stress could increase high values by 20-30 percent

Needs: Environment and Housing

- A majority of beef cattle are reared in a range environment. Providing drained pasture with available shade should be adequate
- Fencing should be adequate to confine animals to a specified area



Slides 25-27

Needs Summary

- Grass in an open pasture (trees)
- Available water
- Adequate fencing

State Agricultural Response Team 25

Cattle Health Concerns and an Environmental Disaster

- Generally, there are few if any medical emergencies for beef cattle during environmental disasters
- Lack of available water may leave some animals dehydrated
- Lack of shade and water may lead some animals to heat stress and heat stroke

State Agricultural Response Team 26

Heat Stress Symptoms

- Signs of heat stress
  - Rapid respiration, open-mouth breathing
  - Head down or extended
  - Animal is usually standing
  - Elbows held away from the body
- Heat stroke
  - All of the above – plus – animal becomes very depressed, goes down and progresses toward death
- Cattle often respond to stress by bunching together, even with heat stress

State Agricultural Response Team 27

Slides 28-30

Heat Stress

- Lack of available shade and water may lead to heat stress in cattle
- Moving animals during periods of high temperature and humidity may also lead animals to heat stress or heat stroke
- Often for cattle during times of heat stress, the best thing to do is leave cattle alone (provide shade if possible)

Heat Stress

- It is the combination of temperature and humidity that determines the severity of the heat stress
- Use the temperature-humidity index (THI) as a guide to heat stress
  - Above 75 THI: ALERT – Cows decrease feed consumption and milk production
  - Above 80 THI: DANGER – Heat stress for cattle on pasture
  - Above 84 THI: EMERGENCY – Fatal heat stress can occur

Temperature-Humidity Index (THI)

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

Normal < 74 | Alert: 75-78 | Danger: 79-83 | Emergency > 84

Slides 31-33

Heat Stress Management Plan

- Have ample water available – 2-3 gallons per 100 lbs weight and make sure of delivery capability
- If watering from a trough, allow 3 inches of linear space per animal
- Avoid handling cattle if at all possible
- Improve air flow, if possible

Cattle Health Concerns

- Emergency conditions where cattle are gathered from various operations can increase the risk of infectious disease
- Difficult to treat individual animals
  - Can medicate the group through water or feed

Most Common Health Concerns 1

Health Concern	Treatments (Call veterinarian)
• Bloat • Diarrhea	• Manage nutritional concerns
• Pneumonia	• Broad spectrum antibiotics – Baytril – Nuflor – Excede – AS 180 – Tetradure

Slides 34-36

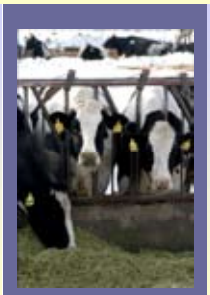
Most Common Health Concerns 2

Health Concern	Treatments
• Mastitis – Dairy cows	• Antibiotics • Milk cow
• Lacerations	• Can be treated
• Fractures	• May require euthanasia
• Analgesia	• Banamine

State Agricultural Response Team 34

Proper Restraint!

- Tools of the trade
  - Squeeze chutes
  - Corrals
  - Rope halters
  - Lariats
  - Tail restraint
  - Nose tongs – Use only with a rope halter
  - Sedatives/anesthetics
- Plan ahead



State Agricultural Response Team 35

Cattle Restraint 1

- Rope Halter
  - Apply properly
  - The part that draws goes under the jaws
  - Made for cattle not horses
- Lariat
  - Assumes that there is something that can secure the animal after being caught

State Agricultural Response Team 36

Slides 37-39

Cattle Restraint 2

- Portable chute with head restraint
  - Experienced people should operate the chute
  - Do not stand in front of chute
  - Do not cause discomfort with excessive pressure

State Agricultural Response Team 37

Cattle Restraint 3

- Tail jack
  - Will immobilize the rear quarters for examination purposes

State Agricultural Response Team 38

Chemical Restraint 1

- Xylazine (Rompun)
  - IV usage ranges from 0.05 to 0.22 mg/kg
  - IM dosage is 0.1 to 0.44 mg/kg
  - At these dosages, Xylazine is safe – Sedation and analgesia for 30 minutes to 2 hours

State Agricultural Response Team 39

Slides 40-42

Chemical Restraint 2

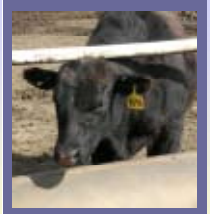
- Concerns and Precautions
  - Use under the supervision of a veterinarian
  - Decreased heart and respiratory rates
  - Bloat
  - Avoid usage in debilitated cattle
  - Watch out when used in high temperatures – Animals unable to cool themselves
- Antidote – Tolazine: 0.4 to 4.0 mg/kg

Emergency Medical Treatment

- Consider and utilize local resources
  - Veterinarian
  - Cowboys
  - Area ranchers
  - Law enforcement
- Proper restraint will be critical to avoid injury to animal and yourself

Treatment or Euthanasia?

- Actions involving debilitated or injured cattle may fall into either the category of treatment or euthanasia
- Euthanasia may be the most humane alternative when dealing with seriously injured or ill cattle



Slides 43-45

Treatment or Euthanasia?

- Criteria in the decision making should include:
  - Pain and distress of the animal
  - Likelihood of recovery
  - Ability to get feed and water
  - Diagnostic information
  - Welfare for the animal; humane considerations

State Agricultural Response Team 43

Euthanasia of Cattle

Humane Euthanasia by Gunshot or Penetrating Captive Bolt

Properly applied... **"euthanasia by either gunshot or penetrating captive bolt causes less fear and anxiety and induces a more rapid, painless, and humane death than can be achieved by most other methods."**

State Agricultural Response Team 44

Euthanasia by Gunshot

Under farm or ranch conditions:

"Gunshot is the most practical method"

- .22 caliber long rifle bullet
  - Sufficient for young animals
  - Hollow points may not penetrate the skull
- 9 mm, .357, or similar caliber is required for adult or mature animals
  - Bulls, adult cows, mature horses, mature elk and deer

State Agricultural Response Team 45

Slides 46-48

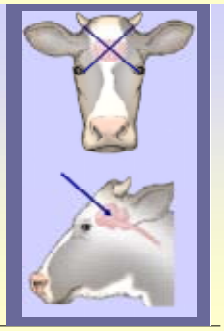
Euthanasia: Positioning

- Proper positioning of a firearm (pistol or rifle)
  - Should be held within 6-12 inches of the intended target
  - Position or aim the firearm so that direction of the bullet is perpendicular to the skull to avoid ricochet
- Positioning of the penetrating captive bolt
  - Hold the device firmly against the head over the intended site

