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Cattle Behavior During Handling & Corral Design for Beef Cow Herds
Michigan State University
Cooperative Extension Service
Michigan Beef Production
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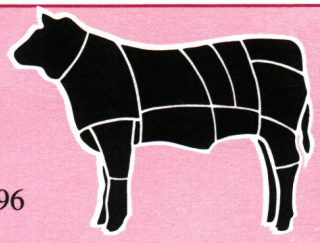

Cattle Behavior During Handling & Corral Design for Beef Cow Herds

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INTRODUCTION

An understanding of cattle psychology, combined with well-designed facilities, will reduce stress on both you and your cattle.

Reducing stress is important because stress reduces the ability to fight disease and weight gain. It also increases shrink, damages rumen function and can interfere with reproduction. An animal's previous experiences will affect its stress reaction to handling. Cattle have long memories. Animals that have been handled roughly will be more stressed and difficult to handle in the future. Animals that are handled gently and that have become accustomed to handling procedures will experience very 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 wilder and more difficult to handle at the packer. They also had more bruises.

Although painful procedures cannot be avoided, decreasing agitation and excitement will reduce stress. Cattle remember such painful restraints as nose tongs. Handling will be easier in the future if you use a halter to hold the 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 behind their rears (Diagram 1). When a group of cattle moves, the animals maintain visual contact with each other, enabling the herd to stay together. When one animal follows another, the two will tend to stay in positions A and B on Diagram 1.

Understanding the flight zone – the cow's personal space – is the key to easy, quiet handling. When you penetrate the flight zone, the animals move. When you retreat from the flight zone, the animals 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 by you will have a smaller flight zone. If a cow becomes excited, the flight zone will increase.

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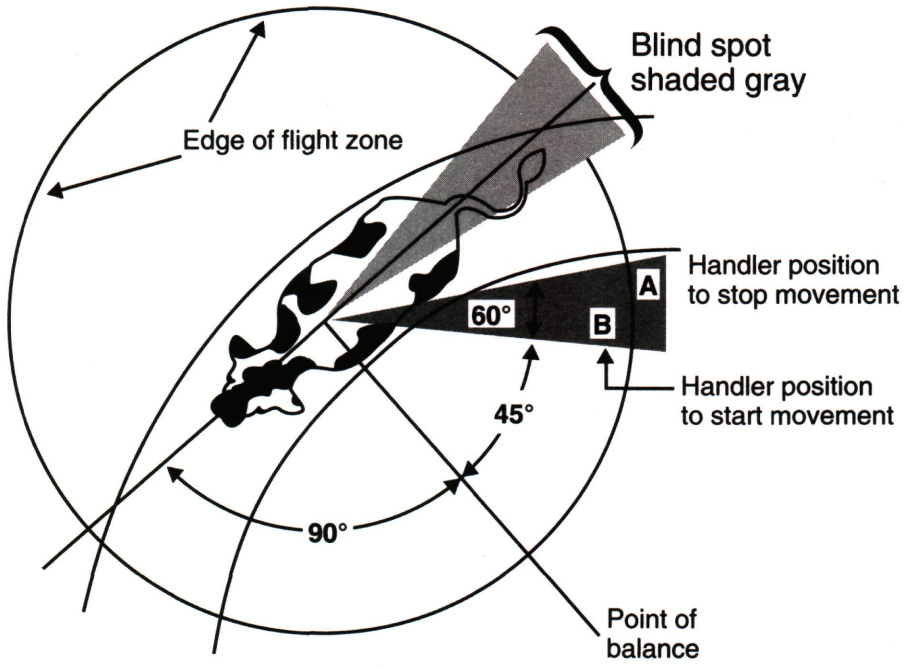

Diagram 1. Flight zone diagram.

Cattle can be easily moved by working on the edge of the flight zone (Diagram 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 off and get out of the flight zone.

If cows on pasture turn and look at you, you need to approach and put pressure on the edge of the flight zone. To keep the animals moving, alternately enter and retreat from the flight zone. Reward an animal who moves for you by relieving pressure on her flight zone; but in a few seconds, invade her flight zone again to keep her going.

When cattle are worked in an enclosed space such as an alley or a crowd pen, you must be very careful to avoid deeply penetrating the flight zone, because doing so can cause cattle to panic, jump fences and turn back on the you. If cattle in an alley start to turn back, back up and get out of the flight zone. When an animal rears up in the chute, retreat from its flight zone. Nine times out of 10, it will settle back down.

To move an animal forward, you must be behind the point of balance shown on Diagram 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 on pasture or in 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, you may get kicked if you get in a cow's blind spot.

BREAK OLD HABITS

You must break old habits to fully master quiet gathering of cattle from pasture. The first habit to break is whooping, hollering and running. This will require some time and patience, but your cattle will become quieter and easier to handle as you work with them.

