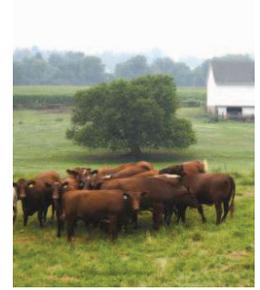


Chapter 6

Cattle Care: Handling and Facilities



Cattle producers have long recognized the importance of proper livestock management. Sound animal care, handling, and biosecurity practices are based on practical experience, sound science, and animal behavior research. These practices impact cattle health, welfare, and productivity as well as enhance beef quality and producer profitability.

All individuals who work with livestock should have a basic understanding of livestock handling techniques to ensure the welfare of the cattle and people.

Cattle Handling

Cattle are gathered to perform routine husbandry procedures such as veterinary care; weighing; sorting; weaning; and transportation to and from pastures, feedlots, and livestock markets. Handling procedures must be safe for the cattle and caretakers and cause as little stress as possible. Facilities should be designed and constructed to take advantage of cattle's natural instincts.

All individuals who work with livestock should have a basic understanding of livestock handling techniques to ensure the welfare of the cattle and people. Training for those who care for and handle cattle should include:

- Understanding flight-zone and point of balance of cattle
- Proper use of handling and restraining devices
- How to avoid sudden movement, loud noises, or other actions that may frighten cattle
- Proper handling of aggressive/easily excited cattle
- Basic feeding/nutritional management of cattle
- Recognizing early signs of distress and disease
- Recognizing signs associated with heat and cold weather stresses and how to respond with appropriate actions
- How to properly diagnose common illnesses and provide proper care
- Proper administration of animal health products
- How to do conduct animal health procedures

Producer Code of Cattle Care

Large chain restaurants such as McDonald's are influencing how cattle are raised. The National Council of Chain Restaurants has developed an Animal Welfare Audit for how animals should be housed and treated on the farm.

A producer code for care of cattle should:

- Provide adequate food, water, and care to protect the health and well-being of animals
- Provide disease prevention practices to protect herd health, including access to veterinary care
- Provide facilities that allow safe, humane, and efficient movement and/or restraint of livestock
- Use humane methods to euthanize sick or injured livestock and dispose of them properly
- Provide personnel with training to properly handle and care for cattle
- Make timely observations of livestock to ensure basic needs are met
- Provide transportation that avoids undue stress caused by overcrowding, excess time in transit, or improper handling during loading and unloading
- Include staying updated on industry advancements and changes to make decisions based on sound production practices with consideration for animal well-being, biosecurity, and food safety
- Not allow any willful mistreatment of animals



Understanding Cattle Behavior—Ways to Reduce Stress

Vision

Cattle have a wide-angle vision field in excess of 300 degrees. Loading ramps and handling chutes should have solid walls to prevent animals from seeing distractions outside the working area. Seeing moving objects and people through the sides of a chute can cause cattle to balk or become frightened. Solid walls are especially important if animals are not completely tame or if they are unaccustomed to the facility.

Handling facilities should also be designed to eliminate shadows that may prevent cattle from entering the chutes or working alleys. Cattle have a tendency to move from dark areas to lighter areas, provided the light is not glaring. A spotlight directed onto a ramp or other apparatus will often facilitate entry. Handling facilities should be painted a uniform color because cattle are more likely to balk at a sudden change in color.



Hearing

Loud noises should be avoided in cattle handling facilities. However, small amounts of noise can be used to assist in moving livestock. Placing rubber stops on gates and squeeze chutes, and positioning the hydraulic pump and motor away from the squeeze chute will help reduce noise. It is also beneficial to pipe exhaust from pneumatic powered equipment away from the handling area.

Curved Chutes and Solid Fences

Curved single file chutes or working alleys are especially recommended for moving cattle into a truck or squeeze chute (see Figure 6-1). A curved working system is more efficient for two reasons. First, it prevents the animal from seeing to the end of the chute until it is almost there. Second, it takes advantage of the natural tendency to circle around a handler moving along the inner radius. A curved chute provides the greatest benefit when animals have to wait in line for vaccination or other procedures. A curved chute with an inside radius of 15 to 16 feet will work well for handling cattle.

