



Livestock Handling Facilities

Livestock Handling Facilities Designs

Illinois

General Information

This section of the Grazing Manual is focused on handling facilities. There are many designs from different sources available in print on the market today. This sheet will reference the Midwest Planning Service publication MWPS-6, fourth edition and some of its various livestock facility designs. This is not an all inclusive list. However, we will include enough design information to give a representative sample of what is available from this edition and the MWPS-6 edition. To access all of the books and information go to the Midwest Plan Service web site: <http://www.mwps.org>

Cattle Handling

Cattle handling includes: sorting, weighting, dehorning, vaccinating, dipping branding grooming, treating, and calving. Well designed cattle handling facilities minimize lab use and allow for safe cattle handling. The components of a facility are the same regardless of the number of cattle and include:

- Conditioning, holding, sorting, and crowding pens
- Working and loading chutes
- A squeeze and headgate
- Dipping facilities.
- A weigh scale
- Hospital facilities

Differences in size and number of pens, working chute, type of headgate, etc., depend on cattle size and number. Locate handling facilities close to cattle pens and yard area for easy access. Provide 300' or more between residences and handling facilities to reduce noises and dust. Select a well drained site with an all-weather access road. An indoor working chute-head-gate allows working in all types of weather at any time of day. Slope working facilities less than 3% to reduce gate swing problems.

Conditioning Pens

Conditioning (or receiving) pens hold incoming cattle before they go to the feedlot. New cattle are usually stressed from weaning, removal from range, crowded trucks and rail cars, motion sickness, thirst, hunger and fright. Eating from a bunk or drinking from a tank or float controlled waterer may be a new experience. To help calves adapt from pasture to confinement:

- Do not crowd animals. Provide well drained conditioning pens with 100 ft²/hd in lots that provide food footing. Avoid slippery surfaces and slotted floors. Limit pens to 60 hd/pen. Large pens encourage running, and may cause dust, trouble finding feed or water, and additional stress.
- Fence visibility is important in conditioning pens. Plank fences are more easily seen by calves; wire and cable fences are more difficult. Do not use wire and cable fences unless at least one plank is attached at calf eye level.

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Conditioning Pens

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- Provide wind protection and shelter from sun, rain snow, etc. Protected feed bunks help maintain feed quality and uniform consumption.
- Provide at least 2' of bunk space per head. Offer hay for 8 to 10 hours before starting other roughages. Fill feeders so cattle can see hay. Start grain or silage gradually during the conditioning period.
- Provide plenty of fresh water. Be careful that calves do not over-water at first by feeding roughage before the sound of running water helps new cattle find the waterer.
- Locate receiving lots away from main lots to reduce disease and parasite transmission.
- Process new cattle after a rest period, (usually several hours).

Working Facilities

Working facilities are for sorting, handling, and treating cattle. They include the holding pen, crowding pen, working chute, squeeze and headgate, scale, and possibly a dipping or spraying facility.

Holding or Sorting Pen

Make the holding pen about 60 ft² (12' X 50", 20' x 30', etc.) to hold 40 to 50 animals ahead of the crowding pen. One is sufficient for operations with up to 250 cattle. For larger operations provide:

- Up to 1000 head, one 600 ft² pen/250 head.
- Over 1,000 head, four 600 ft² pens and two 1000 ft² pens.

Where cattle are moved by person on foot, provide safety posts in each corner and at 40' – 50' intervals along the sides of large pens, fig 7-1 (last page of fact sheet). In larger pens, locate safety posts every 50'. Position posts 3' -4' from fences and corners. Use at least 6" posts set 4' in the ground. Safety posts are essential when handling bulls.

Crowding or Funnel Pen

A crowding or funnel pen with a swinging gate is needed to crowd into the working chute. Taper the pen from 12' to about 2' at the chute entrance. A circular crowding pen with solid fence and gate is most effective because the one escape route the cattle can see is through the working chute. Equip all gates with self-locking latches and provide a safety exit from the crowding area.