The second bad habit is chasing cattle from the rear of the group. Positioning yourself behind the cattle puts you in their blind spot. This will cause them to turn and look at you unless they are scared and

fleeing from you. Cattle movements should be under the handler's control. Encourage the animals to move at a slow walk, and concentrate on moving the leaders.

A herd of cattle is like a car – before you can steer, the car must be moving. Herd movement must be started before you can attempt to change direction. Diagram 2 shows the handler movement pattern that will keep a herd moving in an orderly manner. It will work both along a fence and in open pasture. A single handler moving the animals should use the Handler 2 position of Diagram 2. As the herd moves, walk forward at an angle, which gradually relieves the pressure on the herd's collective flight zone. When the animals start to slow down, increase pressure on the flight zone by walking straight into the cattle. As they speed up, turn and walk back opposite the direction of travel. Walk at a slight angle to increase the pressure on the flight zone.

To maintain the movement, keep repeating the pattern. It will require practice to determine the length of each movement pattern. It is important to use the pattern. If you just walk along parallel with the herd, the herd will tend to split.

When two people move a large herd of cattle, one person should walk in the pattern shown in the Handler 2 (Diagram 2)

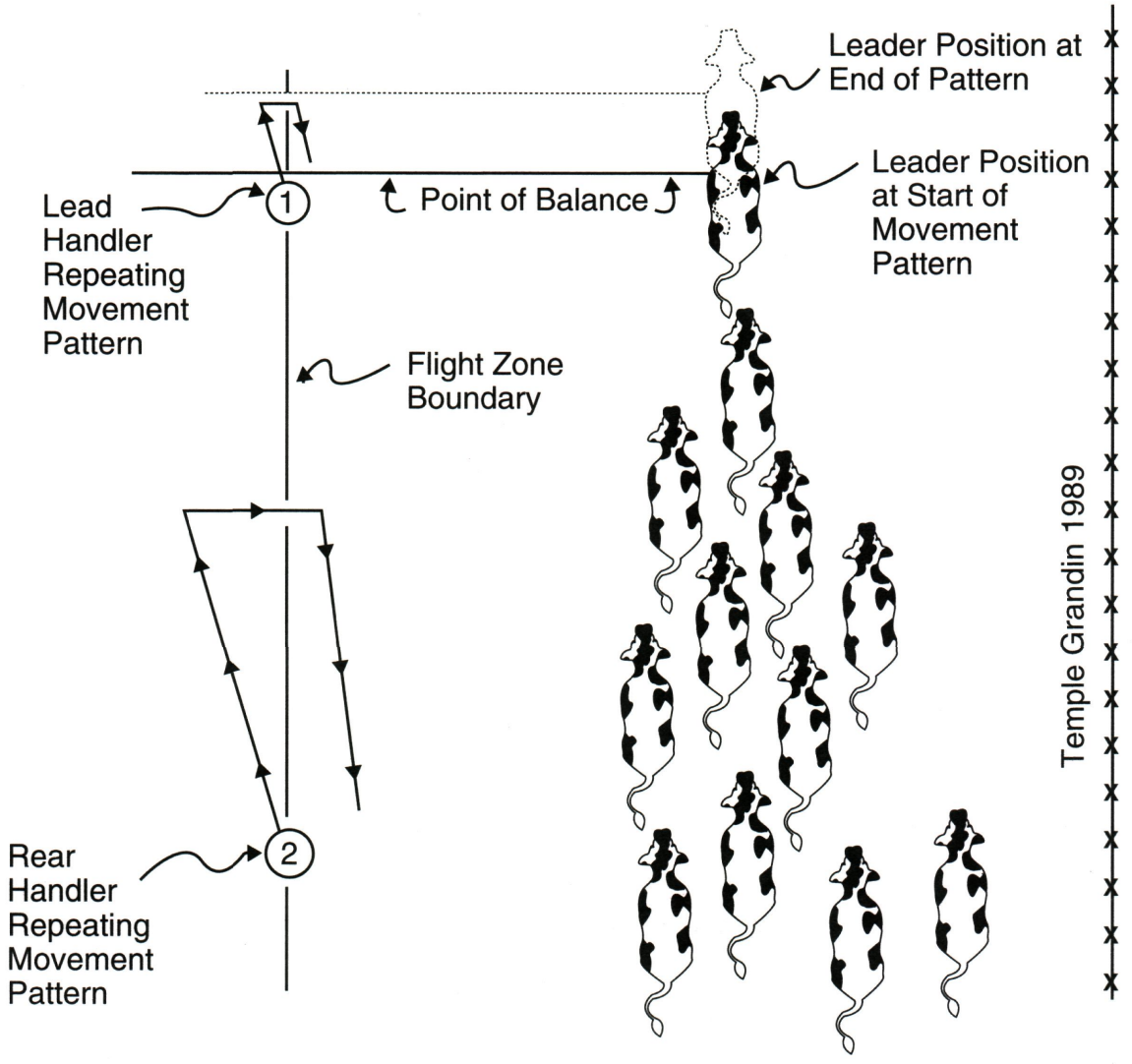

Diagram 2. Handler positions to move groups of cattle on pasture.

