

# Cattle Producer's Handbook

Management Section

792

## Cattle Psychology During Handling and Corral Design

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An understanding of cattle psychology, combined with well-designed facilities, will reduce stress on both you and your cattle. Calm cattle are easier to handle than excited cattle, and cattle are less likely to injure themselves or handlers. If cattle become excited, as much as 15 to 30 minutes are needed to calm them down.

Lowering stress is important because stress reduces the ability to fight disease and reduces weight gain. It also increases shrink, damages rumen function, and can interfere with reproduction. Cattle that become excited and agitated when handled have lower weight gains and are more likely to have meat quality problems. Quiet handling will also make it easier to administer injections because calm animals move less in the squeeze chute.

Cattle have long memories. An animal's previous experiences will affect its stress reaction to handling. Animals that have been handled roughly will be more stressed and difficult to handle in the future. Animals that are handled gently and have become used to handling routines will experience little stress when handled.

According to an old saying, "You can tell what kind of a stockman a person is by looking at the behavior of his cattle." In one feedlot survey, cattle from a yard that had a reputation for rough handling were wild and difficult to manage at the packinghouse. They also had more bruises and more carcasses classified as dark cutters.

It is advisable to get cattle accustomed to handling by people on foot, horseback, and in vehicles. Cattle that have never been moved by people on foot on the ranch, may cause handling problems at feedlots and packing plants when people attempt to move them. When cattle are introduced to a new corral or a new handling procedure such as being moved by a person on foot, their first experience should be positive. First experiences make a big impression on animals. The person should walk quietly among them. Since breeding cows will be

using the same facilities repeatedly, it is recommended that any new corral be introduced by letting the cows walk through it before actual work is done.

Although painful procedures cannot be avoided, decreasing agitation and excitement will reduce stress. Cattle remember painful restraint methods such as nose tongs. Subsequent handling will be easier if you use a halter to hold their heads and keep electric prod usage to an absolute minimum.

### Behavior Principles

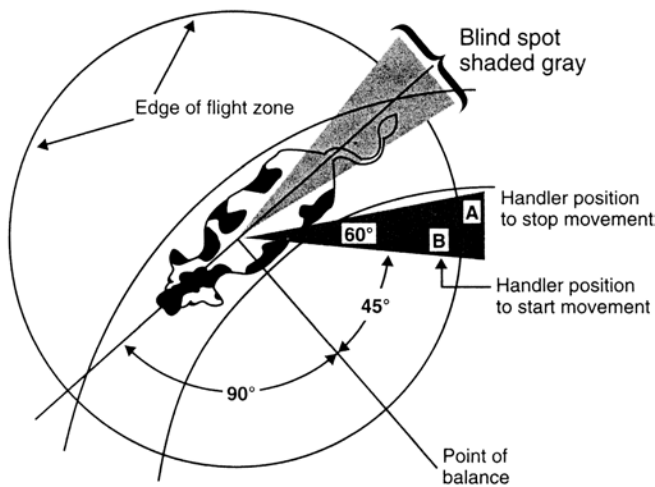
Cattle have wide-angle vision and can see behind themselves without turning their heads. However, they have a small blind spot to the rear (Fig. 1).

Understanding the flight zone – the cow's safety zone – is the key to easy, quiet handling. When you penetrate the flight zone, the animals will move away, and when you retreat from the flight zone they will stop. The size of the flight zone is determined by several factors, such as wildness or tameness of the animal and the angle of the handler's approach.

The flight zone will be larger when the handler approaches head-on, and it will become smaller when the animal is confined to a single-file chute. A cow passing you will have a smaller flight zone. If a cow becomes excited, the flight zone will increase.

Cattle can be easily moved by working on the edge of the flight zone (Fig. 1). The handler must be close enough to the animal to make it move, but not so close as to cause it to panic and flee. If the cattle start moving too fast, you must back out of the flight zone.

