

Alabama Beef Quality Assurance Planning & Constructing Handling Facilities & Equipment

► Handling facilities are essential for many routine cattle management practices. Careful planning is an important first step in the construction of effective facilities.

Functional and safe handling facilities are essential for producing high-quality, wholesome beef without injuring animals or humans, in part because properly designed and constructed facilities will promote low-stress cattle handling.

To implement management practices, such as vaccinating, castrating, dehorning, and implanting, cattle must be safely and effectively restrained. Treating cattle for the control of external and internal parasites may also require limited confinement and restraint. Herd health practices, such as treating sick or injured animals or providing assistance at calving, are also easier if adequate handling facilities are available.

Well-constructed handling facilities will reduce the cost and labor associated with working cattle. For example, saving time can reduce veterinary fees if animals can be easily caught, restrained, and treated. Without an adequate corral system, many of these economically important practices will be more difficult, so productivity and, consequently, economic returns suffer.

Just having working facilities may not be adequate. Many lesions, bruises, and injuries that reduce the value and quality of the eventual beef product result from facilities and equipment that are either poorly designed, constructed, or maintained. Bruises are the result of bumps against protruding objects, broken planks, and poorly maintained equipment. When animals are slaughtered, these bruises must be trimmed from the carcasses, creating economic losses. Bruising costs the cattle industry millions of dollars every year.

Working facilities do not need to be elaborate or expensive. Safe facilities can be constructed from wood and other materials available on most farms. Proper and careful planning before construction is essential to ensure that facilities enable cattle to be worked safely, quickly, and humanely. Facilities also must be safe for the people working the cattle.

Consider the following factors when constructing and designing handling facilities.



Planning a Handling Facility

The first step in planning a handling facility is to conduct an inventory of existing facilities (old handling facilities, barns, sheds) and determine their future use or role in the development of new working facilities. Some of these might be used in the new handling facility, or they may no longer fit in the new design.

Consider labor availability when planning the facility. Some facilities require less labor than others to move cattle through. The type of operation (cow-calf, stocker, finishing) will also affect how the facilities should be constructed. If designed correctly, a working facility can be operated effectively by a single person. Having this mindset in planning will make working cattle with a larger crew much easier. Including “man-gates” at key locations will provide access into pens and, more importantly, easy access out of pens.

The size and temperament of cattle to be worked will influence how the facility should be constructed. Larger or more spirited cattle will demand that stronger materials be used in construction. Obviously, the number of cattle to be worked will affect dimensions. The materials available (wood, sucker rods, panels, etc.) will also affect facility construction.

Selecting a Site

Accessibility should have a major influence on the location of the handling facility. Attaching the new facility to existing facilities, such as barns, sheds, and old handling facilities, may reduce costs and make the handling facility a part of the total operation. If a new facility is to be built, access to existing pastures and roads is important for ease in animal movement.

The site selected should be on a relatively level spot with good drainage. If the site is on a slight slope, be sure that cattle will be moved up the slope as they are worked. Don't forget normal cattle movement. Cattle are easier to work if they move in a direction that is normal for them.

Consider the layout of pastures when deciding where to build a new handling facility. Build the facility so that cattle in all pastures will have easy access.

Components of a Good Handling Facility

The size and complexity of an effective beef cattle handling facility will depend on the number of animals in the herd. An ideal facility will have the following components: head gate, squeeze chute, working alley, crowding pen, holding pen(s), scales, loading ramp, and potentially a calf table. However, depending on the temperament of the cattle, smaller operations can function with modified versions while still achieving the overall intent of the individual components.

The **head gate** or **head catch** is the most important part of the entire working facility. It should be sturdy, safe, easy to operate, and work smoothly and quietly. Secured to the end of the squeeze chute or working alley, the head gate or squeeze chute should hold the animal securely while it is being treated. Considerations to keep in mind when selecting the ideal head gate option include the size and temperament (or "speed") of cattle being worked and the ease of access to the neck for administering injectable animal health products.

The four basic types of head gates are self-catching, scissors-stanchion, positive-control, and full-opening stanchion. The self-catching head gate closes automatically due to the movement of the animal. The scissors-stanchion type consists of two biparting halves that pivot at the bottom. The positive-control type locks firmly around the animal's neck. The full-opening stanchion consists of two biparting halves that work like a pair of sliding doors.

The self-catching, scissor-stanchion, and full-opening stanchion are available with either straight or curved

stanchion bars. The straight bar designs are extremely safe and will rarely choke an animal. Their disadvantage is that animals can move their heads up and down unless a nose bar is used. 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. Both types are safer than the positive-control head gate. No matter which type of head gate is selected, proper adjustment for the type and size of cattle being worked is necessary to prevent injury to the animals.

The **squeeze chute** or **holding chute** is located immediately behind the head gate and is secured to it. The squeeze chute should be approximately 26 to 28 inches wide when fully open and should be adjustable for different size animals. It should also include squeeze action, removable side panels for easier access to the animal, and a floor with a nonslip surface. A brisket bar is another good addition to a squeeze chute. It prevents animals from being able to lie down in the chute.

The squeeze chute may be hinged on one side to release the animal if the head gate 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. This will also 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 or pregnancy testing). A palpation cage can be substituted for the service gate if desired.

