Cattle Facilities

Beef cows do not need elaborate housing and do best if kept outside under most conditions. Forages in the diet produce large amounts of heat that can be used to maintain body temperature; however, protection is needed from wind, cold rain, and mud. Access to a woodlot or a barn that is open on the leeward side is adequate for most cow herds. In addition, a shed or barn for hay storage is usually required, except for those hay systems where hay can be stored outside. Indoor pens are useful for problem calving and sick animal treatment.

Every beef cattle operation, regardless of size, needs adequate handling facilities. Well-planned corrals and workable and practical equipment make cattle handling easier and safer, with less waste of time and labor. They also cut shrinkage to a minimum. Proper facilities and handling equipment are essential investments, contributing to the success of any cattle operation.

Many small farms do not have an adequate cattle-handling facility. An effective working facility should consist, at least, of a corral, chute, headgate, and facility for loading and unloading cattle. Without a handling facility, it is difficult to perform certain jobs such as vaccination, pregnancy testing, and routine health practices.

Location

The handling facility should be located in a well-drained area that is convenient to the roadway and to cattle in relation to the total operation. It should be designed to give the desired direction and control of cattle movement, and to allow a logical sequence of procedures. The size and items to include will depend on the number of cattle to be handled and the type of operation.

A major decision is the location and size of the holding corral. Allow for a minimum overall space of 60 to 80 square feet per cow-calf pair. After the holding corral is planned, other necessary facilities can be added. A large operation may require several holding corrals and much equipment. A small operation may need only one or two small corrals and minimum equipment.

Most cattle operations have only one set of corrals and handling facilities, which usually are located at the headquarters. It is helpful if corrals and feedlots are located in well-drained areas convenient to feed-storage facilities. Drainage should be away from feed areas and driveways. The best location is a hillside, with feed alleys and mangers extending along the high side. The least width or depth of the lot should run downgrade.

Water is basic

An adequate year-round supply of clean, fresh water is basic to any successful cattle enterprise. In many arid areas it is necessary to determine if water is available before constructing facilities. The water supply should be free of ice in the wintertime. Automatic, freeze-proof water fountains usually are a good investment where frost is common. It is possible to make an inexpensive trough

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for a small number of cattle by cutting a large, 55-gallon barrel of wood or metal in half to make two troughs that will hold about 25 gallons each. The half barrels must be cleaned thoroughly before use. For various classes and ages of cattle to be fed separately, the wintering area should be divided into several lots, with water accessible in each lot or corral.

Electricity is helpful

Electricity at the working area makes many operations easier and faster. There are many electric tools available for functions such as branding, dehorning, and clipping hair. Electricity also extends the working day, pumps water, keeps water from freezing in the winter, and adds to the convenience of record-keeping and many other procedures. It is recognized that many functional cattle operations do not have easy access to electricity, but it is helpful if available.

Functions of a facility

A complete handling facility provides an organized system for gathering cattle, gives direction and control, provides space for holding cattle before and after they are worked, restrains cattle for individual processing, and provides a method of loading and unloading cattle.

Gathering and holding

When cattle are gathered off the range or from a pasture to a holding corral, it is a much easier operation if there is a funnel-shaped approach to the corral. Some operations have a single holding corral that will hold the entire cow herd. Other operators prefer one or more small pastures near the corral so that some of the cattle can continue to graze until being brought into the corral for processing.

Such pasture fences can be built of woven or barbed wire at less cost than wooden fences needed for the working corrals. Posts of decay-resistant wood, set 2½ feet in the ground, will help to make a strong fence for pastures and corrals. Corner posts and gate posts should be larger than fence-line posts and set deeper into the ground. Pressure-treated posts usually will last for 25 years or more. On-the-farm treated posts also give excellent service. Directions for treating posts are available from Extension Service offices. See your Extension Agent for instructions on treating wood fence posts.

Holding pens provide a method for separating and holding cattle, both before and after going through the working chute. Usually such pens should provide less space per animal than a large holding corral. About 12 to 20 square feet per mature animal is sufficient. Pens or corrals are necessary to keep those cattle released from the working chute separate from those yet to be worked, so about the same amount of space should be provided to hold the cattle that have been worked as is provided for those to be worked. About 50 to 80 head is a large enough group to handle at one time, so a holding pen about 15′ X 40′ up to 30′ X 30′ is used for holding ahead of the crowd pen and work chute.

