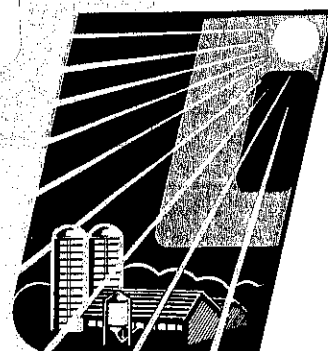




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**LIVESTOCK
CONSERVATION
INSTITUTE**

**Proper Handling
Techniques
for Non-ambulatory¹
Animals**

¹Non-ambulatory is a state of not being able to stand. "Downer animal" and "downer" are terms used in reference to a non-ambulatory animal.

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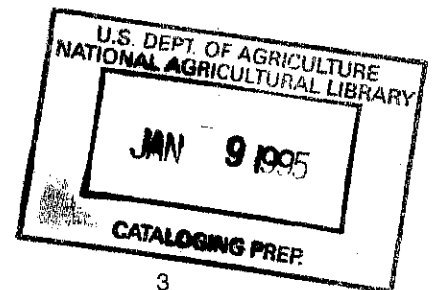
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Acknowledgment

In 1991 the Farm Animal Welfare Coalition asked LCI to organize a task force to respond to the "downer animal" issue. The task force was formed with representation from LCI and the major livestock industry organizations. It was chaired by Dr. John R. Ragan, State Veterinarian, Tennessee Department of Agriculture. The purpose of the task force was to assure that the industry responded to the issue in positive, substantive ways, and that the policies developed by each organization supported and reinforced the policies of the others. The task force was also charged with the responsibility of developing a booklet recommending practical ways to efficiently and humanely handle non-ambulatory animals.

The initial copy for this booklet was written by Dr. Temple Grandin. The final copy evolved on the basis of the ideas, comments and recommendations of the task force members and members of the Federation of American Societies of Food Animal Sciences Animal Welfare Response Team. The concept of the "3 P's" for responding to the larger challenge of both preventing and humanely responding to the situation when animals become non-ambulatory was suggested by Dr. Ragan.

John H. Lang, President & C.E.O.
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Introduction

Humane livestock care is universally recognized as good business by farmers and ranchers. Humane livestock care maximizes animal performance and minimizes veterinary costs. It reduces injuries and assures high quality food and fiber for the consuming public.

The purpose of this booklet is to respond to the specific management situation where, despite all efforts and all precautions, an animal becomes non-ambulatory. In this situation, both ethical and economic considerations come into play.

An animal may become non-ambulatory on the farm, during transportation, in the market, or in the processing plant.

The 3 P's

The "3 P's": Prevention, Preparation and Prompt action are the keys to the proper handling of non-ambulatory animals.

The first order of business is to prevent the situation from happening. The next requirement is preparation: having equipment available to properly handle non-ambulatory animals, and having livestock handlers trained in the proper techniques to handle these animals.

Finally, prompt decisions must be made and action taken. Inaction is inhumane. An otherwise healthy non-ambulatory animal should be inspected and processed for food as soon as possible. If a non-ambulatory animal is to be nursed back to health, steps should immediately be taken to protect it from further injury. It should also receive appropriate shelter, feed and water and appropriate medical attention to minimize pain and suffering during the recovery process. If the animal cannot be saved, it should be immediately and humanely euthanized.

The recommendations made in this booklet address prevention, preparation and prompt action, and are appropriate for all situations involving non-ambulatory animals.

If the decision is made to euthanize the animal, specific procedures are discussed in this booklet.

Prevent Animals From Becoming Non-ambulatory

- Train personnel to properly handle livestock. **DO NOT TOLERATE ANY ANIMAL MISHANDLING.** There is no substitute for the active involvement of top management and livestock owners to ensure proper care and handling of livestock. (LCI's livestock handling videos and other industry educational training materials are ideal training tools for situations where people handle livestock.)
- Provide non-slip flooring in all areas where livestock are handled.
- Build properly designed loading ramps.
- Observe proper loading densities on trucks
- Ship animals before they become infirm.