If cows on pasture turn and look at you, you need to approach them and put pressure on the edge of the flight zone to restart movement. To keep the animals moving, alternately enter and retreat from the flight zone. This is the principle of pressure and release. Reward an animal



**Fig. 1. People moving cattle need to understand the animal's flight zone. The handler enters the flight zone to start cattle movement and retreats to stop or slow cattle movement. The animal will move forward when a person is behind the point of balance at the shoulder.**

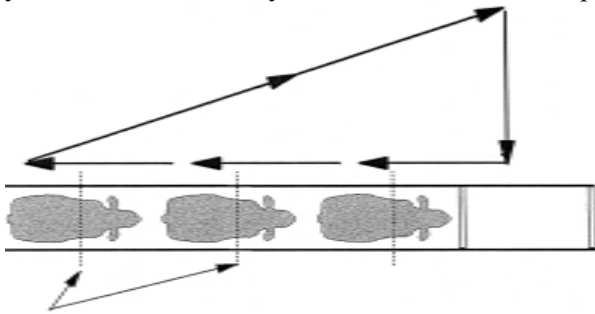
who moves for you by relieving pressure on its flight zone, but, in a few seconds, invade the flight zone again to keep the animal going.

Cattle have a herding instinct that can be used to gather them on pasture. To trigger this instinct, you quietly walk back and forth in a zigzag pattern barely on the edge of the flight zone of a large group of cattle. You must not chase stragglers; allow the natural behavior of the herd to attract them.

The principle in use is to allow the cattle to gather in a bunch BEFORE you apply more pressure to the collective flight zone to move them. If too much pressure is applied too quickly, the cattle will scatter.

Another warning is do not circle around the cattle to induce bunching. You should walk in a straight line or a very slight arc. Imagine that the place you want them to go is the pivot of a giant windshield wiper.

When cattle are worked in an enclosed space such as an alley or a crowd pen, you must be careful to avoid deeply penetrating the flight zone because doing so can cause cattle to panic, jump fences, and turn back on to you. If cattle in an alley start to turn back, back up and



**Fig. 2. Use this movement pattern to move cattle into a squeeze chute. Using this movement pattern will make it possible to greatly reduce electric prod use.**

get out of the flight zone. When an animal rears up in the chute, retreat from its flight zone. Most times, it will settle back down.

## Point of Balance

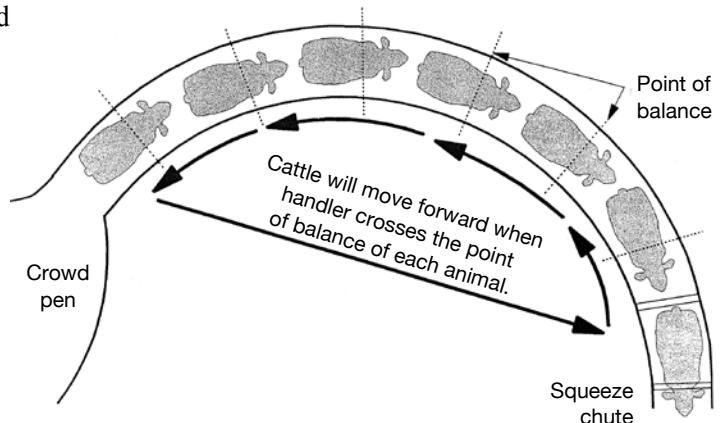
To move an animal forward, you must be behind the point of balance shown in Fig. 1. Moving in front of the point of balance at the shoulder will make the animal go backward. To start movement, approach the animal just behind the point of balance and move back into positions A and B. Avoid getting into the blind spot while working in a pasture or a large pen. Entering the blind spot will cause the cattle to stop, turn and look at you. They want to know where you are at all times. In close quarters kicking is a normal response to penetrating a cow's blind spot.

An easy way to move cattle through chutes without the use of an electrical prod is to quickly walk past the point of balance in the opposite direction of desired movement. When the handler crosses the point of balance the animal will move forward. This movement pattern is shown in Figs. 2 and 3. The principle is to walk inside the flight zone in the opposite direction of desired movement and to walk outside the flight zone in the same direction as desired movement. A large version of the pattern shown in Fig. 2 works well for moving cattle on pasture.