Livestock will often balk when they have to move from an outdoor pen into a building. To combat this problem, animals should be lined up in a single file chute/working alley outside. Again, solid sides are recommended on both the handling facilities and the crowding pen that leads to a squeeze chute or loading ramp.

Patience and Experience

Experienced and trained personnel should operate restraining equipment in the processing of cattle. Processing should never be treated as a race. Avoid overcrowding the crowd pen, and refrain from pushing the crowd gate up on the cattle. Instead, allow them to move forward naturally.

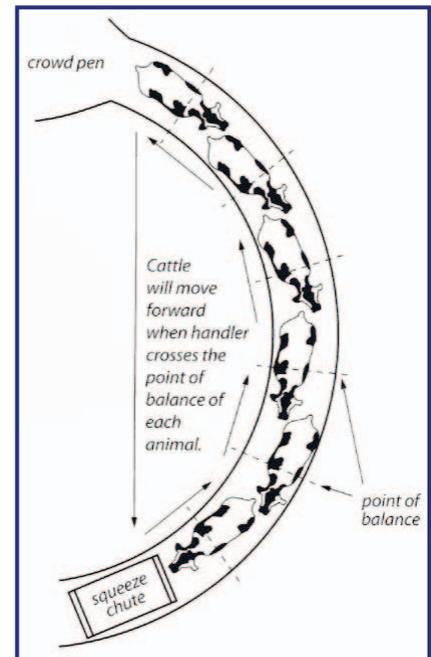


Figure 6-1.

Handler movement pattern for use in a curved chute system. The techniques here and in Figure 6-2 make it possible to greatly reduce or eliminate electric prods.

Working cattle too quickly can lead to bruises, injection-site damage, human injuries, and incorrect records. Stress caused by improper handling also lowers conception rates, reduces vaccination effectiveness, and reduces immune and rumen functions.

In addition to bruising losses from improper cattle handling, shipping fever and excess shrink (caused by the stress of mishandling) also lead to severe economic damage to the industry. An understanding of cattle behavior will facilitate handling, reduce stress, reduce bruise defects, and improve both handler safety and animal welfare.

Handling is safer when animals are moved quietly. Handlers should not yell or flap their arms, because this may agitate the animals. Excessive use of electric prods increases animal agitation as well as hazards to handlers. When cattle become agitated and fearful, up to 20 minutes is required for their heart rate to return to normal (Grandin.com). Agitated large animals are easier and safer to move if they are given an opportunity to calm down, perhaps while handlers are on a lunch or coffee break.



This cattle handling setup creates “tunnel vision” to limit visual distractions that can cause animal stress. The clean angles and solid sides limit the animal’s peripheral vision as an alternative to the preferred curved chute. Daylight at the headgate lures cattle forward. Balking and fear are reduced because the angled sides obscure the headgate until the cattle reach the end of the chute. Grooved nonslip flooring add to comfortable, confident movement of cattle through the chute.



Flight Zone

An important concept of livestock handling is the animal’s flight zone or personal space. When a person enters the flight zone, the animal moves away. Understanding of the flight zone can reduce stress and help prevent accidents (Figure 6-2).

The size of the flight zone varies depending on how accustomed the cattle are to their current surroundings, people, etc. The edge of the flight zone can be determined by slowly walking up to the animals. If the handler penetrates the flight zone too deeply, the animal will either bolt and run away or turn back and run past the person.

The animal will most likely stop moving when the handler retreats from the flight zone. The best place for the person to work is on the edge of the flight zone. Cattle sometimes rear up and become agitated while waiting in a single file chute. A common cause of this problem is a person leaning over the chute.