Be Prepared to Properly Handle Non-Ambulatory Animals

- Have clearly defined policies requiring proper treatment of non-ambulatory animals.
- Train people to properly move non-ambulatory animals.
- Gently roll the animal to move it. Do not drag or lift an animal by its limbs unless there is no other alternative. If the animal must be moved, use uninjured limbs and pad the limbs where the chain or cable will be attached. Drag the animal the shortest possible distance until a better method of moving the animal can be employed.
- Use equipment and handling devices for moving non-ambulatory animals appropriate for the size of the animal. (Suggested methods for moving non-ambulatory animals are discussed in detail in this publication.)

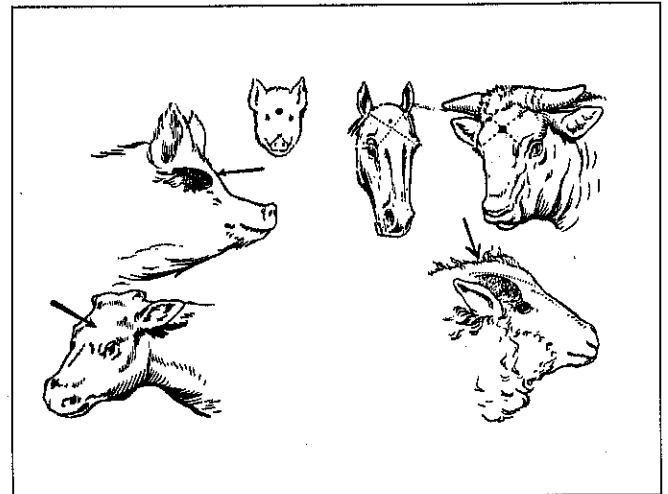
Take Prompt Action to Care for Non-ambulatory Animals

- Deliver an injured but otherwise healthy non-ambulatory animal directly to a processing plant if possible. A truck that has room for properly loading and unloading a non-ambulatory animal is recommended. If direct delivery for processing is not possible, use markets equipped to properly handle the animal.
- Non-ambulatory animals that have been chronically ill or that have recently been treated with antibiotics should be humanely euthanized on the farm.
- Animals that can be nursed back to health should be protected from further injury, and provided shelter, food and water. Veterinary care should be provided to minimize pain and suffering.

Euthanasia

The recommended method of euthanasia for cattle, hogs and sheep which go down in a truck, at an auction or market is a captive bolt stunner or a firearm. The captive bolt is preferred because it does not fire a free bullet. It fires a blank cartridge which propels a steel bolt into the animal's brain. This has the same effect as a bullet and kills (defined as brain-dead) the animal instantly. Captive bolt stunners can be obtained from packing plant supply companies for about \$200.

The diagram shows the correct position for stunner placement. Cattle are shot in the center of the forehead. Sheep are shot on the top of the head and hogs are shot in the forehead. Farmers and others who do not have access to a captive bolt stunner can use the same positions with a firearm.



Correct Positions for Devices Used to Humanely Euthanize Cattle, Hogs, Sheep or Horses

The Role of the Owner or Manager in Preventing Downer Animals

Observations at processing plants, farms and feedlots and auction markets indicate that constant supervision by owners and/or upper management is the single most important factor which determines humane handling. Non-ambulatory and disabled livestock are an economic liability and every effort should be made to prevent their occurrence. Most situations where animals become non-ambulatory are preventable through gentle and proper livestock handling.

People who handle livestock should be trained to handle animals correctly. Good handling practices require constant owner and management commitment. Good facilities provide the tools which make humane handling possible, but humane livestock treatment is assured by the commitment of the animals' owners and the management of companies that move, market and process livestock.

An operation which practices humane handling has clearly defined policies requiring it and an owner or manager who insists on it. (See LCI's Livestock Handling Guide for additional information on handling methods).

Non-Slip Flooring

Humane and safe livestock handling is impossible on slick floors. Non-slip flooring is essential to prevent falls which can result in broken legs or crippling spreader injuries.

Non-slip flooring should be:

1. Appropriate for the livestock species.
2. Durable and will not lose its non-slip characteristic from cleaning, and scuffing and wear.
3. Easily cleaned and maintained.