Working Chute

Desirable characteristics are:

- Curved chute construction with solid sloped sides that restrict cattle vision to a few feet straight ahead. A minimum curve radius of 15' is recommended.
- Sloped chute sides that restrict an animal's feet to a narrow path and prevent turning around. Sloped sides permit working different sized animals in the same chute.
- An overhead restrainer to keep cattle from rearing up and turning around or falling over backwards.
- At least a 20' long chute to hold 3 or 4 head at one time. One person working the crowding pen can keep the chute charged to reduce delays at the squeeze and headgate.
- Use one or two blocking gates to keep cattle from moving forward or backing up. Use these near the scale or cutting gates.
- Use a cutting gate at either the beginning of a chute, or just ahead of the squeeze, or at both places, to divert cattle not requiring treatment. Cutting gates are better than running all cattle through the squeeze and headgate.

Working Chute

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- A concrete floor or other all-weather surface should be installed for easier cleaning. Use a sloped (less than 4%), rough finished surface for good traction. See the building construction chapter for slip resistant floor surfaces.
- Chute sides should be about 4" above the ground to improve manure removal and controls insect breeding.

Squeeze and Headgate

A squeeze and headgate restrains cattle for treatment. Usually a headgate on a stall with fixed sides is satisfactory for small cow-calf operations. A squeeze provides faster, more complete animal control, reducing the chance of injury to animals or operators, Fig 7-2.

Consider a tilting table in the squeeze-headgate area for branding, castrating, hoof trimming, and treatment. Select a headgate which opens the full width of the chute to reduce cattle injuries. Size the chute and headgate based on cattle being worked. Three headgate types are:

- A self-catch headgate is easiest for one person to operate; cattle work fast, exit easily, and seldom choke. Is difficult to use for small or horned cattle and can cause severe shoulder bruises. Sometimes animals escape without being caught.
- A stanchion headgate is lower cost, simple, requires an operator, and seldom chokes cattle. It can cause shoulder bruises and sometimes allows a animal to escape without being caught. Cattle often rip as they walk through the headgate.
- A guillotine headgate holds the animal's head down, providing maximum head control and reducing shoulder bruises. This headgate is medium cost, difficult to operate, slower, and of the three types is most likely to cause choking.

The self-catch and stanchion headgates are available in straight bar models. A straight bar provides less head control and decreases chances of choking. A curved bar gives better head control, but increases the possibility of choking.

Hospital Pens

Provide 40 - 50 ft²/head of hospital space for 2-5 percent of the finishing and adult cattle. Do not over crowd sick animals. Provide one hospital area for every 6,000. Locate this area close to handling facilities and conditioning lots. Provide separate drainage. Use roughened concrete sloped 1/4"/ft or more to a drain for outdoor hospital pens.

More than one hospital/treatment area is recommended for large custom operations. Separate this area to reduce disease transmission. Clean and disinfect before putting new groups of cattle in.

Heat and mechanically ventilate tight, well insulated room and intensively used barn areas. Space to drive a veterinarian's truck into the treatment area is desirable.

Treatment Supply Room

Provide a small insulated and heated building or a room near the treatment area to store equipment and supplies used at the squeeze chute and headgate. Provide a refrigerator for veterinary supplies and lock this room when not in use. Where large numbers of cattle are treated regularly, install a water heater and sink with hot and cold water. Consider an emergency shower head in case of contamination with treatment products.

Management

Thoroughly clean treating, handling, hospital, and barn areas during the early part of the summer. Use white wash containing cresol (a disinfectant), or equivalent, for washing walls, posts, and other surfaces. Cresol helps control ringworm and lice caused by cattle rubbing against walls. Heavily spread dry lime on floor areas about 30 days before use.

References

The following diagrams and designs are from the MWPS-6, fourth edition.