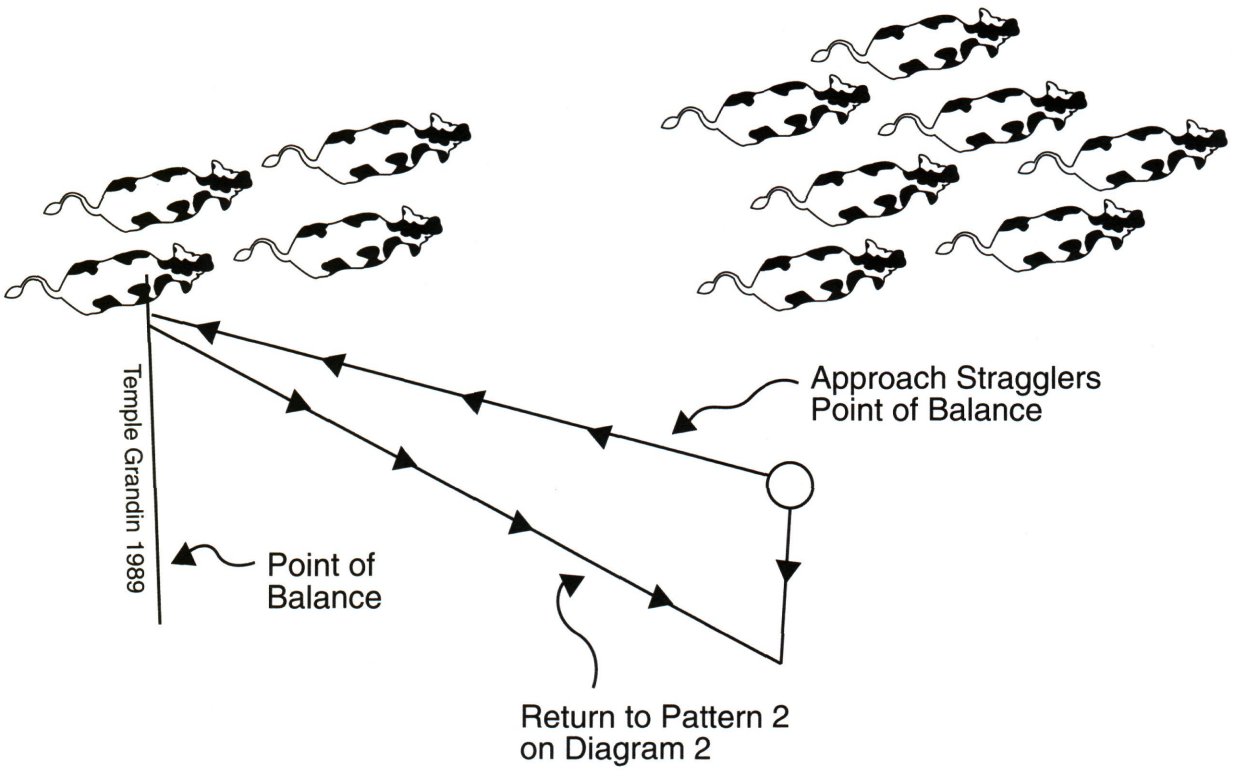

Diagram 3. Handler positions to bring stragglers back into the herd.

position; the other handler should stay with the herd leader. The lead handler should stay just behind the leader's point of balance, alternately bearing in and out of the flight zone (Diagram 2, position 1). The lead handler and the rear handler should stay as close together as possible. It is important for the handlers to not allow cattle to escape between them. The instinct of cattle to follow will pull the tail-enders along even though the rear handler is somewhat ahead of the rear of the group.

If a few cattle break away and straggle to the rear, don't go around behind them and chase them. Use the motion of the herd to draw them back (Diagram 3). At a walk, approach the stragglers at an angle, which gradually increases the pressure on their flight zone. Approach one side of their heads and move just past the point of balance at the shoulder. Do not go all the way to positions A and B on Diagram 1. As soon as the stragglers are attracted by the movement of the herd, start repeating the Handler 2 pattern on Diagram 2.

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 your 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 from the gate.

Cattle will also enter the corral in a more orderly manner if they have to walk by you as they enter. Diagram 4 illustrates the correct position for the lead handler as the cattle enter the corral. Do not move back and forth. Increase and decrease pressure on the flight zone by moving forward and back,

straight into the herd. You must apply enough pressure to keep them from veering away from the fence, but not so much as to cause panic.