The following recommendations, while not comprehensive, fit these requirements:

Floors in new cattle stockyards and working facilities should be grooved in an 8-inch diamond or square pattern. The grooves should be a minimum of 1-inch deep. This pattern is recommended for auctions, feedlot processing areas, packing plants, loading ramps, and ranch corrals. It is NOT recommended for dairies where cows walk on a floor every day. The rough surface will damage their hooves.

In dairy facilities, the industry standard is to score the concrete with grooves 3/8 inch deep, and 1-1/2 inch wide and 3 to 4 inches apart. The grooves should run in the same direction the cow moves. In high traffic areas, the grooves should be in a diamond pattern. Concrete can also be scored with smaller grooves. It is essential to use a hard concrete mix to prevent excessive wear.

In areas where hogs are handled and driven, the wet concrete should be imprinted with the pattern of 1-1/2-inch raised, expanded metal mesh. A rough broom finish is not adequate. It will quickly become worn and slick. In existing facilities, floors can be roughened with a light jack hammer or grooved with a grooving machine.

On scales and other high traffic areas, a grid should be constructed from 1-inch steel bars in 12-inch squares for cattle and 6 to 8-inch squares for hogs and sheep. The grid must be securely attached to the floor and every intersection must be welded. Animals can be injured if they get a foot caught under the grid.

Loading Ramps

Loading ramps should not be excessively steep. Twenty (20) to twenty-five (25) degrees is the maximum angle for a loading ramp. Ramps should provide non-slip footing. They should be equipped with wing gates and a self-aligning bumper to prevent animals from stepping down between the ramp and the truck or getting stuck between the side of the chute and the truck. (See LCI's Handling Guides for further information on loading ramp design and recommendations for providing non-slip footing.)

Prevention by the Producer

Producers are urged to market livestock while they are still in good physical condition. Many animals become non-ambulatory when they become weak and emaciated. Many of these situations can be prevented by good husbandry practices by the producer.

Cattle

1. To prevent calving paralysis, producers should utilize ease of calving information to reduce calving difficulties. First calf heifers should be bred to bulls which sire calves with low birth weights.
2. Careful use of calf pullers will also help prevent calving paralysis. Inexperienced workers should receive training from a veterinarian or another experienced person.
3. Metabolic disorders (milk fever, in particular) and inadequate nutrition can be problems for both beef and dairy cattle. Competent nutritional advice and practice can reduce these problems.
4. Severe mastitis cases in dairy cattle can be reduced by good sanitation and careful teat dipping, however the real key to maintaining udder health is to keep udders clean and dry 24 hours a day. Milking equipment should be serviced regularly.
5. Install non-slip flooring in areas where cows are milked, housed or handled.
6. Keep the hooves of dairy cows properly trimmed.

Calves

1. All newborn calves should receive colostrum soon after birth to establish immunity to illnesses encountered in movement and shipping.
2. Calves should not be sent to a livestock market or a packing plant until they are able to walk and stand without assistance from a person. The hair coat should be dry. The navel should be properly treated and dry (two to three days after birth).
3. Calves must be carried, transported and handled with the utmost care. Avoid transporting and loading calves multiple times after leaving the dairy farm.

Hogs

There are many causes of downed hogs. Producers need to review the type of downers seen on their farms with their herd veterinarian and discuss prevention programs. The downer condition may develop under a variety of housing and management systems and occur at any stage of production.

The four main areas of prevention management include nutrition, disease, environment and genetics:

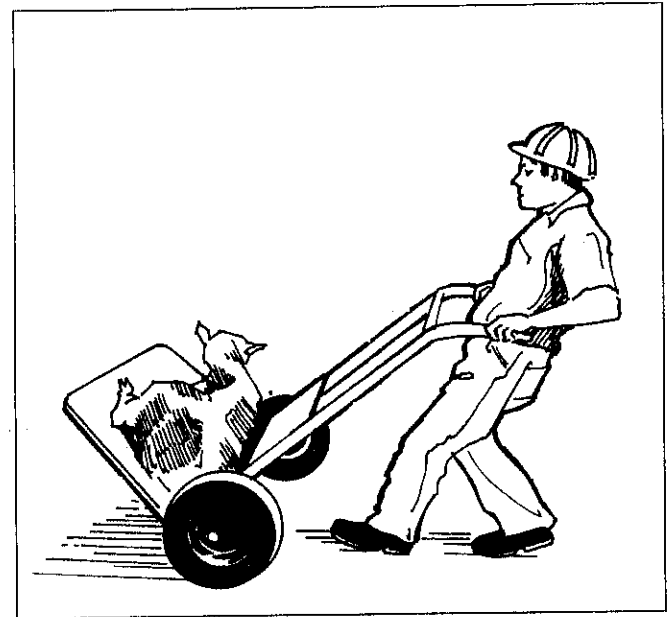
1. Proper nutrition for all stages of production, especially young, lactating females is important in prevention of downed hogs. Diets should be reviewed with nutritional advisors at least once a year.
2. Many infectious agents may cause joint infections that lead to downed hogs. An accurate diagnosis needs to be made and appropriate prevention steps implemented.
3. Producers need to evaluate the effect of their flooring on predisposing pigs to traumatic and stress-induced injuries.
4. Genetic selection of sound breeding stock is important in the prevention of feet and leg problems that predispose to downers. Watch for breeding stock with weak hindquarters that may have a tendency to spraddle leg or "do the splits". Many downed hogs are caused by PSS (Porcine Stress Syndrome). This is the result of a genetic defect that may cause prostration and sudden death. Many of these hogs can recover if left alone and cooled carefully by wetting the floor around the hog. Applying cold water directly to a "stressed" hog may kill it. Halothane testing can be used to detect carriers of the PSS gene. (See LCP's PSE pamphlet).

(The National Pork Producers Council's position on swine handling is that crippled swine unable to walk, or sick swine that will not recover should be humanely euthanized on the farm and not transported to market. Swine that do become injured in transit should be handled in a humane manner, and depending on condition, be either immediately euthanized or transported as quickly as possible to slaughter.)

Recommended Methods for Moving Non-ambulatory Animals

Hogs and Sheep

Farmers, auction markets and processors have devised various carts for moving non-ambulatory hogs and sheep. They can also be easily moved with a modified two wheeled hand cart. A heavy duty hand cart can be equipped with a larger platform than a standard hand cart used for moving boxes. The platform is pushed under the animal, and the hand cart is tilted back to move the animal onto the platform. A second person should be present to steady the animal on the platform.



Modified Hand Cart for Moving Crippled Sheep or Hogs

The most common method of moving non-ambulatory animals in markets and processing plants is a skid steer loader (Bobcat). This method requires two people. One person operates the machine while the other person rolls the hog or sheep into the bucket. The use of two people is essential for humane handling. Shoving a hog or sheep against a wall or fence to get it into the loader bucket is unacceptable. Moving of downed animals with a loader will be easier and more humane if the standard bucket is replaced with a larger, specially designed bucket with a hinged lid which will prevent the animal from falling out.

Because of their size, moving crippled hogs and sheep by their limbs will seldom be necessary. To remove downed hogs and sheep from the belly of a semi-trailer, a slide board or wide piece of conveyor belting can be used. The animal is gently rolled onto the board or conveyor belting. To move the animal, the belting or board is dragged. To facilitate removal from a belly compartment, a winch may be required to move the board or belting either up or down the ramps. One side of the conveyor belting should be reinforced with metal strips and attached to the winch with a "Y" yoke. This prevents the belting from buckling in the middle. Side doors installed in the belly compartment of semi-trailers will facilitate humane off-loading of disabled animals.

Cattle

Due to their large size and weight, moving downed cattle in a humane manner requires different techniques.

Semi-trailers used to haul cattle should be equipped with side doors in the center compartments to facilitate the removal of non-ambulatory cows from the top and belly compartments. If a trailer has side doors, an animal can be rolled onto a large piece of conveyor belting.

Conveyor belting can be obtained in 6' wide strips. The belting with the animal on it would be dragged to a side door. The belting must be reinforced along one edge with metal strips to prevent buckling and bending when the animal is moved.