## Working in Corrals

Applying and relieving pressure to the flight zone of the leaders will also make it easier to fill and empty corrals. Cattle movements are under your control at all times. It is important for cattle to learn that you control their movements and they cannot escape from you. Never allow cattle to run wildly out of a corral. Make the animals walk past you at the exit gate. Wait for the cattle to turn and look at you before you walk away.

An animal left alone in the crowding pen after the other animals have entered the single-file chute may attempt to jump the fence to rejoin its herdmates. A lone steer or cow may become agitated and charge the handler, resulting in serious injuries. You should either allow it to rejoin its herdmates or put some other cattle in with it.



**Fig. 3. Walk quickly past the cattle to make them move forward.**

Handling will be easier if the crowd pen, which leads to the single file chute, is filled only half full. Cattle need room to turn (Fig. 4). Avoid the over use of crowd gates. A stick with a flag or plastic streamers on the end works well for turning cattle in the crowd pen and should be your primary cattle driving tool. On most ranches 99 percent of the cattle can be moved into the squeeze chute without an electric prod. People should not be constantly carrying an electric prod.

### Remove Balking-Cause Distractions

If cattle balk and refuse to move easily from the crowd pen into the single file chute you should look for distractions. A loose chain end dangling in the entrance of the chute can make cattle balk. Get down in the chute and observe it from a cow's eye view. Other things that make cattle balk are flapping objects, seeing moving people ahead (Fig. 5), vehicle movement, and reflections off of shiny metal or a puddle.

Cattle also balk at shadows and high contrasts of light and dark (Fig. 5). A drain grate on the floor may cause balking. Carefully observe your cattle. Calm animals will stop and look at things that make them balk.

Lighting is also critical. Cattle have a behavioral tendency to move from a darker place to a brighter place unless they are looking directly into the sun. They do not like to enter dark places. Lamps that provide diffuse, indirect lighting can facilitate cattle movement at night. The lamp must not shine directly into an approaching animal's eyes.

On a bright sunny day, cattle may refuse to enter a building because the entrance looks dark. The installation of either skylights or wall panels of white translucent plastic, which admit shadow-free light, may facilitate movement. Cattle movement through chutes located in a dark building may also be improved by opening all the doors to admit light.

Facilities should be constructed to minimize noise. Cattle have sensitive hearing and can hear high frequen-



**Fig. 4.** The crowd pen that leads to the single file chute should be filled half full as shown. Cattle need room to turn.

cies that people do not hear. Research has shown that the sound of people yelling and whistling is stressful. Handlers who remain quiet can often move cattle more efficiently than handlers who yell and whistle.

### Curved Chutes

A curved chute and round crowd pen work efficiently because they take advantage of the natural tendency of cattle to want to go back to where they came from. A curved single file chute also prevents cattle from seeing the squeeze chute until they are almost in it. A round crowd pen should be laid out as shown in Figs. 6, 7, and 8 (see pages 792-4 through 792-6) so cattle think they are going back to where they came from.

The recommended radius for the round crowd pen is 12 feet (3.5 m). A curved chute must be laid out properly to avoid the dead end effect. A cow standing in the crowding pen must be able to see a minimum of two body lengths up the chute. Cows will balk if the chute is bent too sharply at the junction between the crowd pen and the single-file chute.

If the inside radius of a single file chute is shorter than 16 feet (5 m), a 10-foot (3 m) straight section should be added to join the curved single file chute to the crowd pen. This will prevent the single file chute from appearing to be a dead end.



**Fig. 5.** This is a poorly designed straight chute with open bar sides. Seeing people up ahead and numerous shadows will make cattle balk. A curved chute with solid sides is more efficient.