When you move animals from a pen, do not let them race out. Work on the flight zone of the leaders. Diagram 5 shows the movement pattern for emptying a pen and for sorting at a gate. To empty the pen in a controlled manner, move back and forth as shown in Diagram 5. To control the movement of cattle out of a gate, move to the sorting position shown in Diagram 5.

To sort cattle, move forward and backward – not sideways. If you move sideways, the cattle will get by you. By moving forward and backward, you can easily separate cows from calves. Increase pressure on the flight zone of the animal you want to hold back and decrease pressure on the flight zone of the animals you want to let go by. This method can be used in either an alley or a gate.

When cattle are being handled in a confined area such as a crowding pen or sorting alley, handle small groups. Bring eight or 10 cattle instead of 20 into a crowding pen. The animals need room to turn. Use the animal's natural following behavior to assist in filling chutes. Wait until the single file to the squeeze is almost empty before refilling. Avoid the overuse of crowd gates. If the cattle are moving, do not shove the crowd gate up on them.

Problems with balking tend to come in bunches. When one animal balks, the tendency to balk seems to spread to the next animals in line. When moving an animal through a single-file chute, never prod the animal until it has a place to go. Once it has balked, it will continue balking. The handler should wait until the tailgate on the chute is open before prodding the next animal.

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. Many serious injuries to handlers occur when a steer or cow, separated from its herdmates,

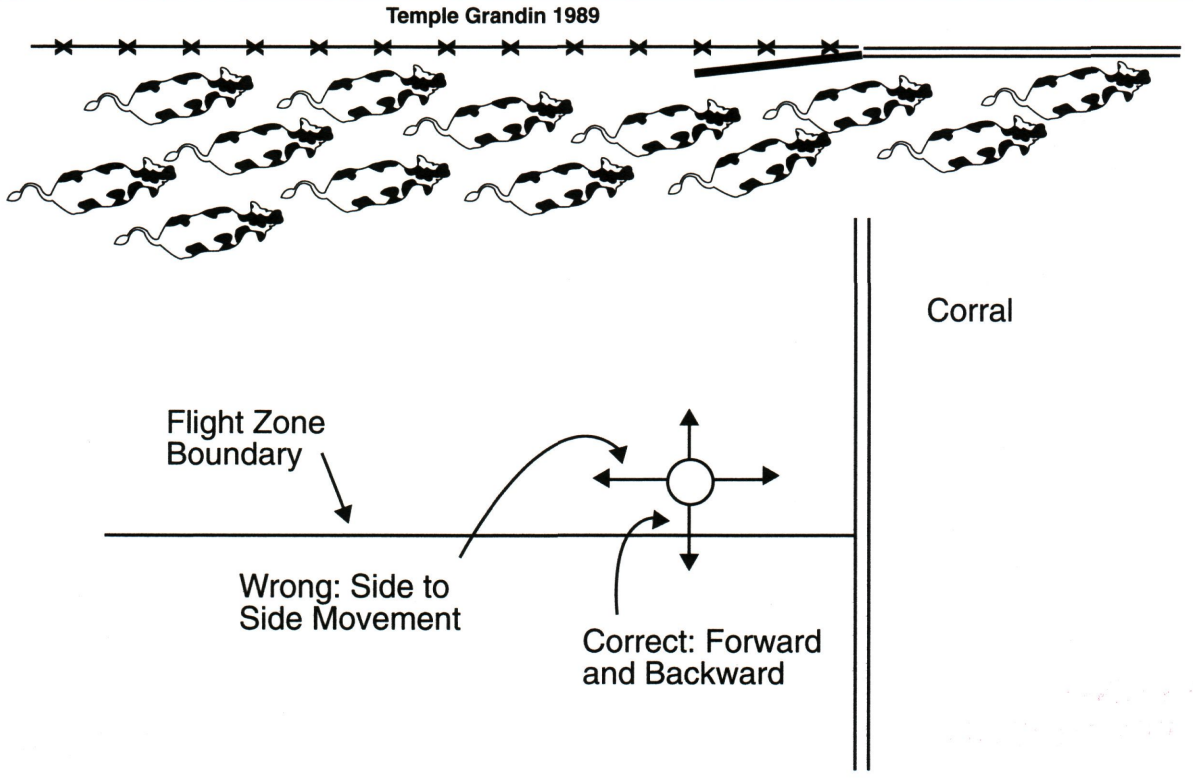

Diagram 4. Leader handler position for filling corral.