Also of these and other livestock information books can be accessed from the Midwest Plan service web site at: <http://www.mwps.org>

Fig 5-7 Pasture corral with rotational grazing

Pasture Corral Systems

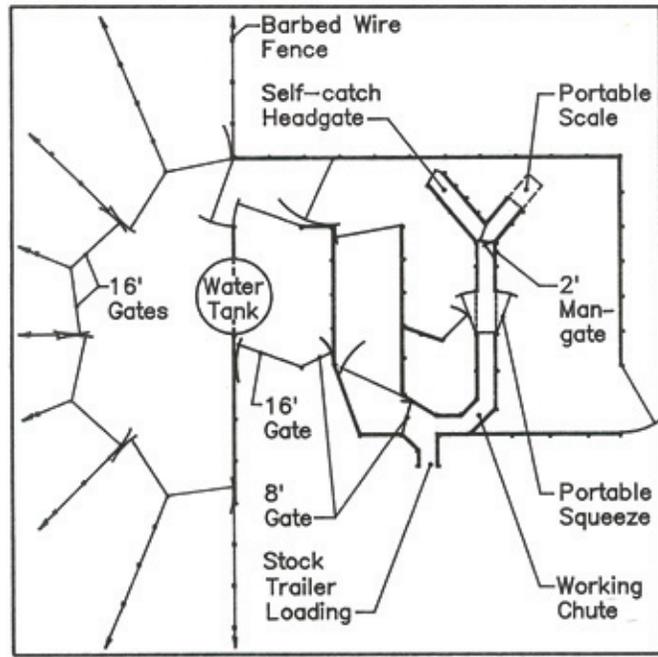


Fig 7-1 Safety post placement

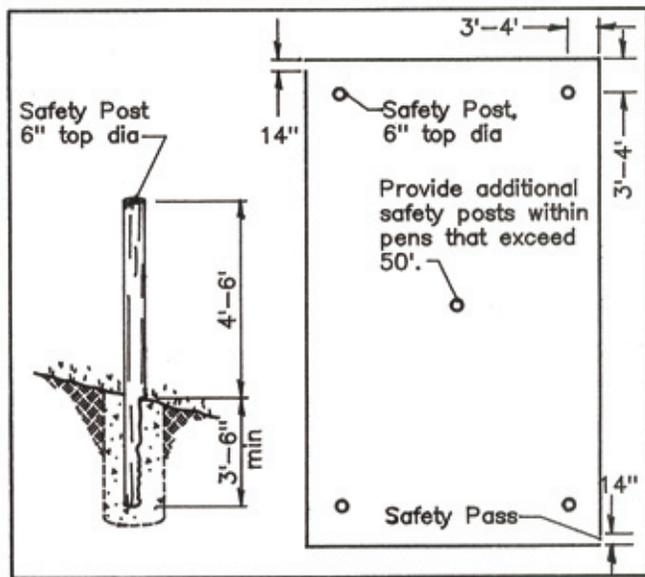


Fig 7-2 Cattle handling layouts for up to about 75 head

Working Facility Layouts

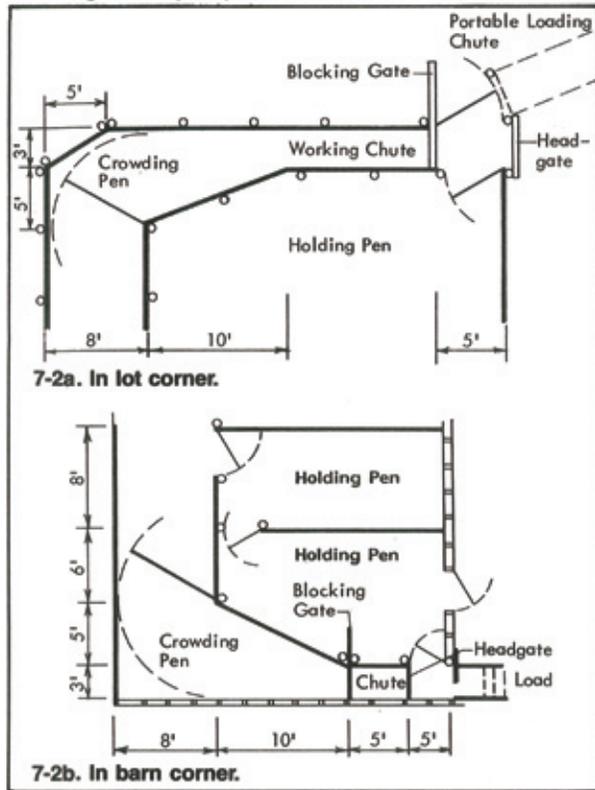


Fig 7-4 Cattle handling facility

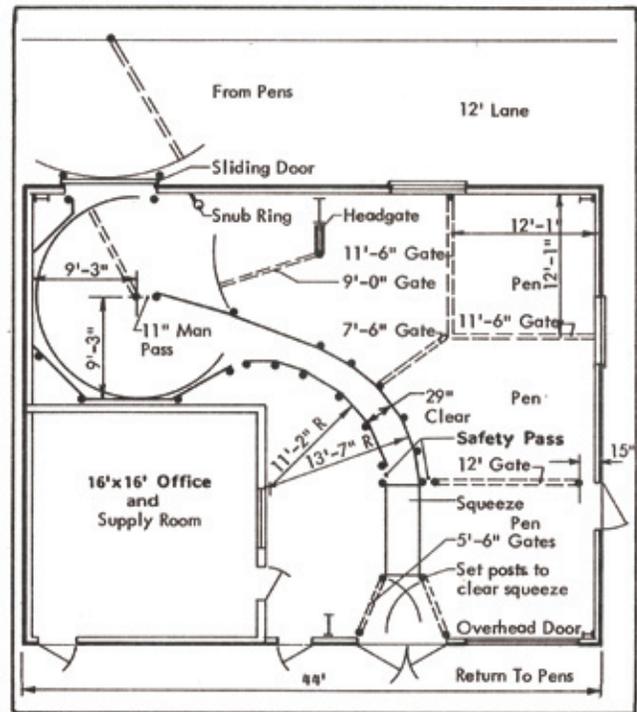