All livestock handlers need to understand the point of balance. The point of balance is an imaginary line at the animal’s shoulders. To induce the animal to move forward, the handler must be behind the point of balance. To make the animal move backward, the handler must be in front of the point of balance. Animals move forward when a handler walks past the point of balance in the opposite direction of desired movement (Figure 6-3).

Figure 6-2. The flight zone.

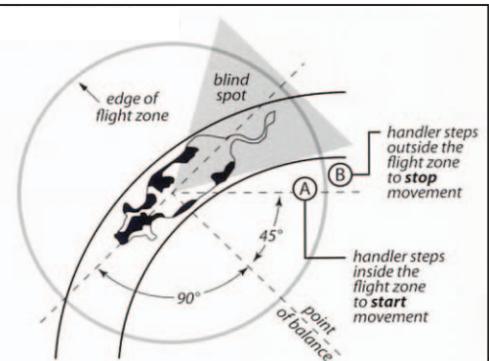
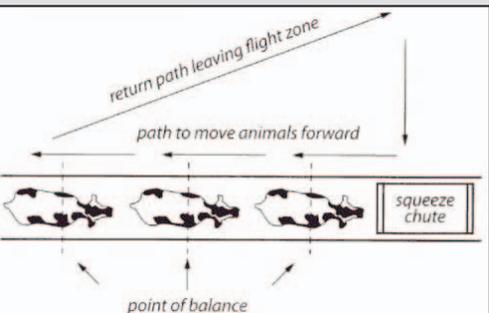


Figure 6-3. This movement pattern can be used to induce an animal to move into a squeeze chute. The handler walks inside the flight zone in the opposite direction of desired movement. The animal moves forward when the handler crosses the point of balance.



Tips for More Efficient Handling

Proper design and quick recognition of problems that impede cattle flow are essential for safe, efficient cattle handling.

Design and operate alleys and gates to avoid impeding cattle movement.

When operating gates and catches, reduce excessive noise, which may cause distress to the animals. Do not use whips, prods, and sticks. Avoid use of electric cattle prods with cattle. Whips are noisy and can frighten animals. Beating with sticks or boards stresses animals, causing injuries and making them more difficult to handle in the future. A good method for driving and sorting cattle is to use a broom or a plastic paddle. Cattle seem to see a wider implement better and follow directions more readily if such an aid is used rather than a stick. Avoid twisting tails too hard or the tail may break.

Work cattle in groups. Cattle have a strong herd instinct and become nervous or aggressive when alone. It is best to work at least two or three animals at a time. It is good to have one or two mature cows in the group if trying to work a group of young calves.

Call cattle rather than drive them. Train cattle to come to your shout or truck horn. This can be done by blowing your truck horn or shouting when feeding or moving cattle. Cattle are more likely to respond to your call in the morning or evening than in the heat of the day.

Use one-way gates to keep cattle from backing in the working chute. Various approaches work, from saloon-type doors to boards manually placed behind the cattle. Hydraulic or manual restraining chutes should be adjusted to the appropriate size of cattle to be handled.

Regular cleaning and maintenance of working parts is imperative to ensure the system functions properly and is safe for the cattle and handlers.



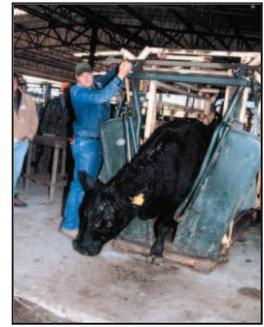
Avoid slippery surfaces, especially where cattle enter a single-file alley leading to a chute or where they exit the chute. Grooved concrete, metal grating (not sharp), rubber mats, or deep sand can be used to minimize slipping and falling.

Grooved concrete floors and scored rubber padding improve footing and comfort. This is most important for high traffic areas such as parlor holding pens and feedbunk alleys.

Quiet handling is essential to minimize slipping. Under most conditions, no more than 2 percent of the animals should fall outside the chute. A level of more than 2 percent indicates a review is needed, asking questions such as:

- Is this a cattle temperament issue?
- Has something in the handling area changed that is affecting cattle behavior?