Sorting alley

When cattle are moved from the holding corral or pen into a sorting alley, and from the sorting alley into the working chute, the funnel-shaped approach gives greater control. In large operations the sorting or working alley is usually a separate structure, built specifically for that purpose, and should be 12 feet wide. This gives ample space for working on horseback, and is narrow enough to work cattle on foot, yet wide enough to allow vehicle traffic. In small facilities, pens can be used for sorting and holding.

Gates

Strong gates, easily operated, with positive latches, are essential. Sorting and cutting gates that are properly sized and located in the holding pens, working alley, and chute provide for easy sorting. Some gates must swing 180 degrees to allow for the passage of cattle in both directions. A 12-foot gate works well.

Well-constructed and properly braced gates are heavy, and require strong hinges and posts for support. If possible, wooden gate posts should be treated with wood preservative and set in concrete. A "deadman" such as a 2 X 10, 3 feet long, nailed at right angles to the end of the post that goes into the ground will also provide extra support. The posts on each side of a heavy gate should be high enough that a timber or cross brace between the posts will be clear of all farm vehicles.

Whenever diagonal braces are used on a wooden gate, it is advisable to put a second, parallel brace on the opposite side of the gate. This will prevent warping. Most metal gates are reinforced to prevent twisting.

Adjustable gate hinges that allow the gate to be raised above packed snow are available, and may be desirable in some corrals where cattle are wintered. Several detailed plans are available for specialty gates, hinges, and gate latches. See plans and source on page 4.

Working chute

The working chute area is the heart of a cattle handling system. Proper design and construction contribute to efficient handling of cattle. Because snow, rain, wind, sun, and shadows affect cattle handling, covered working areas are becoming more popular.

For handling large numbers of cattle a working chute should have sloping sides that are enclosed, a concrete floor, and overhead restrainers. Solid sides and a curved chute leading to the head gate or squeeze prevent animals from seeing where the animals ahead are going, so cattle tend to move more easily.

A covered horseshoe-shaped working area with proper facilities and equipment can be a very practical, efficient, and versatile system. Several variations are in use. The horseshoe shape makes for ease of handling cattle because cattle tend to move quite readily when being returned to the same general area they came from. The working area is concentrated, can be laid out on a concrete slab, and can be roofed for protection from the elements.

A book "Cattle Corrals," available for $3.00 from the Western Regional Agricultural Engineering Service (WRAES), Gilmore 116, Oregon State University, features a 15′ X 40′ horseshoe-shaped working area, laid out on an 18½ X 42 foot reinforced concrete slab. There are 8 feet between the alley and the chute, which can be adjusted to handle calves, yearlings, or mature animals. Two people can process many cattle with relative ease. The 5-foot-wide entrance alley slopes 1 inch per foot to the outside to facilitate self-cleaning. All concrete surfaces are rough finished to prevent cattle from slipping. Utilities such as water lines, electric service, and drainage pipes can be installed before concrete is poured. This particular horseshoe-type working area is covered with a pole-type building 22 X 40 feet.

The "Cattle Corral" plan shows variations in construction of the working chute to allow for operations such as pregnancy testing and spraying, and even special escape gates for workers.

For small cattle operations, straight chutes with straight sides are adequate. An 18-foot-long chute holds three mature cattle, but preferences on length may vary. Most operators prefer the chute leading to the squeeze gate to have sloped sides, and be 16 to 18 inches wide at the bottom. The slope usually allows the chute to be 3 feet wide at the top, which is about 5½ to 6 feet in height.

Several types of all-metal squeeze chutes with head gates are in use. Most of the patented chutes are efficient and do an excellent job of restraining cattle. Pay attention to the levers that stick out, ease of adjustability, and ease of operating.

Loading chute

The loading chute should be located outside the corrals, and should be accessible to an all-weather road. It should be built to accommodate both rear- and side-loading equipment, and also large and small trucks and trailers. Trucks should not have to enter corrals nor go through several gates to load or unload cattle. Inside width of the chute is usually 3 feet, although some operators prefer a chute that is 4 feet wide. Provide a loading gate so stock trailers can be accommodated near the crowding pen.