Euthanasia: Anatomical Landmarks

Projectile point of entry

- Wrong -- "between the eyes"
- Right -- In cattle, at the intersection of two imaginary lines drawn from the corners of the eyes to the base of the opposite horn



Closing Thoughts on Cattle 1

- During an environmental disaster, cattle may have emergency needs for food, water, shelter, and medical concerns
- Often the best option concerning cattle in emergency situations is to leave them alone
- If they are in harm's way, look for help

Slides 49-51

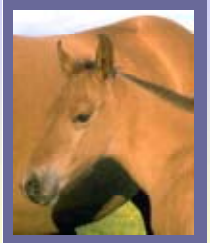
Closing Thoughts on Cattle 2

- Owners of beef cattle, ranchers and cowhands are often the best prepared people to handle the emergency needs for their herds
- If producers do need assistance from disaster relief personnel, volunteers providing that assistance need to have a basic understanding of beef cattle

Horse Management in an Emergency Setting

Horse Management 101

- Behavior
- Nutrition
- Basic Hurricane Preparation



Slides 52-54

Understanding Horse Behavior

- Horses like to be in groups
- They can be territorial
- Separate mares and foals from other horses
- Separate stallions

State Agricultural Response Team 52

Horse Nutrition

- Horses need good quality hay
  - Coastal-bermuda grass hay
  - Timothy hay
  - Orchard grass hay
  - Alfalfa or peanut hay
- Round bales should be avoided

State Agricultural Response Team 53

How much should you feed?

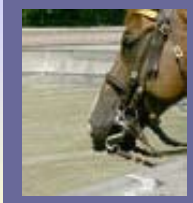
- Adults (1000 lbs) need 10-15 pounds of hay per day (1/4 to 1/5 bale)
- In emergency setting, grain is not necessary, except for lactating mares, juvenile animals, or severely underweight horses

State Agricultural Response Team 54

Slides 55-57

Water

- Most essential nutrient
- Minimum of 10 gallons per horse per day



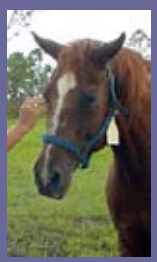
Hurricane Preparation for Horse Farms

Preparation through education is less costly than learning through tragedy.

-- Max Mayfield,
Director, National Hurricane Center

Horse Identification

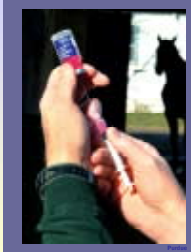
- Take Polaroid picture of each horse with its owner
- Label horse
  - Luggage tag on halter
  - Microchip
  - Brand/tattoo
  - Clipper phone number into coat



Slides 58-60

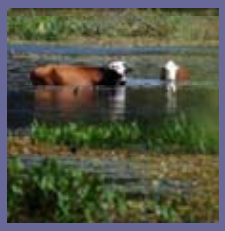
Before Hurricane Season…

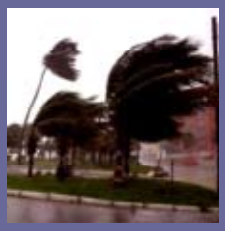
- Current immunizations
  - West Nile Virus
  - Eastern Equine Encephalitis
  - Tetanus Toxoid
- Keep documents handy!
  - Coggin's test
  - Health Certificate



State Agricultural Response Team 58

Should they evacuate?





State Agricultural Response Team 59

Where can horses go?

Contact…

Sunshine State Horse Council

- http://www.sshc.org/

State Agricultural Response Team 60

Slides 61-63

When to travel?

- 48 hours before hurricane force winds hit the area
- Winds greater than 40 mph are dangerous

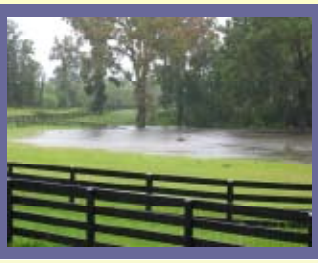
State Agricultural Response Team 61

Lessons from 2004

Keep horses out of barns that are not safe!

State Agricultural Response Team 62

Lessons from 2004



Move horses from flood-prone areas

State Agricultural Response Team 63

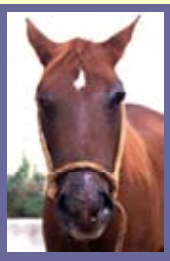
Slides 64-66

Flooded Pastures

- Water moccasin snake encounters are likelier in flooded pastures
- Fire ants will move to high, dry ground as will the horses and increase risk of exposure

Snake Bite

Before therapy



1 week later

Also, beware of fire ants!

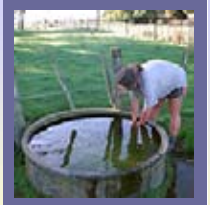
Electricity

- Turn off power to barn
- Do not put horses in a pasture with power lines overhead

Slides 67-69

Drinking Water

- 12-18 gallons per horse per day
- Generator for well
- Large garbage cans with liners



State Agricultural Response Team 67

Fences

- Walk the perimeter of the pasture and make sure that fences are intact and can contain the animals

State Agricultural Response Team 68

Emergency Treatment: Triage

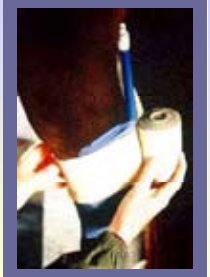
- When presented with the situation, the animal that is the most critical but with the best chance of living should be attended to first

State Agricultural Response Team 69

Slides 70-72

Traumatic Injuries

- Apply pressure if excessive bleeding
- Keep all wounds clean – Hose with clean water
- Tetanus toxoid
- Seek veterinary care



State Agricultural Response Team 70

Signs to Watch For

- Emergency situations may require rapid changes in management practices and feedstuffs
- Monitor horses for signs of colic (flank watching, rolling) and laminitis (reluctance to move due to sore feet) as these may be associated with changes
- Seek veterinary care as soon as possible

State Agricultural Response Team 71

Euthanasia

- In some cases, sustained injuries may necessitate humane euthanasia
- Best performed by a veterinarian or under veterinary guidance
- However, such assistance may not be readily available

State Agricultural Response Team 72

Slides 73-75

Important Considerations

When euthanasia is necessary, always minimize animal distress as much as possible

- Presence of humans may be reassuring for animals accustomed to human contact -- penetrating captive bolt/exsanguination (bleeding out) may be preferred
- For wildlife, human contact causes fear and greater distress -- gunshot may be preferred
  - Gunshot permits the least amount of human contact

State Agricultural Response Team 73

Aesthetic Concerns

Humane euthanasia by gunshot or penetrating captive bolt...