Some cattle are naturally more prone to vocalize, but if more than 5 percent of cattle vocalize (after being squeezed but prior to procedures being performed), it may be an indication that chute operation should be evaluated.



Reducing the Number of Scars and Bruises

First and foremost, cattle handling facilities must be available to assure that cattle management practices can be performed properly and in a way that will minimize the possibility of injury and stress to people and animals. Facilities need not be elaborate or expensive but should be functional and economical (Table 6-1).

Cattle are bruised by hard bumps against protruding objects and by horns. Sticks and canes used as persuaders on the farm and at the market cause serious bruising and should be avoided. When animals are slaughtered, these bruises must be trimmed from the carcass, causing an economic loss.

If more than 25 percent of cattle jump or run out of the chute, a review of the situation should address questions such as:

- Is this a result from cattle temperament or prior handling?
- Is the chute operating properly?

Provide a sound working knowledge of proper cattle handling techniques to all individuals who handle cattle on the farm. Observe employees to ensure they are properly trained and are using recommended techniques for the tasks at hand. Ongoing education should be part of the farm management plan, including the animal behavior concepts explained in this manual.



Cattle Handling Facilities

Keep facilities and equipment in good condition to provide efficient movement and reduce stress when working cattle. Watch for nails, loose boards, and other hazards that could tear the hide or cause bruises or infections.

Equipment to restrain cattle is needed on most beef and dairy operations. The equipment should quickly and securely restrain the animal and should allow for the quick release of the animal upon completion of the procedures. Corrals, pens, and chutes should be the proper size for the number and size of animals and the type of processing to be done. Keep equipment clean and in good repair. Proper cattle handling requires the right facilities, equipment, and attitude.

Planning a Handling Facility

The first step in planning a handling facility is to inventory existing facilities (old handling facilities, barns, sheds, etc.). Some of these might be used in the new handling facility. Consider the layout of pastures and existing facilities when deciding where to build so cattle will have easy access. The availability of water and electricity should also be considered. The proximity to neighboring homes or main roads, where odor, dust, noise, and flies might be objectionable, should be considered.

The breed and size of cattle to be worked will influence how the facility is to be constructed. Larger or more spirited cattle will demand stronger materials be used in construction. Obviously, the number of cattle to be worked will affect dimensions.

The site selected should be on an almost level spot with good drainage. If the site is on a slight slope, be sure cattle will be moved up the slope as they are worked to accommodate normal cattle movement. Cattle are easier to work if they move in a direction that is normal for them.

Consider creating an all-weather loading area that will allow all vehicles to access the facility and turn safely. While trying to make the plan friendly for loading and access, keep in mind the benefits of being able to limit access to the general public so as to decrease the possibility of disease transmission and interference with farm work.

Components of a Good Handling Facility

The size and complexity of a cattle handling facility depends on the number of animals in the herd. A good handling facility should contain the following components: headgate, holding or squeeze chute, working chute, crowding pen, holding pens, scales, and loading chute. These facilities need not be elaborate or expensive. A discussion of each of these components follows.

Headgate

The headgate is the most important part of the entire working facility. It should be sturdy, safe, and easy to operate and should work smoothly and quietly. There are three basic types of headgates. They are self-catching, scissors-stanchion, and full-opening stanchion. The self-catching headgate closes automatically due to the movement of the animal. The scissors-stanchion type consists of two halves that pivot at the bottom. The full-opening stanchion consists of two halves that work like a pair of sliding doors.

The recommended types for small operations are the self-catching and the full-opening stanchion. These are extremely safe and will rarely choke an animal. The disadvantage is that animals can move their heads up and down unless a nose bar is used. Both headgates are available with either straight or curved stanchion bars. The curved-bar stanchion offers more control of the animal's head but is more likely to choke the animal than the straight-bar type. Thus, curved stanchions are not recommended. No matter which type of headgate is selected, proper adjustment for the type of cattle being worked is necessary to prevent injury to the animals.