Cattle will walk up a step ramp loading chute more readily than one that has a cleated floor. Either type will work, but be sure cleats stay firmly anchored.

A portable loading chute is not difficult to build, and is a handy piece of equipment.

Scales

Most cattle operations should have a set of scales. Scales are an integral part of buying and selling cattle, and are used for individual weighing in a beef cattle improvement program. Large operations usually require scales for weighing many items other than cattle. State officials can give specifications necessary for scale certification.

Large scales should be the pit type and the pit should be built of concrete. Scales should be carefully located and properly treated. A scale house is a wise investment to protect scales from the weather.

If scales are to be used for weighing loaded vehicles, the house needs to be high enough to clear the load. Also it may be necessary to remove the scale rack which is usually used when cattle are driven onto the scale. If only loose cattle are to be weighed, the rack can be securely bolted to the platform.

Excellent scales are available for weighing single animals. These scales can be portable or permanently installed.

Homemade back-rubber

Back-rubbers will do much to control flies while cattle are on pasure or range, and are effective in control of lice during the winter. A homemade rubber can be made by placing two posts in the ground, 15 to 20 feet apart. Fasten a chain or cable made of two or three strands of barbed wire, about 4 feet high, at each post. Allow the chain or cable to sag at the center to within 18 inches of the ground. Wrap the chain or cable, and any brace wires for the posts, with three or four thicknesses of burlap; tie securely with binder twine. Saturate the sacks every few days with a recommended insecticide.

Facilities for calving time

Pregnant cows need exercise, so feed and water might be placed some distance apart. A large calving area is also helpful in promoting walking and in aiding sanitation.

Feeding in bunks rather than on the ground helps to prevent contamination by fecal material, and providing clean water from troughs rather than streams or ditches also helps to reduce contamination. Portable feed bunks make it possible to avoid manure buildup.

Natural protection provided by trees or brush is helpful for newborn calves. Protection can also be provided by small portable calf shelters, or by sheds open on one side.

Some facility should be provided for giving assistance to heifers calving for the first time. A barn or shed with a 12′ X 12′ pen and head gate for restraining the cow is useful. A working chute is too narrow for this purpose, because the cow may go down during the process. Allow enough space to work around the cow while assistance is given. Calf-pulling equipment should be available, but used with great care.

Cows that have calves should be moved away from the pregnant cows. This helps to promote sanitation and prevents newborn calves from additional exposure.

Facilities at branding time

Branding, dehorning, and castration are usually done in one operation and generally when calves are 2 to 4 months of age. Facilities should be provided to separate calves from the cows.

Most operators prefer to work calves through a chute with a head gate and squeeze attached to a tilting table. This restrains the calf and raises it off the ground for processing. Keeping the calf off the ground makes these operations easier and aids in sanitation.

Special chutes for working calves reduce labor and injury to animals, although it is recognized that some operators still prefer to rope the calves and stretch them out on the ground.

Facilities for weaning time

When calves are weaned the first requirement is tight fences to control both cows and calves. Feeding and watering facilities are also essential.

Corrals and holding pens should be well-drained, clean, and dry, with a special lot or pen for calves that might become sick. Allow 18 to 22 inches of manger space per calf up until about 600 pounds weight, if all calves are to eat at the same time. Use haystacks and board fences along with hills and trees to shelter the feedyard from prevailing winter winds.

Combination hay and grain feeders are popular. The advantage of a combination-type feeder is that it saves feed, especially when leafy hay is fed. Shattered leaves are caught in the trough below the hay. An inexpensive feed trough can be made using 2-inch lumber cut in length to accommodate several calves. Allow about 3 square feet per head and make sides not less than 6 inches deep. If mounted off the ground, keep the height at about 18 inches. Plan 6066 shows a portable feed bunk.

AVAILABLE PLANS

For the complete catalog of beef facility plans, request a copy of "USDA Design Idea Plans—Beef Facilities." All plans and catalogs are available for purchase from your state university Extension agricultural engineer.