- Despite being humane, both are aesthetically displeasing procedures
- Involuntary movement will occur
  - "Kill the head; the body dies slowly" – Temple Grandin
  - Exsanguination requires several minutes and is visually uncomfortable to observe
- These procedures should be conducted out of the public view

State Agricultural Response Team 74

Confirmation of Death

Death should be confirmed by evaluation of the following physical parameters over a period of several minutes

- Lack of a heartbeat
  - A pulse is normally not present under such circumstances
- Lack of respiration
  - These may be erratic in an unconscious animal
- Lack of a corneal reflex
- Lack of movement over a period of several hours
  - The presence of "rigor mortis"

State Agricultural Response Team 75

Slides 76-78

Unacceptable Methods of Euthanasia

The following are forbidden under Florida law (Florida Statutes 828.12)

- Manually applied blunt trauma to the head, such as a large hammer
- Injection of any chemical substance not labeled for use as a euthanasia agent
- Injection of air into a vein
- Electrocution, as with a 120- or 200-volt electrical power

Resources

Animals in Disasters

- Caring for Livestock after Disaster, Colorado State Univ. (Part 1, Part 2, and Part 3)
- Preparing to Evacuate Your Farm When Flooding is Expected [Link]
- FEMA Course: Livestock in Disasters [Link]
- Animal Health Hazards of Concern during Natural Disasters (USDA-APHIS) [Link]
- Helping Four-Legged Friends Survive the Storm (Univ. of Florida video) [Link]
- Sunshine State Horse Council – Evacuation Resources [Link]

Resources

Disaster Preparedness for Animals

- Disaster Planning Tips for Pets, Livestock and Wildlife (HSUS) [Link]
- Disaster Preparedness Guidelines for Livestock Owners (Indiana Public Board of Animal Health) [Link]
- Disaster Preparedness Guidelines for Horse Owners (Indiana Public Board of Animal Health) [Link]
- Guidelines for the Development of a Local Animal Care Plan in Emergencies, Disasters, and Evacuations (Purdue Univ.) [Link]

Slides 79-81

Resources

Animal Handling

- Livestock Handling and Transport. Temple Grandin. [2d edition; 3d edition due 8/2007]
  - Related on-line resource from Grandin [Link]
- Safe Ground Handling of Horses [Link]
- Animal Handling Safety [Link]
- Behavioral Principles of Livestock Handling [Link]
- Cattle Handling Safety in Working Facilities [Link]
- Cattle Handling Safety [on-line video]
- Livestock Safety for Kids [on-line video]

State Agricultural Response Team 79

Resources

Agencies with Animal Resources

- Florida Division of Animal Industry [Link]
- Florida Dept. of Agriculture and Consumer Services [Link]
- National Agricultural Safety Database [Link]
- Florida Division of Emergency Management [Link]
- List of US States' Veterinarian Offices [Link]
- US Dept. of Agriculture [Link]
- Univ. of Florida Extension publication source [Link]
  - College of Veterinary Medicine [Link]
  - Livestock [Link]
- Univ. of Florida IFAS Disaster Handbook [Link]
- World Organization for Animal Health [Link]

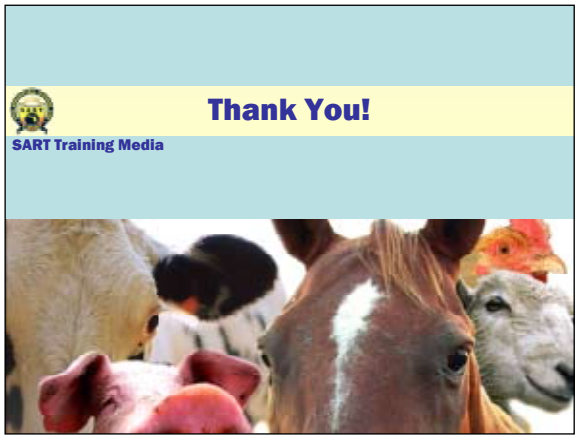
State Agricultural Response Team 80

Summary

- In an emergency, your safety is of the utmost importance
- Prevention and preparation are the keys
- Providing animals with adequate shelter, water, and food is critical in the immediate aftermath of an emergency
- Treating injured animals may not be feasible without help from trained professionals

State Agricultural Response Team 81

Slide 82



PowerPoint Slides

The *Emergency Management for Large Animals* PowerPoint slides are reproduced full-size on the following pages. You can use these pages as a display or photocopy them onto plastic overhead sheets for use with an overhead projector.

Color versions of these slides can be downloaded at the SART Web site:

<www.flsart.org>.


STATE AGRICULTURAL RESPONSE TEAM
S. A. R. T.
FLORIDA

Livestock and Horses

Emergency Management for Large Animals

Emergency Management for Large Animals

Prepared by

Jan Shearer

Dairy Extension Veterinarian

Max Irsik

Beef Extension Veterinarian

Dana Zimmel

Equine Extension Veterinarian

University of Florida, College of Veterinary Medicine / IFAS

The authors wish to express their appreciation to the various agencies and individuals that have supplied images for this presentation.

Learning Objectives

- Know that top priority is health and safety of caretakers and personnel
- Know basics of cattle and horse behavior
- Know emergency management procedures for cattle and horses
- Know principles of humane euthanasia for cattle and horses
- Prevention and preparedness are the keys

Primary Objective

When assisting animals during an emergency situation:

- **Your safety is ultimately the highest priority!**
- **Don't endanger yourself or fellow first responders to attempt historic rescue measures for animals**

UF/IFAS Photo by Eric Zamora

UF/IFAS Photos by Tom Wright

UF/IFAS Photo by Audrey Wynne

Priority #1

Avoid injury to yourself

- Animals in emergency situations are:
  - Nervous, anxious, possibly injured
  - Unpredictable
  - Dangerous!