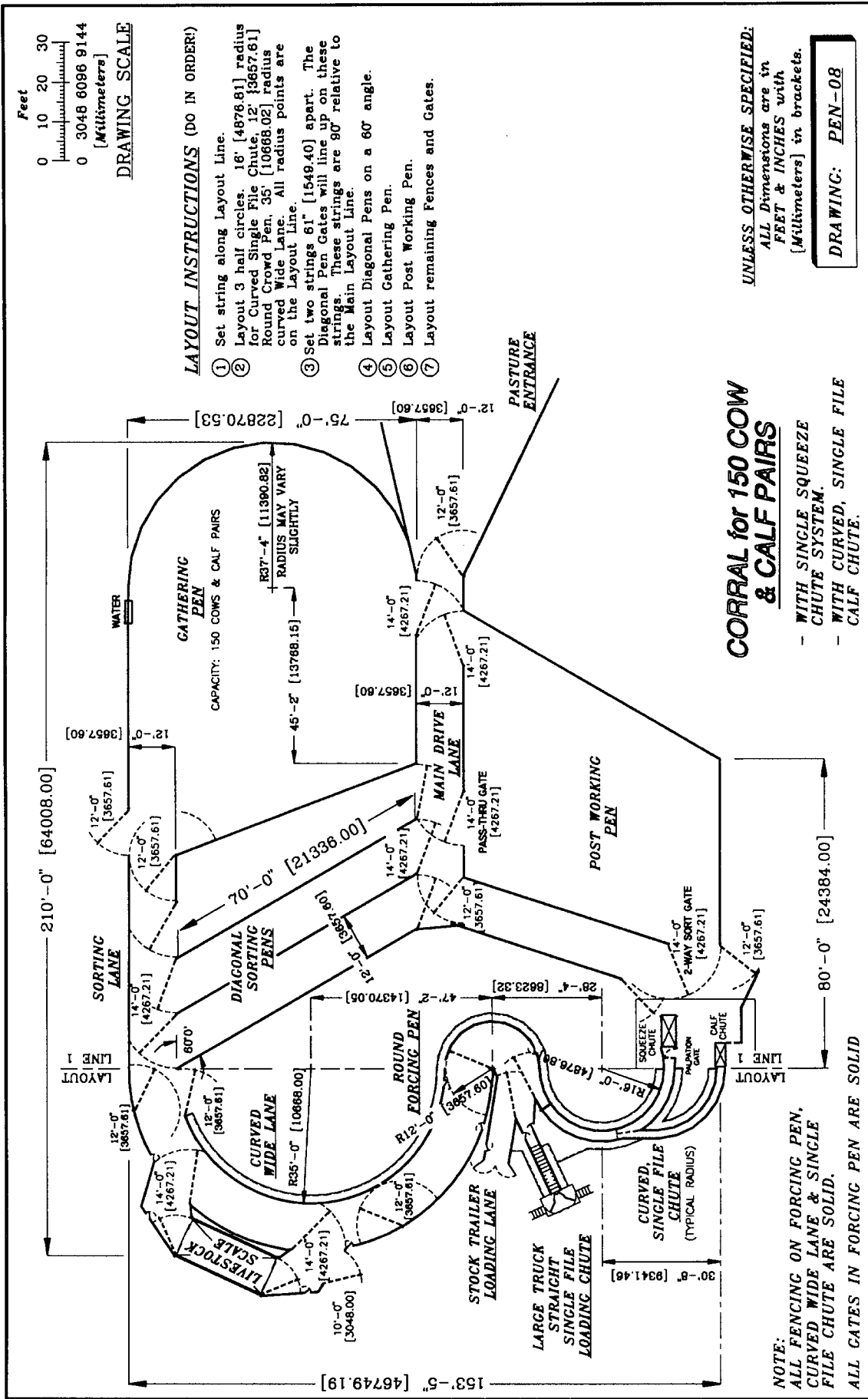


Fig. 7. Corral for a cow calf ranch. The wide, curved lane has two functions. First of all it is used to move cattle to the loading ramp or squeeze chute and, secondly, it serves as a reservoir for sorting cattle back into the diagonal pens.