Fig 7-4. Cattle handling facility.
Adaptable as a hospital barn. Gates swing out of the way for tractor cleaning. Mount overhead lighting in the working area to see head, sides, and tail of animals in squeeze or headgate and in the corner pen for care during calving.

Fig 7-3 Small rectangular corral

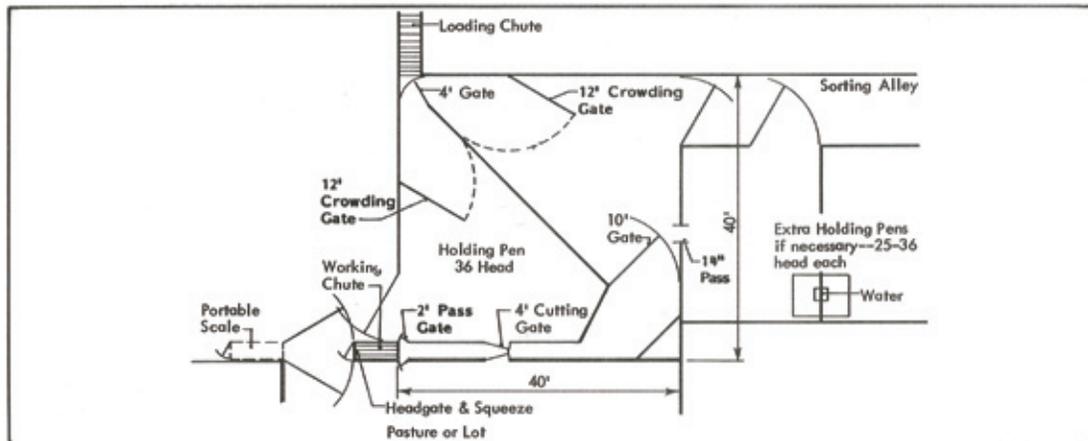


Fig 7-3. Small rectangular corral.
For small feedyards or cow-calf operations. This layout is simple and easier to construct but has lower capacity.