Avoid Injuries from Horses

Horses

- Can “kick” with either one or both back feet – Roundhouse (out to the side) or straight back
- Can “strike” with front feet
- Can bite and “bite hard”
- May hit you with their head
- Will crowd or crush
- Will run over you if they have no other way out

Avoid Injuries from Cows

Cows

- Kick with back feet – usually one foot, but sometimes with both – Bovines are “masters of the roundhouse”
- Will hurt you with their head
- Will crowd and/or crush
- Don’t bite
- Will run over you if they have no other way out

Cattle Management in an Emergency Setting

Management of Emergencies in Cattle

How cattle perceive their environment

- Safety in numbers – the “herd instinct”
- Vision
- Hearing
- Handling
  - Flight zones
  - Point of balance

The Herd Instinct

- Cattle sense security in numbers
  - Always move cows in groups
  - An animal separated from the group will try to get back to the group
- Maternal instinct is strong
  - Cows and horses will protect their young

Vision in Cattle

Because of the location of their eyes:

- Cattle have panoramic vision (310-360 degrees)
- Blind spot is directly behind their head
- Vertical vision
  - Cattle – 60 degrees
  - Humans – 140 degrees
- Sensitive to unusual movements
- Depth perception is poor
- Ability to focus on items close up is poor

Cattle Handling 1

- A small flag on a stick is useful for moving or sorting cattle
- Cattle respond negatively to abuse, loud noises, and other confusing situations
- Keep noisy equipment away from cattle

Cattle Handling 2

- Yelling at cattle increases the stress level of both cattle and handler
- Cattle are creatures of habit – An established daily routine will ease handling
- Handle animals in groups – A single animal may be hard to handle, get back into a group if possible

Cattle Handling 3

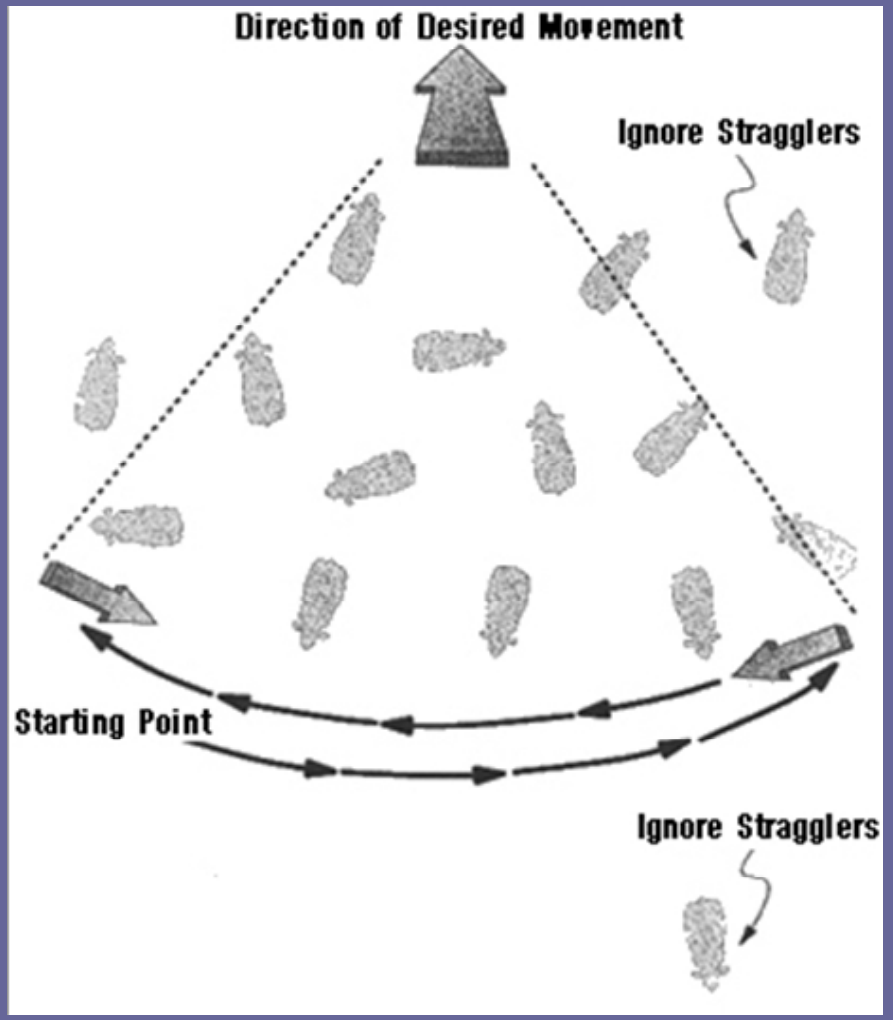
- Handler's movements should be slow and deliberate
- If cattle refuse to move, look for distractions
  - –Something on a fence
  - –Trash on the ground
  - –Other people trying to help!
- Mixing groups of cattle can add to the stress of these animals

Herding Cattle 1

Starting to move cattle

- Locate majority of the herd
- Start making a series of wide back and forth motions on the edge of the herd
- Move in the pattern of a giant windshield wiper