## Solid Sides on Chutes

Cattle will move more easily if the single file chute, crowd pen, and crowd gates are completely solid. Cattle waiting in line in a chute with open barred sides often become more agitated. The crowd pen and loading ramp should always have completely solid sides.

The two options for the single file chute are either completely solid sides or a completely solid side on the outer radius of the curved chute and a 4-foot (1.25-m) high, solid side on the inner radius. This design allows a handler to work the flight zone from the ground and eliminates the need for a catwalk. If this design is used, handlers must be careful to avoid constant standing in the animal's flight zone. The sides of the squeeze chute should also be covered to prevent incoming cattle from seeing people.

Squeeze chutes can be equipped with angled rubber louvers, which provide a "solid side," which are attached to the drop down bars (Fig. 9). The most important part of the squeeze chute to cover is the back half closest to the tailgate. Cardboard or plywood also can be used on squeeze chutes.

## Backstop Gates

Backstop gates prevent cattle from backing up in a single file chute. Too many backstop gates can sometimes cause balking. In a well-designed curved system a backstop gate at the junction between the single file chute and the crowd pen is not needed. Cattle movement can be improved by tying this back stop open or equipping it with a remote control rope.

The one backstop that is really needed should be located two to three body lengths behind the squeeze chute, which prevents the lead cattle from backing up. The backstop gate shown in Fig. 4 should be equipped with a remote control rope so that it can be held open for incoming cattle.

## Headgates and Squeeze Chutes

Some headgate and squeeze chute designs with neck extension bars make it difficult to administer injections in the proper location on the neck. When cattle are handled calmly they move less and there is less need for neck extender bars on the headgate. If these bars are removed the animal can be backed up in the headgate.

Calm cattle are easier to back up than excited cattle. When the animal is backed up, the neck area will be accessible from the first drop down bar on the squeeze chute. The head is held still because now the headgate is holding the animal right behind the jaw.

It is recommended to use a squeeze chute where both sides squeeze in evenly. This helps keep the animal balanced and it is less likely to struggle. A headgate with straight vertical neck bars provides the greatest safety from choking, but it provides poor control of head movement.

Straight neck bars are recommended for artificial insemination, veterinary clinics, and for valuable animals. A curved neck bar provides greater control of head movement, but it should be used with a complete squeeze chute to prevent the animal from lying down and choking.

Self-catching headgates are recommended for gentle cattle, but wild cattle can become injured if they hit the gate too hard. Self-catchers must be adjusted properly. Regardless of headgate design, cattle should be handled quietly so they voluntarily walk into and walk out of a squeeze chute.

Calm cattle are easier to restrain. If a hydraulic chute is used, the pressure must be set correctly to prevent injuries to cattle or people. If cattle vocalize (moo or bellow) when they are squeezed, it is too tight. They should be able to stand in the chute without straining. The pressure relief valve should be set so that the chute will stop squeezing at the correct pressure

## Dark Box A.I. Chute

Even the wildest cows can be restrained for artificial insemination (A.I.) or pregnancy testing in a dark box chute that has no headgate or squeeze. The dark box chute can be constructed from plywood or steel, with solid sides, top and front which provide a quiet, snug, dark enclosure. Latch a chain behind the cow's rump to keep her in. After insemination, release the cow through a gate in either the front or side of the dark box.

## Loading Chute Design

A well-designed loading ramp has a 5-foot (1.5-m) level landing at the top. This provides the animals with a flat surface to walk on when they first get off the truck. The slope of a permanently installed cattle ramp should not exceed 20 degrees to prevent injuries.

Stairsteps, 3 1/2 inches (10 cm) high and 12 inches (30 cm) long, are recommended on concrete ramps. On wooden ramps there should be an 8-inch (20 cm) space between 2- x 2-inch (5 x 5 cm) cleats.