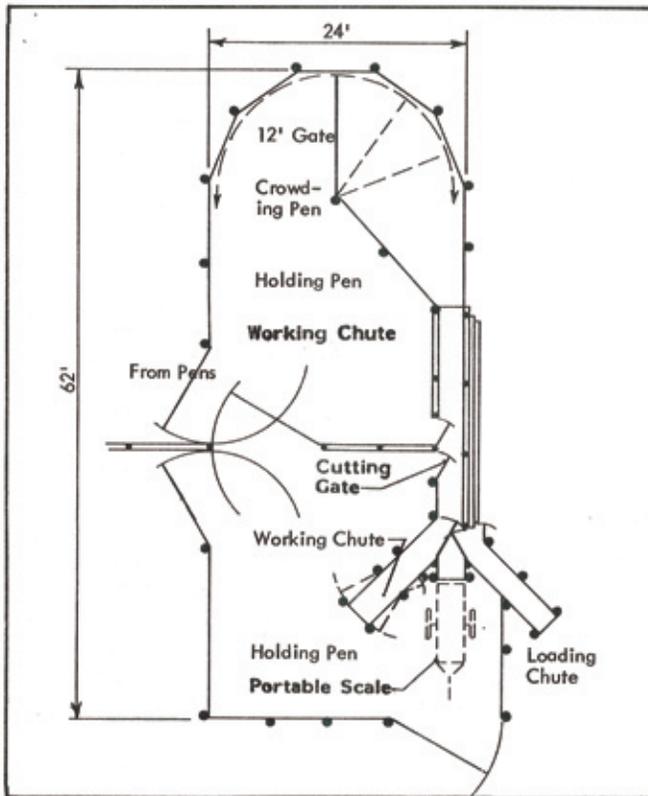
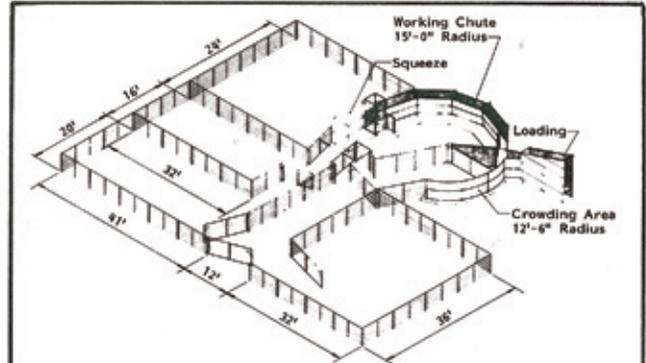
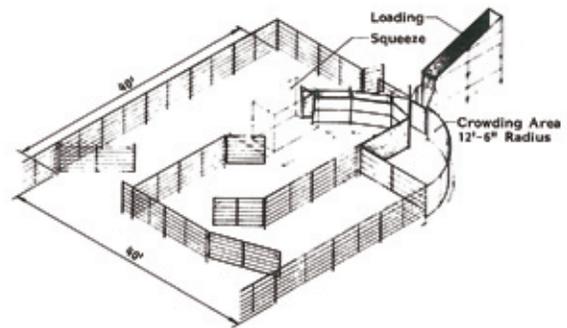


Fig 7-5 Cattle handling facilities for 300 to 1,000 head



7-8a. USDA #6229, expansible corral. Circular crowding pen and working chute. Good sorting and loading arrangement. This layout can be a hospital or receiving lot. Consider roofing over the working area.



7-8b. USDA #6230, corrals with working facilities. Circular crowding pen and working chute. Good layout for loading and sorting. The plan is adapted to only limited expansion and has no ideal scale location.