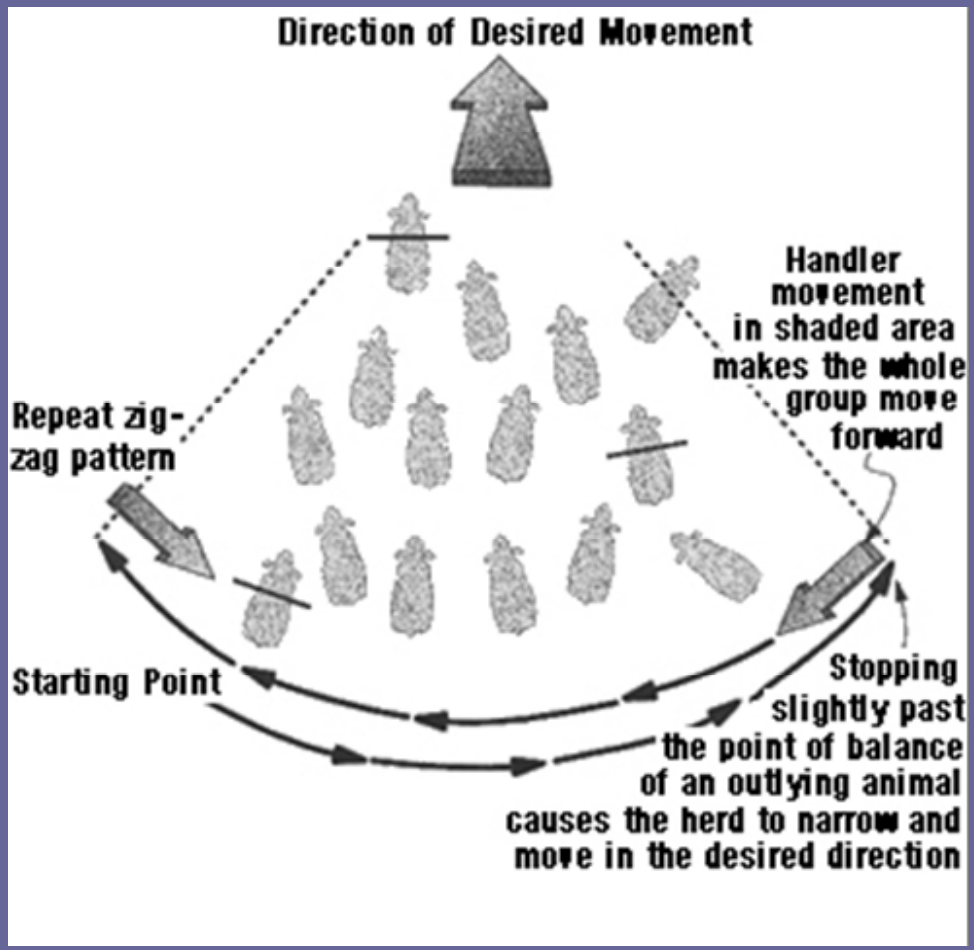
– Bud Williams



Herding Cattle 2

When the majority of the herd has come together into a loose bunch, increase pressure on the collective flight zone to initiate movement in the desired direction

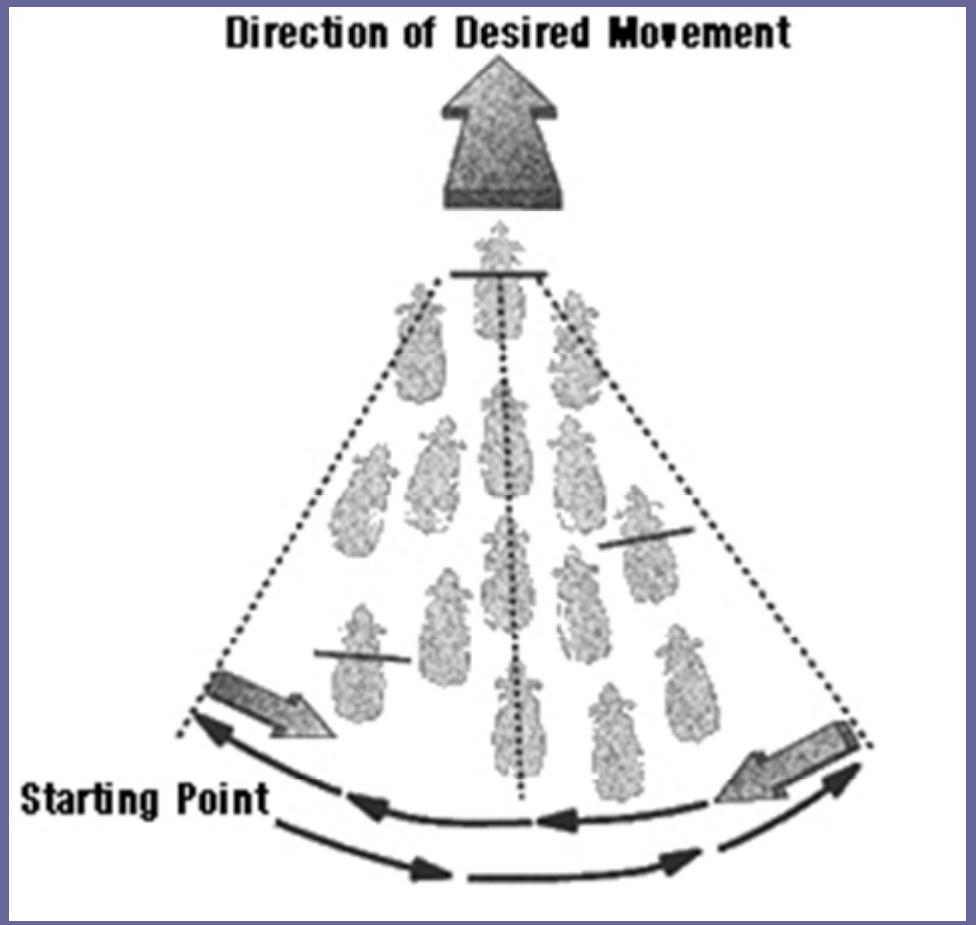
– Bud Williams



Herding Cattle 3

To continue movement in the desired direction, the handler continues to zig-zag back and forth behind the animals

– Bud Williams



Bud Williams is well-known among cattle owners for his guidance on animal handling.

Cattle Well-being and Care

- Even in an emergency setting, animals will have basic needs that must be met
- In order to know how to care for animals, their needs must be known and understood
  - Nutrition
  - Environment or Housing
  - Health concerns
- If these are addressed, animal care and welfare concerns involving cattle are fulfilled

Needs: Nutrition 1

Cattle are ruminants – they are able to utilize food such as hay and grass

- **If possible, provide access to grass pastures**
- **Hay may be fed as necessary**
- **Cattle enjoy equine sweet feeds (6-8 lbs per head per day)**

Needs: Nutrition 2

- In an emergency situation, cattle can survive for days without feed
- Calves being nursed by cows need no additional feed other than what is supplied to their mothers
- Orphan calves can be fed a commercial milk replacer
  - Feed 8% of calf's body weight of reconstituted milk replacer
  - Patience is required when feeding orphans

Needs: Water 1

- Cattle need access to water 24 hours per day
- Regardless of the amount of feed given to cattle during an emergency, cattle cannot go without water for an extended period of time (more than 24 hours)
- Cattle can utilize standing water as well as fresh water (but not brackish or salt water)

Needs: Water 2

Water Needs for Various Species
(gallons per head per day)

Beef cattle	7-12	
Dairy cattle	10-16	
Horses	8-12	
Swine	3-5	
Sheep and Goats	1-4	
Chickens	8-10	per 100 birds
Turkeys	10-15	per 100 birds

Extreme hot-heat stress could increase high values by 20-30 percent

Needs: Environment and Housing

- A majority of beef cattle are reared in a range environment. Providing drained pasture with available shade should be adequate
- Fencing should be adequate to confine animals to a specified area

Needs Summary

- Grass in an open pasture (trees)
- Available water
- Adequate fencing

Cattle Health Concerns and an Environmental Disaster

- Generally, there are few if any medical emergencies for beef cattle during environmental disasters
- Lack of available water may leave some animals dehydrated
- Lack of shade and water may lead some animals to heat stress and heat stroke