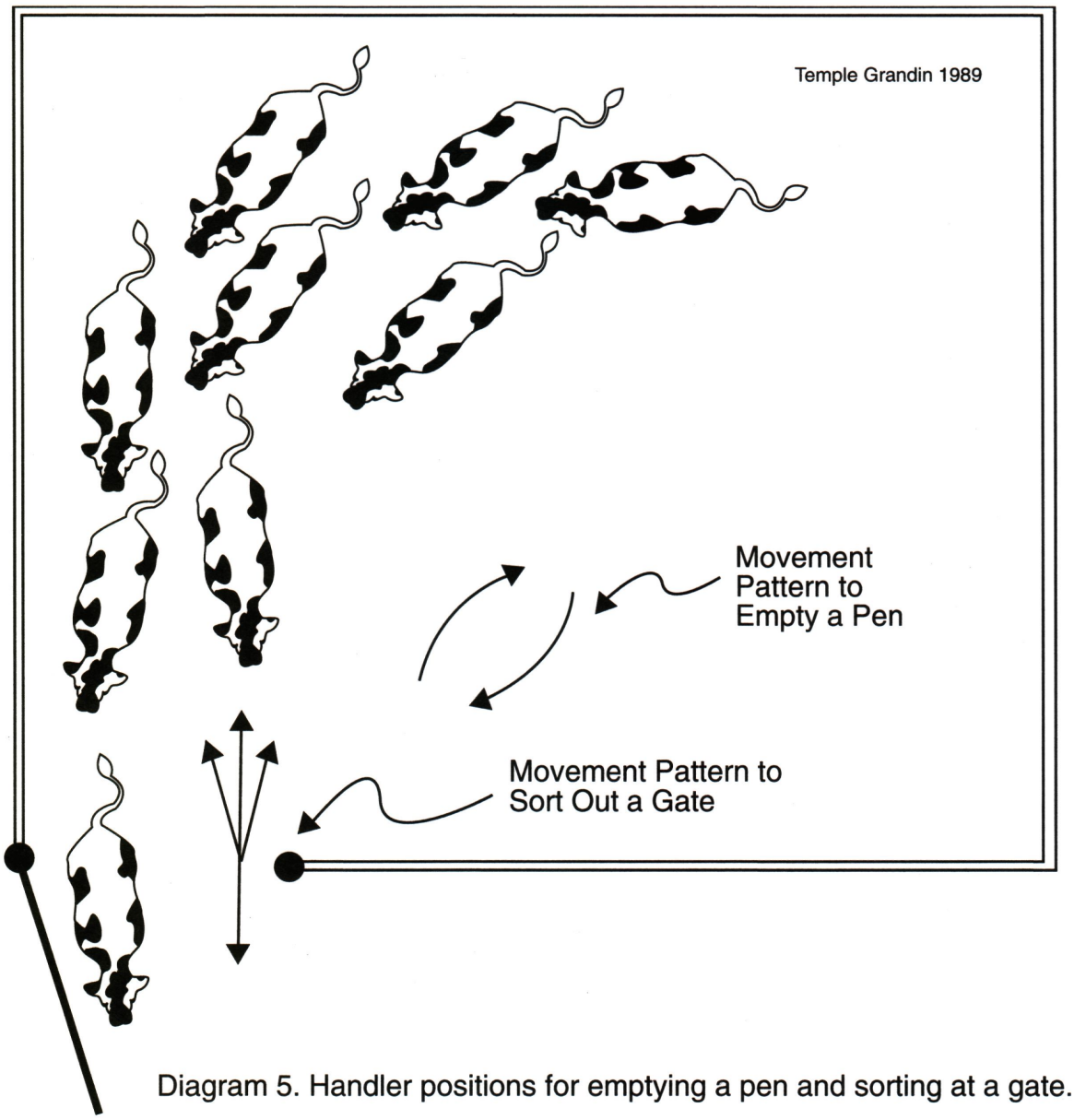

Diagram 5. Handler positions for emptying a pen and sorting at a gate.

refuses to walk up the single-file chute. When a lone animal refuses to move, release it from the crowding pen and bring it back with another group of cattle.

VISION AND FACILITY DESIGN

Cattle have poor depth perception when they are moving with their heads up. To see depth, they have to stop and put their heads down. This is why they balk at shadows and strange objects on the ground. A single shadow that falls across the scale or the loading chute can disrupt handling. The lead animal will often balk and refuse to cross the shadow.

If you are having problems with balking at one place, a shadow is a likely cause. Balking can also be caused by a small bright spot formed by the sun's rays coming through a hole in the roof. Patching the hole will often solve the problem. Shades constructed from snow fence should not be used over working areas. The zebra stripe shadows can cause balking.

Drain gates in the middle of the floor will make cattle balk.

For a good drainage design, slope the concrete floor in the squeeze chute area toward an open drainage ditch located outside the fences. Since an open drainage ditch outside the fences needs no cover, it is easier to clean.

Animals will also balk if they see a moving or flapping object. A coat flung over a chute fence or the shiny reflection off a car bumper will cause balking.

Cattle have a tendency to move toward the light. It is strongly reommended that if you load livestock at night, position inside the truck frosted lamps that do not glare in the animals' faces. Be aware, though, that loading chutes and squeeze chutes should face either north or south since livestock will balk if they have to look directly into the sun.