Squeeze Chute

The squeeze chute is located immediately behind the headgate and secured to it. The width of the squeeze chute should be adjustable for different sized animals, but should not be any wider than 26 inches. Other desirable characteristics include squeeze action, removable side panels for easier access to the animal, and a floor with a nonslip surface. Squeezes can be manually or hydraulically operated. V-shaped sides are preferred because they support cattle, preventing them from going down and choking.

The squeeze chute may be hinged on one side to release the animal if the headgate is not a walk-through type. Some type of see-through blocking gate or bar is needed to prevent the animal from backing up before the head is caught. Also, this will prevent the next animal from moving into the chute before the first animal is released. A 2-foot service gate at the back of the chute is desirable when working at the back of the animal (castrating, pregnancy testing, etc.) A palpation cage can be substituted for the service gate if desired.

Working Chute

The working chute leads cattle from the crowding pen to the squeeze chute. The purpose of a working chute is to hold cattle in a line so that they can enter the treatment or loading area one at a time. Working chute sides should be solid. Solid walls prevent the animals from seeing the squeeze chute, people, and the truck until they are almost there. V-shaped sides are recommended, especially if the facility is used to handle both cows and calves. Sloped sides restrict the animal's feet and legs to a narrow path, which in turn reduces balking and helps prevent an animal from turning around. Curved chutes work best for animals awaiting treatment. It takes advantage of the cattle's natural circling behavior.

An alternative to curved chutes is an offset chute. In this case, part of the working chute is offset by 30 degrees (maximum), so that cattle are prevented from seeing the squeeze until they are almost there. Straight working chutes are not recommended. Whenever possible, the working chute should be at least 20 feet long regardless of herd size. Size specifications are given in Table 6-1.

To prevent balking, the blocking gate at the junction of the working chute and the squeeze chute should allow an animal to see the animal ahead. "Back up" or "tail gate" bars in the working chute can be used to prevent animals from moving backward.

Table 6-1. Specifications for cattle handling facility dimensions.

Facility Component		Recommended Dimensions		
		Up to 600 lbs	600 to 1,200 lbs	Over 1,200 lbs
Holding pen				
Space per head (sq ft)		14	17	20
Pen fence	Height (in)	60	60	60
	Post spacing (ft)	8	8	8
	Post depth in ground (in)	30	30	30
Crowding Pen¹				
Space per head (sq ft)		6	10	12
Post spacing (ft)		4 - 6	4 - 6	4 - 6
Solid wall height (in)		45	50	50 - 60
Working Chute²				
Straight side (in)		18	22	26
Fully tapered—width at 32-in height (in)		18	22	28
Fully tapered—width at bottom (in)		15	16	18
Minimum length (ft)		20	20	20
Maximum curve angle (degrees)		15	15	15
Length for 16-foot outside radius (ft)		45	45	45
Solid wall height (in)		45	50	50 - 60
Overall height—top rail (in)		55	60	60 - 72
Chute fence	Post spacing (ft)	6	6	6
	Post depth in ground (in)	36	36	36
Holding Chute/Squeeze				
Height (in)		45	50	50
Width	Straight sides (in)	18	22	28
	V-shaped sides, bottom width (in)	6 - 8	8 - 12	14 - 16
Length—with headgate (ft)		5	5 - 8	5 - 8
Loading Chute				
Width (in)		26	26	26 - 30
Minimum length (ft)		12	12	12
Maximum rise (in/ft)		3.5	3.5	3.5
Ramp Height				
Stock trailer (in)			15	
Pickup truck (in)			28	
Stock truck (in)			40	
Tractor-trailer (in)			48	

¹ Crowding pen must be either circular (1/4 or 1/2 circle) or funnel-shaped.

² Working chute should be curved or offset (offset angle at 30o maximum).