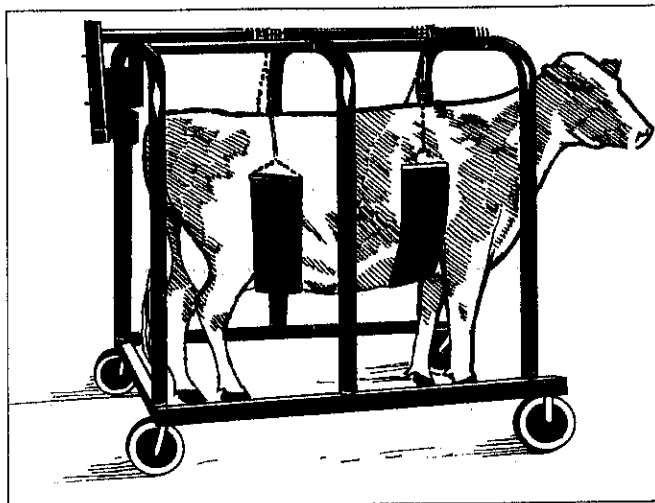
The animal can be transferred to either the bucket of a large loader or a forklift. If a forklift is used, a platform should be attached to the forks.

Cattle which go down in low-stock trailers can be off-loaded by rolling them onto conveyor belting. If an animal goes down in the belly compartment of a semi-trailer that does not have side doors, humane removal is nearly impossible. Euthanasia is strongly recommended.

If an animal goes down in a pen or alley it can be moved with the conveyor belting, placed into a loader bucket or moved with a special lifting harness. If the conveyor belting is used, it can be towed with a tractor. If a loader is used, at least three people will be required to transfer the animal into the bucket. One person runs the loader and the other two roll the animal into the bucket.

Standard forklift forks should not be shoved under a cow to move her. A metal pallet should be constructed to fit over the forks. The leading edge of the pallet should be angled to form a ramp. This will facilitate rolling the cow onto the pallet. The pallet platform can also be equipped with straps to prevent the cow from falling off.

Specialized hoists such as the "Cow Caddy" can fit into tight spaces. They are built to gently lift and lower a non-ambulatory animal. The large wheels allow persons to efficiently move the animal.



The "Cow Caddy" Developed by Equity Cooperative Livestock Sales Association, Baraboo, Wisconsin, to Move Large Non-ambulatory Cattle.

Dragging a non-ambulatory animal by its limbs is undesirable and should seldom be necessary. Only in specific situations, where an animal must be moved only a few feet should dragging the animal by its limbs be considered. For instance, such a situation might be a dairy cow in a milking parlor.

If an animal can be saved by dragging it by its limbs, the move should be limited to the shortest possible distance until a preferable moving method can be used. If dragging is the only alternative, then padded belts should be attached to non-injured limbs and the rope, cable or chain attached to the belts. Animals should never be dragged by the neck. If the techniques described are not practical, then euthanizing the animal is strongly recommended.

Other Educational Materials Available From LCI

Booklets:

Livestock Trucking Guide, 16 pages.

A classic. Includes LCI's Livestock Weather Safety Index.

Livestock Handling Guide, 16 pages.

Focuses on practices that minimize bruises and injuries and will generally improve handling efficiency. Includes Dr. Temple Grandin's loading chute design specifications.

Handling Pigs, 12 pages.

Reprinted from *Pork Industry Handbook*. Includes handling practices and facility designs for efficient handling and minimum injuries and stress to pigs.

Videos:

LCI's unique livestock handling videos demonstrate basic livestock behavior patterns and how to use the knowledge of those behaviors to humanely and efficiently work with livestock. Both educational and entertaining, they are a basic training tool for inexperienced persons and an enjoyable refresher for experienced livestock handlers.

Cattle Handling and Transportation, 17 minutes. Shot in color at feedlots in Texas. Over 1,000 copies in use by cattlemen, educators, veterinarians and companies throughout the United States.

Swine Handling and Transportation, 17 minutes. Shot in color on a farm in Indiana, a market in Illinois and a processing plant in Missouri. Has enjoyed the same enthusiastic acceptance as the cattle video.

Handling Dairy Cattle, in production, expected to be available in the fall of 1992. Locations include the world famous Hoard's Dairyman Farm in Wisconsin, the Purdue University Dairy Research Center and Dairy Company, Arizona.