Heat Stress Symptoms

- Signs of heat stress
  - Rapid respiration, open-mouth breathing
  - Head down or extended
  - Animal is usually standing
  - Elbows held away from the body
- Heat stroke
  - All of the above – plus – animal becomes very depressed, goes down and progresses toward death
- Cattle often respond to stress by bunching together, even with heat stress

Heat Stress

- Lack of available shade and water may lead to heat stress in cattle
- Moving animals during periods of high temperature and humidity may also lead animals to heat stress or heat stroke
- Often for cattle during times of heat stress, the best thing to do is leave cattle alone (provide shade if possible)

Heat Stress

- It is the combination of temperature and humidity that determines the severity of the heat stress
- Use the temperature-humidity index (THI) as a guide to heat stress
  - Above 75 THI: ALERT – Cows decrease feed consumption and milk production
  - Above 80 THI: DANGER – Heat stress for cattle on pasture
  - Above 84 THI: EMERGENCY – Fatal heat stress can occur

Temperature-Humidity Index (THI)

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

Normal < 74	Alert: 75-78	Danger: 79-83	Emergency > 84

Heat Stress Management Plan

- Have ample water available – 2-3 gallons per 100 lbs weight and make sure of delivery capability
- If watering from a trough, allow 3 inches of linear space per animal
- Avoid handling cattle if at all possible
- Improve air flow, if possible

Cattle Health Concerns

- Emergency conditions where cattle are gathered from various operations can increase the risk of infectious disease
- Difficult to treat individual animals
  - Can medicate the group through water or feed

Most Common Health Concerns 1

Health Concern	Treatments (Call veterinarian)
• Bloat • Diarrhea	• Manage nutritional concerns
• Pneumonia	• Broad spectrum antibiotics – Baytril – Nuflor – Excede – AS 180 – Tetradure

Most Common Health Concerns 2

Health Concern	Treatments
• Mastitis – Dairy cows	• Antibiotics • Milk cow
• Lacerations	• Can be treated
• Fractures	• May require euthanasia
• Analgesia	• Banamine

Proper Restraint!

- Tools of the trade
  - Squeeze chutes
  - Corrals
  - Rope halters
  - Lariats
  - Tail restraint
  - Nose tongs – Use only with a rope halter
  - Sedatives/anesthetics
- Plan ahead

Cattle Restraint 1

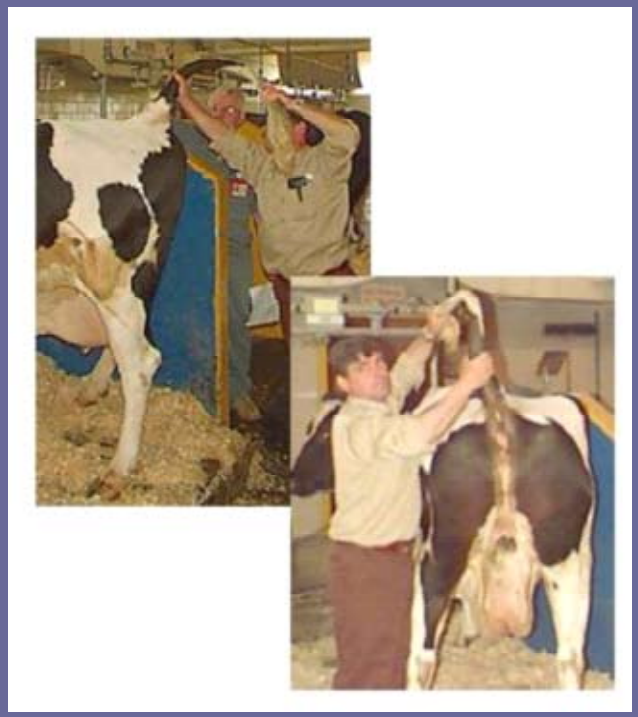
- Rope Halter
  - Apply properly
  - The part that draws goes under the jaws
  - Made for cattle not horses
- Lariat
  - Assumes that there is something that can secure the animal after being caught

Cattle Restraint 2

- Portable chute with head restraint
  - Experienced people should operate the chute
  - Do not stand in front of chute
  - Do not cause discomfort with excessive pressure

Cattle Restraint 3

- Tail jack
  - Will immobilize the rear quarters for examination purposes



Chemical Restraint 1

- Xylazine (Rompun)
  - IV usage ranges from 0.05 to 0.22 mg/kg
  - IM dosage is 0.1 to 0.44 mg/kg
  - At these dosages, Xylazine is safe – Sedation and analgesia for 30 minutes to 2 hours

Chemical Restraint 2

- Concerns and Precautions
  - Use under the supervision of a veterinarian
  - Decreased heart and respiratory rates
  - Bloat
  - Avoid usage in debilitated cattle
  - Watch out when used in high temperatures – Animals unable to cool themselves
- Antidote – Tolazine: 0.4 to 4.0 mg/kg

Emergency Medical Treatment

- Consider and utilize local resources
  - Veterinarian
  - Cowboys
  - Area ranchers
  - Law enforcement
- Proper restraint will be critical to avoid injury to animal and yourself

Treatment or Euthanasia?

- Actions involving debilitated or injured cattle may fall into either the category of treatment or euthanasia
- Euthanasia may be the most humane alternative when dealing with seriously injured or ill cattle

Treatment or Euthanasia?

- Criteria in the decision making should include:
  - Pain and distress of the animal
  - Likelihood of recovery
  - Ability to get feed and water
  - Diagnostic information
  - Welfare for the animal; humane considerations

Euthanasia of Cattle

Humane Euthanasia by Gunshot or Penetrating Captive Bolt

Properly applied… **"euthanasia by either gunshot or penetrating captive bolt causes less fear and anxiety and induces a more rapid, painless, and humane death than can be achieved by most other methods."**

Euthanasia by Gunshot

Under farm or ranch conditions:

"Gunshot is the most practical method"

- .22 caliber long rifle bullet
  - Sufficient for young animals
  - Hollow points may not penetrate the skull
- 9 mm, .357, or similar caliber is required for adult or mature animals
  - Bulls, adult cows, mature horses, mature elk and deer

