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BEEF CATTLE CORRALS AND HANDLING FACILITIES

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Proven management practices such as castrating, dehorning, pregnancy examination, controlling parasites, implanting, vaccinating, etc. are essential if profits are to be realized in beef herds. Although most practices are relatively simple, they cannot be done easily without some type of restraining equipment which will prevent injury to both man and animal. The absence of cattle handling facilities probably contributes more than anything else to failure to perform these money-making procedures.

Location

Site selection is of great importance. Drainage and protection from the weather, along with access to pastures and access by motor vehicles are primary considerations. Because much cattle work is done during inclement weather when farmers can't do field work, some type of natural or manmade protection will encourage more use of the system. An all-weather road is also needed so that cattle can be moved at any time by truck or trailer.

Corrals should be located for maximum convenience in gathering the herd. Fences should form natural funnels into the corral. Gates must be designed to swing in the direction of animal movement and may need to swing to 270 degrees to accommodate efficient movement of cattle in all directions. Special care should be taken to anchor gate posts firmly to prevent gate sag.

If remodeling or expanding an existing corral is desired, the location is already determined, but changes may make it easier to get the cattle into the corral. Use the dimensions shown in Table 1 as a guideline for sizing facilities.

The components of a cattle handling facility are: **(1) holding pen; (2) crowding pen, (3) working chute; (4) squeeze chute or headgate; (5) loading chute; and (6) scales.** It is not always necessary to use all of these parts in every system. Use only those parts that are needed and affordable.

Holding Pens

Holding pens can "make or break" the handling facility. They should be designed to hold the maximum number of cattle to be worked at any one time. For example, a producer with 30 cows needs a minimum of two pens. One pen would hold 30 cows and 30 calves -- 20 ft per cow and 14 sq ft per calf (see Table 1), total 1020 sq ft. A second holding pen, 600 sq ft would hold cows after they are sorted from the calves. However, other pens could be added for more flexibility. Holding pens interconnected with a common alleyway provide ideal sorting capabilities. Cattle can be held in the alleyway and sorted into one of the adjacent holding pens.

Cost often prohibits the installation of solid fencing in all cattle sorting and working areas. A wire fence will be sufficient if a single row of planks at eye-level add enough substance so that cattle can see the fence and will not try to run through it. Solid round or square fence posts should be set no more than 8 ft apart and at least 2 1/2 ft into the ground. Five-foot-high fences are usually sufficient for the British breeds (Hereford, Angus, etc) of cattle. A minimum of 5 1/2 ft is recommended for Brahman-cross and exotics.

The holding pens must have direct access to the crowding pen, working alley and headgate. Water,

shade and feeding facilities in one of the pens enables it to be used for weaning, a sick pen or a bull pen.

Table 1. -- Corral and Working Facilities Dimensions (Use dimensions for over 1200 lb for cow-calf operations).

	To 600 lb	600-1200 lb	Over 1200 lb
Holding area sq ft/head	14	17	20
Crowding pen sq ft/head	6	10	12
Working chute with vertical sides			
Width	18 in.	22 in.	26 in.
Length (minimum)	20 ft	20 ft	20 ft
Working chute with sloping sides			
Width at bottom inside clear	15 in.	15 in.	16 in.
Width at top inside clear	20 in.	24 in.	26 in.
Length (minimum)	20 ft	20 ft	20 ft
Working chute fence			
Recommended minimum height	45 in.	50 in.	50 in.
Depth of posts in ground (minimum)	30 in.	30 in.	30 in.
Corral fence			
Recommended height	60 in.	60 in.	60-66 in.
Depth of posts in ground (minimum)	30 in.	30 in.	30 in.
Loading chute			
Width	26 in.	26 in.	26 in.-30 in.
Length (minimum)	12 ft	12 ft	12 ft
Rise, In./ft	3 1/2	3 1/2	3 1/2
Ramp height for:			
Stock trailer	15 in.		
Pickup truck	26 in.		
Stock truck	40 in.		
Tractor-trailer	48 in.		
Double-deck trailer	100 in.		

SOURCE: Midwest Plan Service. Beef Housing & Equipment Handbook

Crowding Pen

The crowding pen is a confining area which funnels cattle into the working and/or loading chute, forcing cattle to go through the working chute with a minimum of effort. It can also serve as the spray pen. A well-designed and constructed crowding area reduces the labor required to work cattle, enabling one person to keep the working chute filled. Desirable characteristics of a crowding area are

- circular or funnel shape
- totally enclosed sides
- solid crowding gate
- rough concrete floor

A **circular crowding pen** with solid sides is effective because the only visible escape route is through the working chute. The area where the crowding pen joins the working chute can be a trouble spot where cattle will bunch-up and jam unless there is a gradual transition between the two. A concrete floor is desirable to provide an all-weather surface. The circular crowding pen normally has a 12-ft long, swinging crowding gate. A quarter-circle crowding area with a 12-ft gate can handle up to 8 mature cows. For larger operations, half-circle and three-quarter circle crowding areas are common. If the crowding area cannot be made circular, it should at least be funnel-shaped with one side straight and contain a crowding gate.