Sometimes it is difficult to persuade cattle to enter a roofed working area. Persuading the animals to enter a dark, single-file chute from an outdoor crowding pen in bright sunlight is often difficult. Cattle are more easily driven into a shaded area from an outdoor pen if they are first lined up in single file.

Many people make the mistake of placing the single-file chute and squeeze chute entirely inside a building and the crowding pen outside. You can reduce balking if you extend the single-file chute 10 to 15 feed outside the building. The animals will enter more easily if they are lined up single file before they enter the dark building. Never have the wall of the building at the junction between the single file chute and the crowding pen. Either cover up the entire squeeze chute and crowding pen area, or extended the single-file chute beyond the building. If you have a shade rather than a full cover over your working area, make sure that the shade's shadow does not fall on the junction between the single-file chute and the crowding pen, or the cattle may balk.

SOLID CHUTE SIDES

The sides of the single-file chute, loading chute and crowding pen should be solid. Solid sides prevent the animal from seeing people, cars and other distractions outside the chute. The principle of using solid sides is like putting blinders on harness horses. Blinders prevent horses from seeing distractions with the animals' wide-angle vision. It is extremely important that cattle in a handling facility be able to see only one pathway of escape. The cattle should be able to see other animals moving in front of them down the chute.

DO NOT DEAD-END YOUR CHUTE

Livestock will balk if a chute appears to be a dead end. Unlike the sides of the chute and crowding pen, which are solid, sliding and one-way gates in the single-file chutes should be constructed so cattle can see through them; otherwise the animals will balk. The crowding pen gate should be solid so animals cannot see through it and turn back toward herdmates they just left. Palpation gates should also be solid so that cattle do not see the person standing in the chute.

When using a curved chute, make sure it is laid out properly so that it does not appear to be a dead end. 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.

Diagram 6 illustrates an efficient curved facility that is easy to lay out. It consists of three half-circles set out along a layout line. A 16-foot inside radius for the curved single-file chute is recommended. A 12-foot radius is the absolute minimum unless a straight section is also installed at the junction between the crowd pen and the chute.

WHY A CURVED CHUTE WORKS

A curved chute works better than a straight chute for two reasons. First, it prevents the animal from seeing the truck, squeeze chute or people until it is almost in the truck or squeeze chute. Second, a curved chute takes advantage of the animal's natural tendency to circle around the handler. Upon entering a pen of cattle or sheep, you have probably noticed that the animals will turn and face you but maintain a safe distance. As you move through the pen, the

animals will keep looking at you and circle around you as you move. A curved chute takes advantage of this natural circling behavior.

A well-designed curved, single-file chute has a catwalk along the inner radius for the handler to use. Always work along the inner radius. The curved chute forces you to stand at the best angle and lets the animals circle around you. The solid sides block out visual distractions except for the handler on the catwalk. The catwalk should run alongside the chute, never overhead. The distance from the catwalk platform to the top of the chute fence should be 42 inches. This brings the top of the fence to belt-buckle height on the average person.

DARK BOX AI CHUTE

For improved conception rates, cows should be handled gently for artificial insemination (AI) and not allowed to become agitated or overheated. Do not use the same chute for AI that you use for branding, dehorning or injections; the cow should not associate the AI chute with pain.

Cows can be easily restrained for AI or pregnancy testing in a dark box chute that has no headgate or squeeze. Even the wildest cow can be restrained with minimum excitement to the animal.

The dark box chute can be easily constructed from plywood or steel, with solid sides, top and front. Once inside the box, the cow will be in a quiet, snug, dark enclosure. Latch a chain behind her rump to keep her in. After insemination, release the cow through a gate in either the front or side of the dark box. You can construct a an extra-long, dark