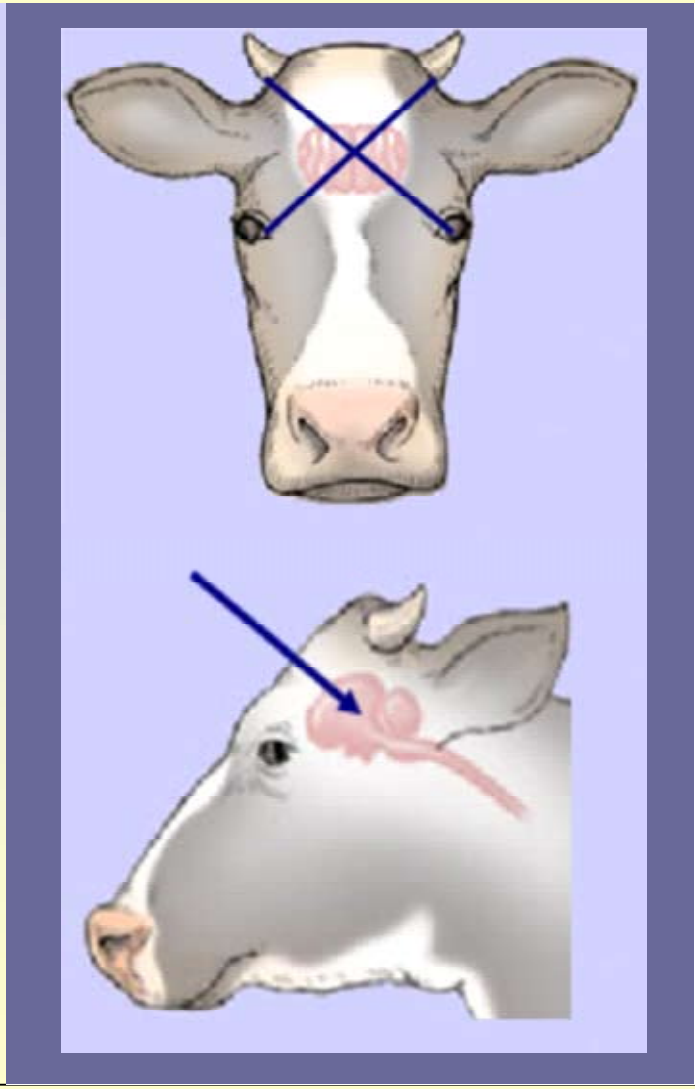
Euthanasia: Positioning

- Proper positioning of a firearm (pistol or rifle)
  - Should be held within 6-12 inches of the intended target
  - Position or aim the firearm so that direction of the bullet is perpendicular to the skull to avoid ricochet
- Positioning of the penetrating captive bolt
  - Hold the device firmly against the head over the intended site

Euthanasia: Anatomical Landmarks

Projectile point of entry

- Wrong -- “between the eyes”
- Right – In cattle, at the intersection of two imaginary lines drawn from the corners of the eyes to the base of the opposite horn



Closing Thoughts on Cattle 1

- During an environmental disaster, cattle may have emergency needs for food, water, shelter, and medical concerns
- Often the best option concerning cattle in emergency situations is to leave them alone
- If they are in harm's way, look for help

Closing Thoughts on Cattle 2

- Owners of beef cattle, ranchers and cowhands are often the best prepared people to handle the emergency needs for their herds
- If producers do need assistance from disaster relief personnel, volunteers providing that assistance need to have a basic understanding of beef cattle

Horse Management in an Emergency Setting

Horse Management 101

- Behavior
- Nutrition
- Basic Hurricane Preparation

Understanding Horse Behavior

- Horses like to be in groups
- They can be territorial
- Separate mares and foals from other horses
- Separate stallions

Horse Nutrition

- Horses need good quality hay
  - Coastal-bermuda grass hay
  - Timothy hay
  - Orchard grass hay
  - Alfalfa or peanut hay
- Round bales should be avoided

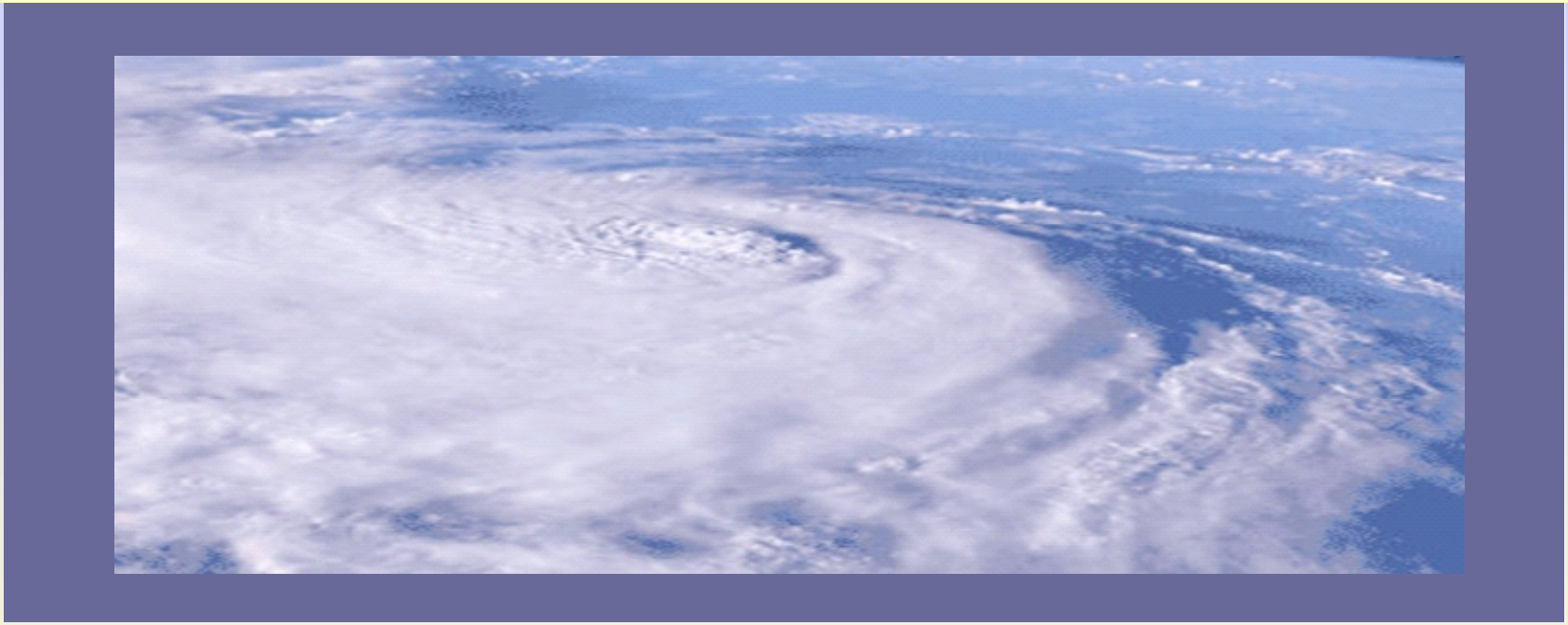
How much should you feed?