Working Chute

The purpose of the working chute is to align cattle into single-file for treatment. It starts from the crowding pen and leads to the headgate. A working chute should

- curve or bend
- have totally enclosed sides
- be at least 20 ft long
- have a rough concrete floor
- contain a gate

Animals will often back up when they can see the squeeze chute. The best alleys are curved or have at least a 15 degree bend, to help prevent cattle from backing up and bunching in the alley.

Sloping the sides of the chute is desirable because the animal's feet and legs are confined to a narrow path. This reduces the animal's ability to turn around. Sloping sides are more adaptable to cow-calf operations because different sizes of cattle can be worked efficiently in the same chute. Common faults are (1) making the chute too wide, which will permit smaller cattle to turn around, and (2) inadequate construction, which allows the sides to spread when subjected to intense pressure. Recommended widths for working chutes with straight or sloping sides are listed in Table 1. Increase chute width by 2 in. for exotic breeds of cattle.

A catwalk along the outside of the chute provides the producer easy access to the cattle without having to stretch over the side when vaccinating or treating for parasites. Place the catwalk about 18 in. above the ground for an easy step.

Holding Chute (Headgate and/or Squeeze Chute)

The holding chute is located at the end of the working chute and should hold the animal securely while it is being treated. A simple headgate can be constructed from heavy lumber or pipe, or many brands of commercial headgates are available. The three most common types of headgates used are the **self-catching**, **stanchion** and **guillotine**. Each of these types has advantages and disadvantages.

The **self-catching headgate** is easy to operate, seldom chokes cattle if properly adjusted and allows rapid working of cattle with a minimum of balking. However, it is not well suited for horned cattle; it can cause shoulder bruises when cattle lunge at the cocked headgate, and sometimes allows an animal to escape without being caught. Self-catching headgates have manual controls that can be used for increased reliability.

The **stanchion headgate** is also simple, fast to operate and seldom chokes cattle if properly adjusted. There is also potential for shoulder bruises as cattle lunge toward the open stanchion and occasionally an animal may escape without being caught.

The **guillotine headgate** holds the animal's head securely and lessens the likelihood of shoulder bruises. However, it is more difficult to operate, can cause choking, and cattle working is slower because cattle tend to balk instead of moving forward freely. A **squeeze chute** is a desirable addition to most corrals. It restrains animals and reduces the chance of injury to both animal and worker. On small cow-calf operations a squeeze chute may not be economically feasible and only a headgate may suffice. The tailgate of the squeeze chute should allow the cattle to see through it. If an animal can see the animal in front of him leaving the squeeze chute, he will enter the chute more easily.

Headgates and squeeze chutes with a variety of features and types of construction are available. When purchasing this equipment, be aware of the location of levers, types of controls and ease of operation for your particular use.

Loading Chute

Some producers consider a loading chute as an essential part of their cattle handling system. Others with fewer cattle may use trailers without a loading ramp for hauling. The main requirement of a loading chute is to be able to load quickly before the first cattle entering can come back out. This means an adjacent holding pen must be large enough to hold the largest number of cattle to be loaded at any one time.

More than one loading chute may be needed to accommodate vehicles ranging from gooseneck trailers to double-decker trucks, or a chute with a variable height adjustment can be used. The loading chute ramp can be either sloping or stepped. Regardless of the type, maximum incline should be 30% (or about 3 1/2 in. rise per foot of length). Total chute length, therefore, would depend on maximum rise needed but should be at least 12 ft to insure that each animal starting up the ramp is following at least two other cattle and not walking directly into the truck or trailer.

To determine minimum chute length, divide height of the truck bed by desired rise per foot of length (e.g., 48-in. truck bed height divided by 3.5-in. rise = 13.7 ft chute). To improve footing, nail 1 x 3 hardwood cleats to the chute floor 6 in. on center.

If a stepped ramp is used, steps should be not less than 18 in. wide and risers not more than 4 in. high. Steps formed with concrete should be broom-roughened.

Scales

Scales can be a valuable addition to working facilities. Weaning weights and cow weights can be

obtained in cow-calf operations. Checking shrink from payweight, days to regain payweight and average daily gain are important to the back-grounder and/or finisher. Portable scales can be positioned in front of the headgate. In many cases, they can be borrowed from neighbors, lending institutions, supply firms or the Extension service.

Multiple animal scales can be positioned so that they are also accessible to vehicles for weighing feed or for other purposes. Scales should be located where there is proper drainage. Splash plates around the bottom of the scales will prevent waste material from entering the pit.

Additional Options

Calf Table

A tipping calf table can greatly increase the ease of handling young calves. The calf table can be a valuable tool when a large number of calves are to be worked. Jobs such as castrating, dehorning and branding can become essentially a one-person operation or up to three people can perform jobs simultaneously. Most models are reversible and allow calves to be tipped to either the right or left side.

Palpation Cage

A palpation cage is frequently overlooked when building handling facilities. However, it is very important because pregnancy testing of brood cows, artificial insemination, castration and emergency procedures require access to the rear of an animal. A palpation gate can be a part of a commercial squeeze chute or can be constructed behind the headgate. The access gate to the palpation cage should be sufficiently wide and hinged so that it completely closes off the working chute behind the worker. A solid catch is essential.