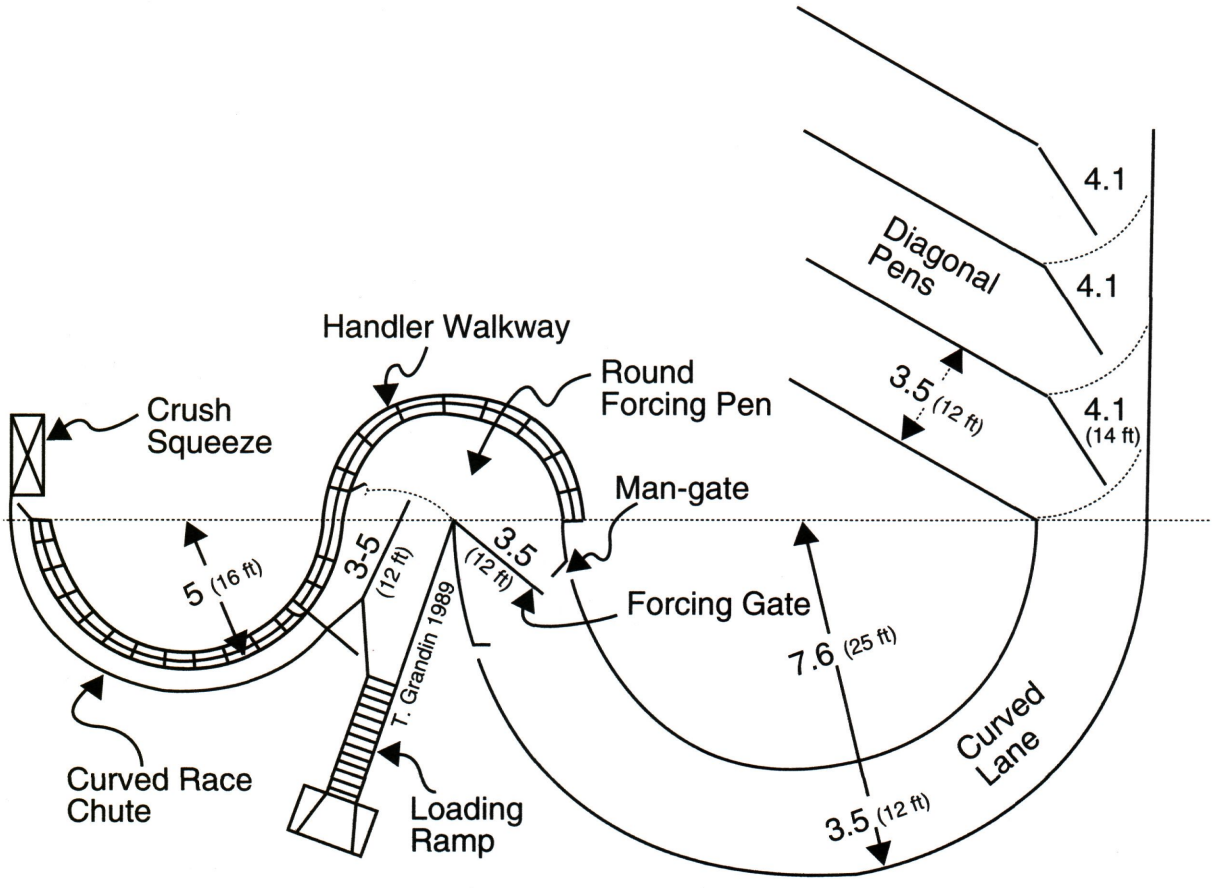

Diagram 6. Basic curved handling facility.

box to handle wild cows. For a pacifier, use a tame cow that is not in heat. Place her in the chute in front of the cow to be bred. Even a wild cow will stand quietly if she is able to place her head on the pacifier cow's rump. After breeding, allow the inseminated cow to exit through a side gate while the pacifier cow remains in the chute.

LOADING CHUTE DESIGN

Loading chutes should be equipped with telescoping side panels and a self-aligning dock bumper. These devices will help prevent foot and leg injuries caused by an animal stepping down between the truck and the chute. The side panels will prevent animals from jumping out the gap between the chute and the truck.

A well-designed loading ramp has a level landing at the top. This provides the animals with a level surface to walk on when they first get off the truck. The landing should be at least 5 feet wide for cattle. Many animals are injured on ramps that are too steep. The slope of a permanently installed cattle ramp should not exceed 20 degrees. The slope of a portable or adjustable chute should not exceed 25 degrees.

Chutes for both loading and unloading cattle should have solid sides and a gradual curve. If the curve is too sharp, the chute will look like a dead end when the animals are being unloaded. A curved single-file chute is most efficient for forcing cattle to enter a truck or a squeeze chute. A chute used for loading and unloading cattle should have an inside radius of 12 to 17 feet; the bigger radius is best. A loading chute for cattle should be a maximum of 30 inches wide. The largest bulls will fit through a 30-inch-wide chute.

CORRALS

A corral constructed with round holding pens, diagonal sorting pens and curved drive lanes will help you handle cattle more efficiently because there is a minimum of square corners for the cattle to bunch up in. The corral layout in Diagram 7 illustrates how animals are gathered into the big round pen and then directed to the curved sorting reservoir lane for sorting and handling.

The curved sorting lane serves two functions: it holds cattle that will be sorted back into diagonal pens, and it holds cattle waiting to go to the squeeze chute, AI chute or calf table. When cows and calves are being separated, the calves are held in the diagonal pens and the central drive lane, and the cows are allowed to pass through one of the diagonal pens into the large post-working pen.

LARGE CORRAL

The corral in Diagram 7 is a general purpose system for shipping calves, working calves, sorting, pregnancy checking and AI. This corral can handle 300 cow-calf pairs or 400 mature cows. For smaller ranches, the large gathering and holding pens can be reduced. The corral is equipped with a two-way sorting gate in front of the squeeze chute to separate pregnant cows from open cows.