Crowding Pen

The crowding pen is located at the back of the working chute. Size should be about 150 square feet, which will hold six to 10 head of cattle. A circular crowding area with solid sides works best. Funnel-shaped pens are a good alternative to circular crowding tubs for smaller facilities. The funnel-shaped pen should form a gradual V as it approaches the working chute. The cattle will be less apt to bunch up if one side of the V is straight with the working chute and the other side angled out. A solid crowding gate should be used to push animals from the V into the working chute.

Holding Pens

Holding pens should be located so they fit conveniently with the rest of the facility. Each holding pen should provide approximately 20 square feet per animal.

Scales

Scales are essential for performance testing, evaluating gains, and determining sale weights. A single animal scale (usually portable) is most useful when determining the rate of gain and also in selecting breeding stock or determining how much weight cows are gaining or losing. The scales should be located so cattle can be easily moved on and off.

Loading Chute

The loading chute should be located directly off the crowding pen, allowing easy movement of cattle. A curved approach, 30 to 35 inches wide, prevents animals from seeing the truck until they are nearly loaded. The loading chute ramp can be either sloping or stepped. The maximum incline should be 30 percent (3½-inch rise per foot of incline). Adjustable ramps are convenient when trucks or trailers of different heights are used. The length of the loading chute depends on the height required; however, it should be at least 12 feet long. The loading chute should be 26 to 30 inches wide.

Safety First

Properly designed working facilities can make handling cattle much faster and safer. Injuries and bruises to the cattle and producer can also be reduced by following these tips:

- **Use experienced people:** Inexperienced people are easily frightened by cattle and may be hurt if they do not understand cattle behavior.
- **Treat cattle with respect:** Cattle are large and strong and can be unpredictable. It is unwise to relax around them too much or to try to work them without adequate facilities. Consider how you can out-think cattle, not out-wrestle them.
- **Remove sharp objects:** Avoid protruding objects, sharp corners, low overhangs, or other traps that can harm humans or animals when working cattle.
- **Construct catwalks:** A catwalk built along the cattle working chutes or loading chutes is a much better place from which to work cattle than standing behind them.
- **Build service gates:** A small gate behind the catch or squeeze chute that allows access to the cattle from the rear makes it much easier and simpler for such procedures as pregnancy checking, artificial insemination, castration, or examining and treating certain injuries. Hang the service gate so it swings toward cattle in the working chute, blocking them from the person working behind the animal in the squeeze chute.
- **Build safety passes:** Safety passes or escape gates in strategic locations allow fast escape if cattle get too excited. Good locations are along the alleyway that takes cattle from holding pens to the working facility and close to the crowding area.
- **Watch for kicks:** If cattle are to be worked in close quarters, either work close to the animal or stay out of kicking range. Cattle cannot kick hard when you are very close. This is not recommended, however, because the danger of being stepped on is greatly increased. Do not place your head in a location where cattle can kick (e.g., examining udder or rear end).
- **Stay alert:** Cattle can become unruly when least expected. When working cattle, make certain that everyone is cautious at all times. If workers become fatigued, it is best to rest for a while.
- **Sort cows away from calves:** It is less stressful on the cattle and the sorter if cows are sorted away from calves instead of moving calves away from cows.
- **Use products carefully:** Many of the tools and products used in working cattle can be harmful if improperly used. Read and follow directions carefully. Accidental ingestion of chemicals by humans, spilling certain products (especially organophosphates, an active ingredient in insecticides) on the skin or in the eyes, or accidental injection can be harmful to people. If accidents happen, contact a physician immediately. Take the label with you so the physician can have full knowledge of the product that is causing the problem.
- **Properly restrain cattle when working them:** Cattle that are not properly restrained in good facilities can cause accidents by throwing their heads or kicking. This may result in human injury. It is also difficult to deliver precise dosages of vaccines, pour-on insecticides, dewormers, or other products without good facilities. Improperly delivered product dosages can increase animal stress by inducing overdose reactions or, alternatively, by not doing the proper job because too little product is delivered.
- **Provide first aid:** Have a first-aid kit available near the cattle working area. First-aid training is recommended to handle possible emergencies.