Determining Your Needs

Any one handling facility layout will not fit all cattle operations. A producer should determine the components needed and the design to fit his particular type of operation, herd size, existing facilities and materials available. The objective should be to have a facility which allows you to sort, weigh, restrain, receive and/or ship cattle as efficiently and economically as possible. Plans for future expansion should also be considered before construction begins.

Corral Plans

Adequate handling facilities need not be elaborate or expensive. Existing fencelines or buildings may be used in planning a facility. The following layouts show simple handling facilities which are located in a barn corner or lot corner (Figure 6, Figure 7, Figure 8, Figure 9, and [Figure 10](#)). The other layouts show corral designs of varying degrees of complexity.

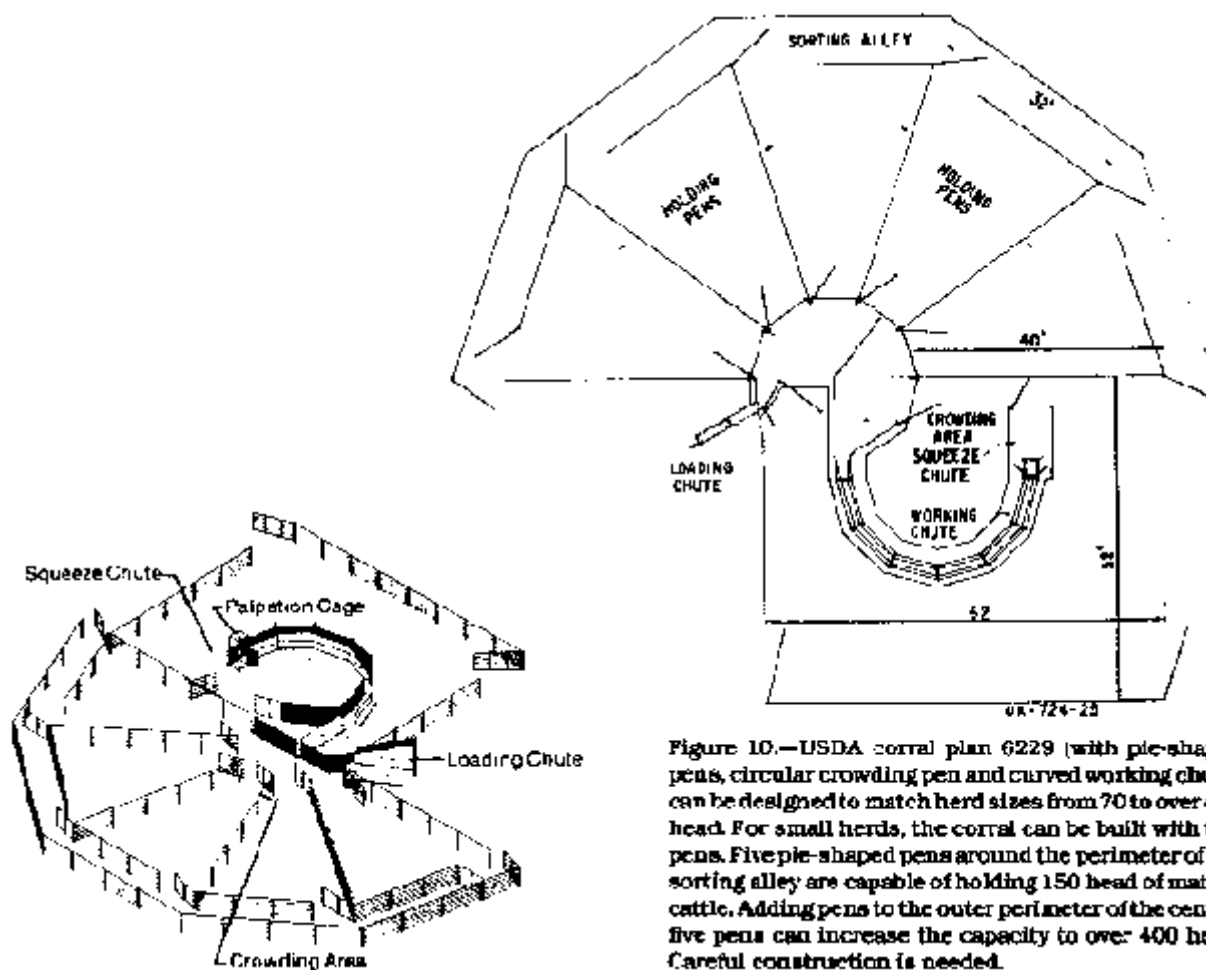


Figure 10.—USDA corral plan 6229 (with pie-shaped pens, circular crowding pen and curved working chute) can be designed to match herd sizes from 70 to over 400 head. For small herds, the corral can be built with two pens. Five pie-shaped pens around the perimeter of the sorting alley are capable of holding 150 head of mature cattle. Adding pens to the outer perimeter of the central five pens can increase the capacity to over 400 head. Careful construction is needed.