Barns

Plan No.	Pages	
5754	3	Cattle barn, pole construction 36′ x 63′
5765–A	3	Cattle feeding barn 60′ x 82′
5780	3	Pole barn 39′ width (gable roof)
5781	3	Pole barn 39′ width (combination roof)
5832	2	Type "C" pole construction 26′, 39′, or 52′ width
6065	1	Movable calf shelter
6156	4	Confinement beef barn 80′ x 144′
6158	3	Confinement beef barn 48′ x 48′
6160	3	Confinement beef barn 46′ x 48′
6172	3	Cattle shed and auction barn

Corrals and Handling Equipment

Plan No.	Pages	
5778	1	Cattle holding chute and head gates
5779	2	Expansible corral
5790	1	Corral layout
5791	1	Cattle squeeze
5792	1	Portable cattle stock
5793	1	Loading chutes
5796	4	Two-pen corral
5797	4	Six-pen corral
5835	3	Six corrals for beef cattle
5851	3	Two-pen bull barn and lots
5852	1	Variable-height loading chute
5876	1	Vat for dipping cattle
5920	1	Corral and feed lots
5932	1	Movable Pen for Truck Platform Scale
5940	3	Cattle dipping vat and inspection facility
5952	4	Range corral
5959	1	Cutting gate, tower and chute
5960	1	Loading ramp and 6-way sorting trap
5961	1	Gates and fences for stock corrals
5962	2	Tilting calf table—wood frame
5969	2	Tilting calf table—pipe frame
5991	2	Corral
6041	3	Portable corral transport
6049	2	Corral with curved chute
6051	2	Cattle guards
6077	1	Walk-thru headgate
6091	3	Auction Yard for Livestock
6103	2	Breeding chute
6106	3	Corral layout and equipment
6129	6	Livestock Market (Covered)
6133	3	Squeeze chute trailer mounted
6141	2	Gooseneck trailer
6161	3	Cattle corral layouts
6162	1	Cable fencing
6177	1	Dock bumper self aligning

6183	1	Three tier loading chute
6184	3	Rodeo Arena with Bleachers
6205	2	Corral layout
6229	4	Expansible corrals
6230	3	Corrals with working facilities
6266	2	Pasture creep gate
6272	1	Movable headgate
6282	1	Manure storage & settling basin
6303	1	Cow trimming chute
W1001	1	Horseshoe corral
W1002	1	Adjustable chute
W1003	1	Pole shelter over corral
W1004	1	Loading chute
W1005	1	Specialty gates
W1006	1	Artificial insemination corral/chute
W1007	1	Crowding gates
W1008	1	Gates & hinges
W1009	1	Fences & latches
W1010	1	Non-slip chute exits, vet supply table

Feeders and Feeding Equipment

Plan No.	Pages	
5759	1	Salt and mineral box
5766	1	Silage and grain feeding trough
5768	1	Calf creep feeder
5772	1	Cattle hay rack
5844	1	Weathervane mineral feeder
5854	1	Fence-line feeder type A
5862	1	Covered feeder unit for cattle type B
5906	1	Mineral feeder
5908	1	Self-feeding hay wagon
5909	1	Watering trough
5925	1	Cattle feeding rack (portable, covered)
5939	1	Cattle feeding shelter
6066	1	Cattle feeders
6108	1	Cubed hay storage and feeder
6124	2	Cattle feeder liquid supplement
6167	1	Silage feed bunks
6173	2	Tossed bale wagon rack
6210	1	Feeding unit—400 steers, mechanized bunks
6214	1	Hay feeders for round bales
6226	1	Portable mineral shelter
6242	1	Slant bar feeder panels
6245	2	Covered feeder for round bales
6249	1	Portable feeder for big bales
6297	2	Beef feeding pens—counter sloped

Feed Storage

Plan No.	Pages	
5847	1	Hay shed 24' wide pole construction
5848	2	Bunker silo type "D"
5865	2	Bunker silo type "E"
5935	2	Hay storage and feeding shed
6055	2	Horizontal silo tilt-up construction
6068	14	Grain-Feed Handling Center
6069	14	Grain-Feed Handling Center
6081	9	Grain-Feed Handling Center
6108	1	Cubed hay storage and feeder
6110	1	Concrete trench silo
6175	1	Horizontal silo, tilt-up below grade
6279	3	Barn for Automatic Bale Wagons
6294	2	Grain handling and storage center (4 steel bins)
6296	2	Grain handling and storage center (6 steel bins)
6310	2	Hay Storage & Feeding Barn, 63' wide