Fig 7-8 USDA corral plans 6229 and 6230

Fig 7-8. USDA corral plans 6229 and 6230. These plans show pipe, post, and rail fences. Order plans from the addresses listed on the inside front cover of this book.

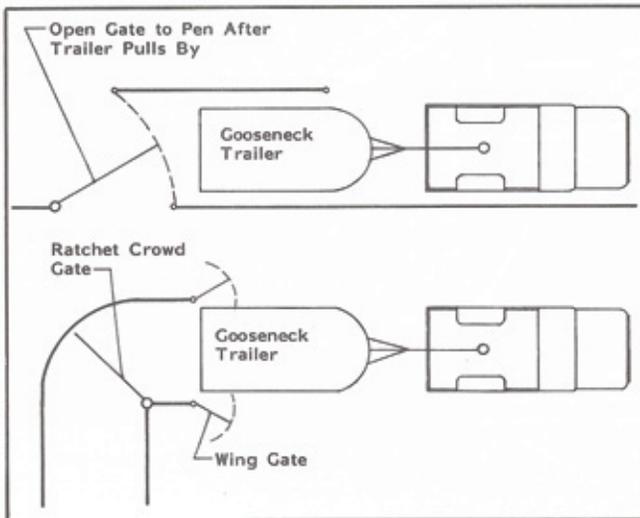


Fig 7-9 Low bed trailer loading

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Livestock Handling Facilities

Pasture and Corral

Handling Basics

Illinois

General Information

Here are some tips to keep in mind when handling livestock in the pasture and corrals. This is a very brief summary of some of the Low Stress Livestock Handling methods that have been perfected by Bud Williams and captured in print by Dr. Temple Grandin from Colorado State University. For more instruction on Low Stress Livestock Handling go to the web link provided under references.

In the Pasture

- Remember flight zones. Use just enough pressure to move an animal without sending it over the fence.
- Point of balance. Livestock tend to move forward if you are “behind” their shoulder and backward if you are “in front” of their shoulder. If livestock won’t move forward in an alley way, try putting down a hotshot and walking by them from front to back.
- Take your time. It is faster to do it right the first time than to do it twice.
- Keep moving. People in motion are easy for the livestock to see and relate to. When the motion stops, livestock get nervous. Their instinct is to turn around and clearly see what stopped, because it may be something with big teeth ready to pounce on them. Move back and forth behind a group of livestock, don’t follow straight behind them.
- Walk in straight lines, not in curves.
- Guide the front animals, not the middle of the herd. The majority of the herd will follow the leaders.
- Don’t stop when you reach an open gate. The livestock should know there is a gate there, so go ahead and put them through it at a reasonable pace. When you stop to “let them find the hole,” they turn around and face you because you took all of the pressure off. Then you have to turn them around again and start all over. It is easier just to go straight through.
- Cull animals that are consistently wild or aggressive.

In the Corral

- Eliminate shadows, trash, chains etc. These things distract animals and cause them to balk.
- Don’t yell.
- Remove any protruding bolts, nails, sharp corners, etc. that can cut livestock or people.

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In the Corral

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- Eliminate noisy chutes, headgates, etc.
- Always have an escape route in mind.
- Don't fight an animal that gets mad, because one of you will get hurt. It doesn't matter if "the animal wins."
- Remember that livestock like to go back where they came from. Use that to design facilities that help you get animals into the crowd tubs, to sort them, etc.
- Don't over fill the crowd tub and lanes.
- Don't put a back-up gate right at the entrance of the lane from the crowd tub. It will cause the animals to balk. Put it one body length up from the entrance.
- Hotshots are a big can of worms. I think about hotshot use like this: Image that the hotshot has a short in the handle, and every time you shock an animal, you get shocked yourself. You can still use it when absolutely necessary, but that will cut down unnecessary uses.
- Take your time. We want to be efficient with our time, and we don't want to stress animals by making them stand longer than they have to. However, unlike the Olympics, there are no gold medals handed out for those who do it the fastest. Oftentimes, that animal would have moved if you had just waited two more seconds before using the hotshot.
- Before you go to handle livestock, discuss the plan and goals with your crew.