The **working alley** or **working chute** connects the holding chute and the holding pen. It should be a maximum of 30 inches wide. This width will be different if a V-shaped alley is used. Having the ability to easily adjust the width of the alley aids in working cattle of different sizes (mature cattle versus calves). The working alley should be 5 feet high for gentle cattle and 6 feet high for flighty cattle. It should be long enough to accommodate four or five animals at a time. Some cattle owners prefer to have the working alley curved so that animals cannot see the head gate or squeeze chute ahead; this aids in making cattle movement easier. It should have solid sides so cattle will not balk because of things they see outside. To prevent balking, the blocking gate at the junction of the working chute and the holding chute should allow an animal to see the animal ahead. Backup bars in the working chute can be used to prevent animals from moving backward.

The **crowding pen** is located at the back of the working alley. The pen should be about 150 square feet, which will hold 6 to 10 head of cattle. One option is to design

the crowding pen in the shape of a gradual V as it approaches the working alley. If one side of the V is straight with the alley and the other side angled out, the cattle will be less apt to bunch up. Another popular option for a crowding pen is a semicircular **sweep tub**. Regardless of the design (sweep tub or V-shape), a solid **crowding gate** or **swing gate** is essential for a fully functional crowding pen and is used to push animals from the pen into the alley. The swing gate will work best if designed to latch at various positions as it closes, and a self-locking latch on the swing gate is safer for the animal handler and more efficient in keeping cattle moving in the right direction.

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.

The **loading ramp** is used to load and unload cattle from a trailer. A loading ramp is definitely necessary for operations that load out onto tractor-trailers. However, a loading ramp is not necessarily needed for operations that use only gooseneck and bumper-pull stock trailers, as long as some form of a working alley is accessible to the trailer. Many operations will load cattle directly into gooseneck and bumper-pull stock trailers out of the main working alley and squeeze chute.

If a loading ramp is used, it should be located directly off the crowding pen, allowing easy movement of cattle. Alternatively, a portable loading ramp can be used in-line with the squeeze chute. The loading ramp can be either sloping or stepped. The maximum incline should be 30 percent (a 3.5-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 will depend on the height required; however, it should be at least 12 feet long. The loading chute should be 26 to 30 inches wide.

Optional Equipment

Scales should be part of a beef cattle handling facility, if possible, or they can be added at a later date as the cattle operation develops. Scales allow for accurate dosing of animal health products such as dewormers and antibiotics, and they also facilitate the collection of performance data like weaning weights that can aid in management decisions. The scales should be located so cattle can be easily moved on and off. Do not locate scales so cattle must cross them each time they are worked. This results in a shorter life and greater repair costs for the scales. Instead, incorporate scales into the handling facility in a way that allows them to be easily

removed when not needed. Ideal locations for livestock scales are under the squeeze chute or within the alley leading up to the squeeze chute. Compare the available scale options to find the right fit for your facility. Both mechanical and digital options are available and are priced reasonably. Consider a set of portable load bars and digital scales, if you have multiple working pens.

A **calf table** is another optional piece of equipment to consider. It can be convenient when processing large groups of calves. The smaller size and tilting action of calf tables allows easy access for castration and also makes other calf management procedures, such as branding, vaccinating, deworming, tagging, etc., easier. Calf tables can be moved into place at the end of the squeeze chute when needed and then removed to a safe location when not in use.

Summary

Cattle handling facilities are essential for safely and effectively implementing many routinely recommended health and management practices. Appropriately designed and constructed cattle handling facilities will also aid in the reduction of bruises and injuries to cattle that reduce their value. For more information about cattle handling techniques, please refer to Extension publications “Alabama Beef Quality Assurance: Using Handling Facilities Correctly,” ANR-1283, and “Low-Stress Cattle Handling,” ANR-1394.

Table 1. Common Dimensions for Corral & Working Facilities on Cow-Calf Operations

Holding area, square feet/head	
Calves up to 600 pounds	14
Yearling cattle	17
Mature cattle	20
Crowding pen square feet/head	
Calves up to 600 pounds	6
Yearling cattle	10
Mature cattle	12
Working alley with straight sides	
Width for calves up to 600 pounds	18 inches
Width for yearling cattle	22 inches
Width for mature cattle up to 1,400 pounds	26 inches
Width for mature cattle over 1,400 pounds	28–30 inches
Minimum length	20 feet
Working alley with sloping sides	
Width at bottom	16–20 inches
Width at 4-foot height	
Calves up to 600 pounds	20 inches
Yearling cattle	24 inches
Mature cattle up to 1,400 pounds	28 inches
Mature cattle over 1,400 pounds	30 inches
Minimum length	20 inches
Working alley fence	
Minimum height for gentle cattle	60 inches
Minimum height for flighty cattle	72 inches
Minimum depth of posts in ground	36 inches
Corral fence	
Recommended height	60–72 inches
Minimum depth of posts in ground	36 inches
Loading ramp	
Width	26–30 inches
Minimum length	12 feet
Rise	3.5 inches/feet
Ramp height	
Stock trailer	15 inches
Tractor-trailer	48 inches



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