**Fig. 9. Angled rubber louvers prevent cattle from seeing people standing next to the squeeze chute. Homemade louvers can be made from old round bailer belts. They are mounted on a 45° angle.**

The slope of a portable or adjustable chute should not exceed 25 degrees. Loading ramps should be 30 inches (76 cm) wide to prevent turning around. Solid sides are recommended on loading ramps.

## Corral Design

Fig. 6 shows a corral that has a round gathering pen, a wide curved lane, and a curved chute. The S-shaped design is efficient because it prevents cattle from seeing activity ahead, and it takes advantage of the natural tendency of cattle to go back where they came from. Cattle leaving the squeeze chute can be sorted into the pie-shaped pens.

Corral designs that make it possible to sort through the squeeze chute are popular because individual animals can be weighed on an electronic scale under the squeeze, and other evaluations such as ultrasound can be done before sorting. This design facilitates sorting cattle to fit the specifications of various alliances and marketing programs. Another advantage of this layout is that it trains cattle to walk through the squeeze chute.

For separating cows from calves, they can be moved through the single file chute, or they can be sorted by using the wide curved lane as a reservoir to hold animals that are sorted back down the return lane. Cows and calves are then directed into different pie-shaped pens.

Fig. 7 shows a curved corral design that works efficiently for sorting cattle in an alley. The wide curved lane serves two purposes. It is used to move cattle to the loading ramp or squeeze chute and is also used as a reservoir for holding cattle that are sorted back into the diagonal pens.

To enlarge this layout, diagonal pens can be added and the gathering pen can be enlarged. Each diagonal pen will hold one truckload. When calculating pen space, allow 20 sq ft (6.1 sq m) for each cow and 35 sq ft to 40 sq ft (3.26 to 3.7 sq m) for each cow and calf pair.

Fig. 8 is a detail drawing of the curved single file chute, round crowd pen, calf chute, and stock trailer loading lane layouts. A loading ramp for large trucks can be substituted at the calf chute or stock trailer locations.

The S-shaped designs shown in Figs. 6, 7, and 8 are easy to build. The curved single file chute, round crowd pen, and wide curved lane consist of three half circles with their radius points on a layout line (Fig. 6).

## Corral Construction Tips

Five-foot high (1.5 m) corral fences are usually sufficient for cattle such as Hereford or Angus. For Brahman-cross and some continentals, a 5 1/2- to 6-foot (1.7 to 1.85 m) fence is recommended. Remember to use solid (not see-through) fencing in the crowding pen, single-file chute, and loading chute.

If your budget permits, use solid fencing in the curved reservoir lane. If solid fencing is too expensive for these areas, install a wide belly rail (a strip of metal mounted at cow's eye height that makes the fence appear solid). This is especially important if the corral is constructed from sucker rod.

A V-shaped single file chute in your corral should be 16 to 18 inches (41 to 46 cm) wide at the bottom and 32 to 36 inches (81 to 91 cm) wide at the top (take the top measurement at the 5-foot (1.5 m) level). If the single-chute has straight sides, the chute should be 26 to 28 inches (66 to 71 cm) wide for cows and 18 to 20 inches (46 to 51 cm) wide for calves. A funnel-type crowding pen should be 10 to 12 feet (3 to 3.5 m) wide, and have one straight side and one side set at a 30-degree angle. This design will prevent bunching and jamming.

To prevent animals from slipping in areas paved with concrete, the concrete should be scored with deep grooves, 1 to 1 1/2 inches (2 to 2.5 cm) deep in an 8-inch (20-cm) diamond pattern. (A diamond pattern is easier to wash than other patterns.)

In areas with a solid fence, install small man-gates for handlers to escape from charging cattle. The best type of man-gate is an 18-inch (46-cm) wide spring-loaded steel flap. The gate opens inward toward the cattle and is held shut by a spring. A person can quickly escape through this gate because there is no latch to fumble with. The man-gates can be constructed from 10-gauge steel with a rim of 1/2-inch (1.2-cm) rod.

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**Editor's Note:** Visit Dr. Temple Grandin's web site at: [www.grandin.com](http://www.grandin.com)

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