Depending on your needs, you can position either the squeeze chute, AI chute or calf table at the sorting gate. If the cattle are watered in the large gathering pen, they will become accustomed to coming and going in and out of the trap gate. When you need to catch an animal, you merely shut the trap gate and direct the cow up the curved reservoir lane to the chutes. This is an especially handy feature for AI.

The curved sorting reservoir ends in a round crowding pen and curved single-file chute. The crowding gate has a ratchet latch that locks automatically as the gate is advanced behind the cattle. To load low-stock trailers, open an 8-foot gate that is alongside the regular loading chute. This provides you with the advantage of the round crowding pen for stock trailers.

This design can also be modified for pasture rotation. The large gathering pens are eliminated, while the main working parts of the corral, such as the curved lane, curved chutes and diagonal pens, are retained.

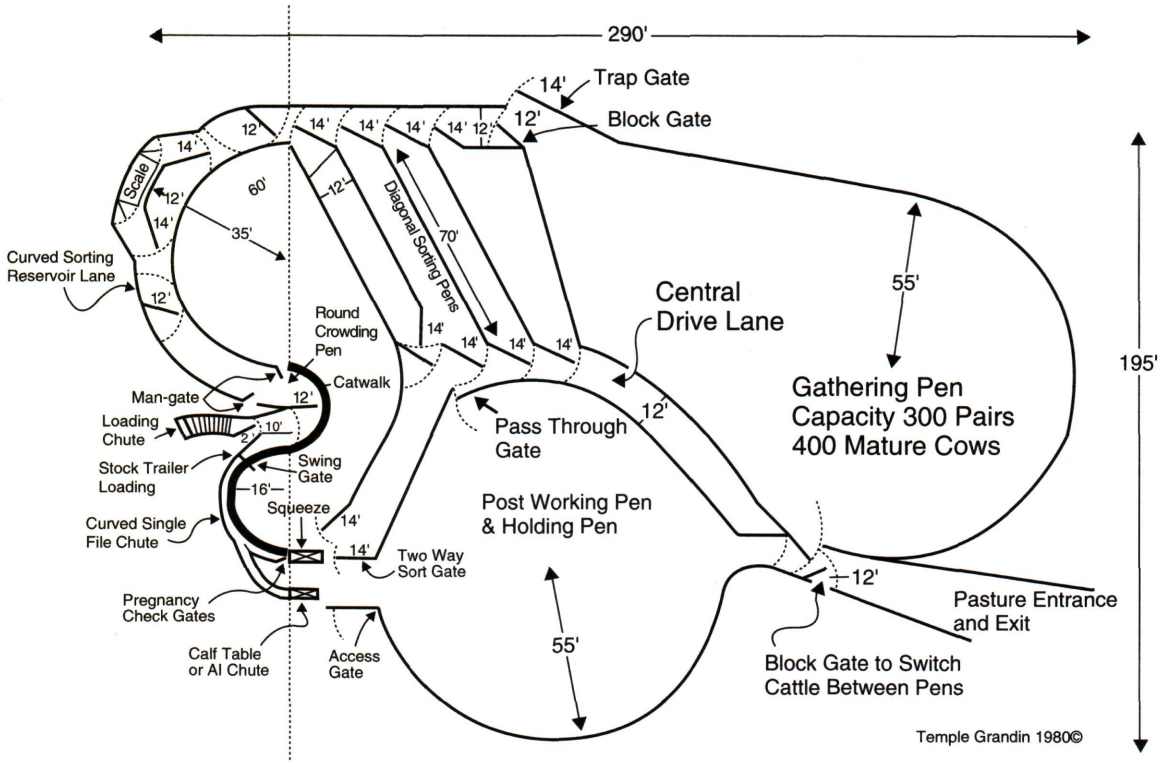

Diagram 7. Corral system for a large ranch.

CORRAL CONSTRUCTION TIPS

Five-foot-high corral fences are usually sufficient for cattle such as Hereford or Angus. For Brahman-cross and exotics, a 5 1/2- to 6-foot-high 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. This is especially important if the corral is constructed from sucker rod.

A V-shaped chute in your corral should be 16 to 18 wide inches at the bottom and 32 to 36 inches wide at the top. (Take the top measurement at the 5-foot level). If the single-file chute has straight sides, the chute should be 26 inches wide for cows and 18 to 20 inches wide for calves. A funnel-type crowding pen should have one straight side, while the other side goes to a 30-degree angle. This design will prevent punching and jamming. The crowding pen should be 10 to 12 feet wide.

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

In areas with solid fence, install small man-gates for handlers to escape from charging cattle. The best type of man-gate is an 18-inch-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 fool with. The man-gates can be constructed from 10-gauge steel with a rim of 1/2-inch rod.

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