- Adults (1000 lbs) need 10-15 pounds of hay per day (1/4 to 1/5 bale)
- In emergency setting, grain is not necessary, except for lactating mares, juvenile animals, or severely underweight horses

Water

- Most essential nutrient
- Minimum of 10 gallons per horse per day

Hurricane Preparation for Horse Farms



Preparation through education is less costly than learning through tragedy.

-- Max Mayfield,

Director, National Hurricane Center

Horse Identification

- Take Polaroid picture of each horse with its owner
- Label horse
  - Luggage tag on halter
  - Microchip
  - Brand/tattoo
  - Clipper phone number into coat

Before Hurricane Season…

- Current immunizations
  - West Nile Virus
  - Eastern Equine Encephalitis
  - Tetanus Toxoid
- Keep documents handy!
  - Coggin's test
  - Health Certificate

Purdue

Should they evacuate?

Where can horses go?

Contact…

Sunshine State Horse Council

- **http://www.sshc.org/**

When to travel?

- 48 hours before hurricane force winds hit the area
- Winds greater than 40 mph are dangerous

Lessons from 2004

Keep horses out of barns that are not safe!

Lessons from 2004

Move horses from flood-prone areas

Flooded Pastures

- Water moccasin snake encounters are likelier in flooded pastures
- Fire ants will move to high, dry ground as will the horses and increase risk of exposure

Snake Bite

Before therapy **1 week later**

Also, beware of fire ants!

Electricity

- Turn off power to barn
- Do not put horses in a pasture with power lines overhead

Drinking Water

- 12-18 gallons per horse per day
- Generator for well
- Large garbage cans with liners

Fences

- Walk the perimeter of the pasture and make sure that fences are intact and can contain the animals

Emergency Treatment: Triage

- When presented with the situation, the animal that is the most critical but with the best chance of living should be attended to first

Humane Society of Missouri

Traumatic Injuries

- Apply pressure if excessive bleeding
- Keep all wounds clean – Hose with clean water
- Tetanus toxoid
- Seek veterinary care

Signs to Watch For

- Emergency situations may require rapid changes in management practices and feedstuffs
- Monitor horses for signs of colic (flank watching, rolling) and laminitis (reluctance to move due to sore feet) as these may be associated with changes
- Seek veterinary care as soon as possible

Euthanasia

- In some cases, sustained injuries may necessitate humane euthanasia
- Best performed by a veterinarian or under veterinary guidance
- However, such assistance may not be readily available

Important Considerations

When euthanasia is necessary, always minimize animal distress as much as possible

- **Presence of humans may be reassuring for animals accustomed to human contact -- penetrating captive bolt/exsanguination (bleeding out) may be preferred**
- **For wildlife, human contact causes fear and greater distress -- gunshot may be preferred**
  - **Gunshot permits the least amount of human contact**

Aesthetic Concerns

Humane euthanasia by gunshot or penetrating captive bolt…

- **Despite being humane, both are aesthetically displeasing procedures**
- **Involuntary movement will occur**
  - **"Kill the head; the body dies slowly" – Temple Grandin**
  - **Exsanguination requires several minutes and is visually uncomfortable to observe**
- **These procedures should be conducted out of the public view**

Confirmation of Death

Death should be confirmed by evaluation of the following physical parameters over a period of several minutes

- Lack of a heartbeat
  - A pulse is normally not present under such circumstances
- Lack of respiration
  - These may be erratic in an unconscious animal
- Lack of a corneal reflex
- Lack of movement over a period of several hours
  - The presence of “rigor mortis”

Unacceptable Methods of Euthanasia

The following are forbidden under Florida law (Florida Statutes 828.12)

- Manually applied blunt trauma to the head, such as a large hammer
- Injection of any chemical substance not labeled for use as a euthanasia agent
- Injection of air into a vein
- Electrocution, as with a 120- or 200-volt electrical power

Animals in Disasters

- Caring for Livestock after Disaster, Colorado State Univ. (Part 1, Part 2, and Part 3)
- Preparing to Evacuate Your Farm When Flooding is Expected [Link]
- FEMA Course: Livestock in Disasters [Link]
- Animal Health Hazards of Concern during Natural Disasters (USDA-APHIS) [Link]
- Helping Four-Legged Friends Survive the Storm (Univ. of Florida video) [Link]
- Sunshine State Horse Council – Evacuation Resources [Link]

Disaster Preparedness for Animals

- Disaster Planning Tips for Pets, Livestock and Wildlife (HSUS) [Link]
- Disaster Preparedness Guidelines for Livestock Owners (Indiana Public Board of Animal Health) [Link]
- Disaster Preparedness Guidelines for Horse Owners (Indiana Public Board of Animal Health) [Link]
- Guidelines for the Development of a Local Animal Care Plan in Emergencies, Disasters, and Evacuations (Purdue Univ.) [Link]

Animal Handling

- Livestock Handling and Transport. Temple Grandin. [2d edition; 3d edition due 8/2007]
  - Related on-line resource from Grandin [Link]
- Safe Ground Handling of Horses [Link]
- Animal Handling Safety [Link]
- Behavioral Principles of Livestock Handling [Link]
- Cattle Handling Safety in Working Facilities [Link]
- Cattle Handling Safety [on-line video]
- Livestock Safety for Kids [on-line video]

Agencies with Animal Resources

- Florida Division of Animal Industry [Link]
- Florida Dept. of Agriculture and Consumer Services [Link]
- National Agricultural Safety Database [Link]
- Florida Division of Emergency Management [Link]
- List of US States' Veterinarian Offices [Link]
- US Dept. of Agriculture [Link]
- Univ. of Florida Extension publication source [Link]
  - College of Veterinary Medicine [Link]
  - Livestock [Link]
- Univ. of Florida IFAS Disaster Handbook [Link]
- World Organization for Animal Health [Link]

Summary

- In an emergency, your safety is of the utmost importance
- Prevention and preparation are the keys
- Providing animals with adequate shelter, water, and food is critical in the immediate aftermath of an emergency
- Treating injured animals may not be feasible without help from trained professionals

Thank You!

SART Training Media