The following four diagrams show potential designs for handling animals.

References

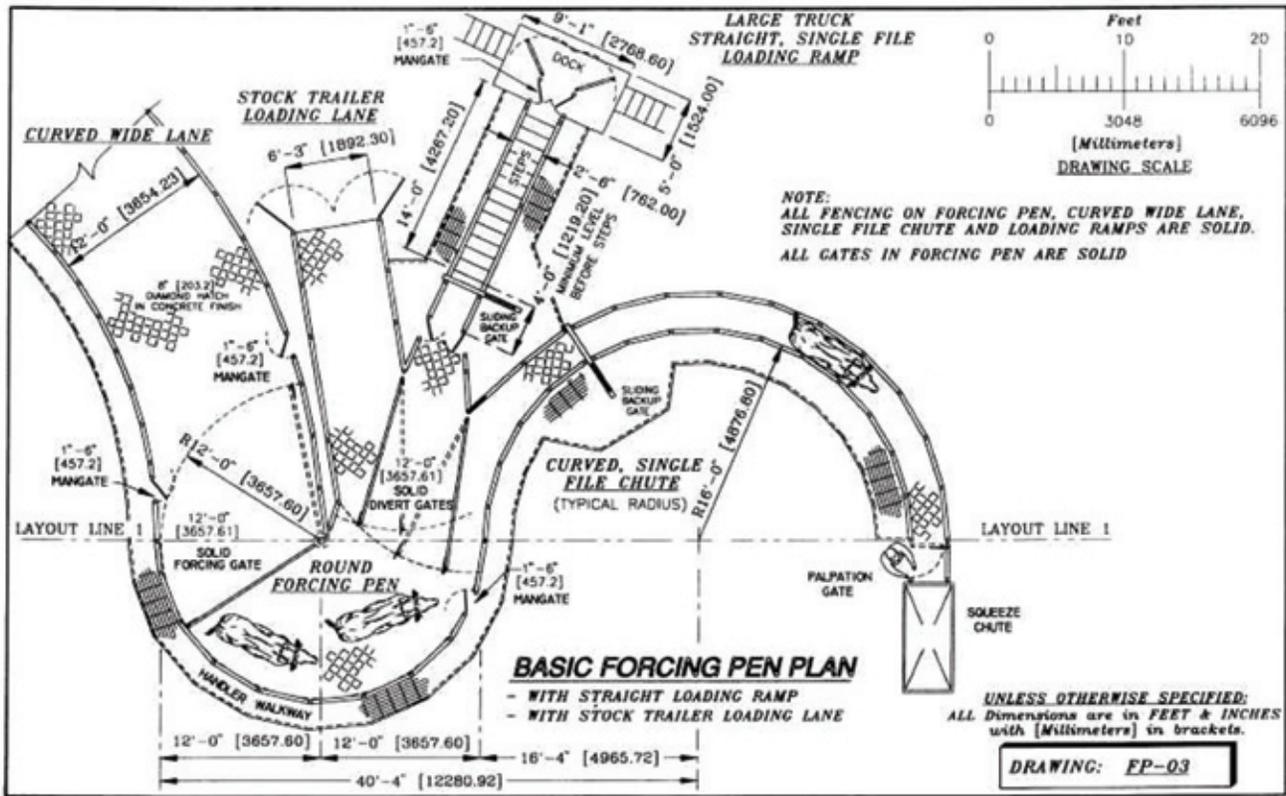
For more information about safe and effective livestock handling, go to <http://grandin.com/behavior/principles/flight.zone.html> on the web.

"To really test a marriage, have a husband and wife sort cattle together." By Dr. Ron Hanson, Univ. of Nebraska

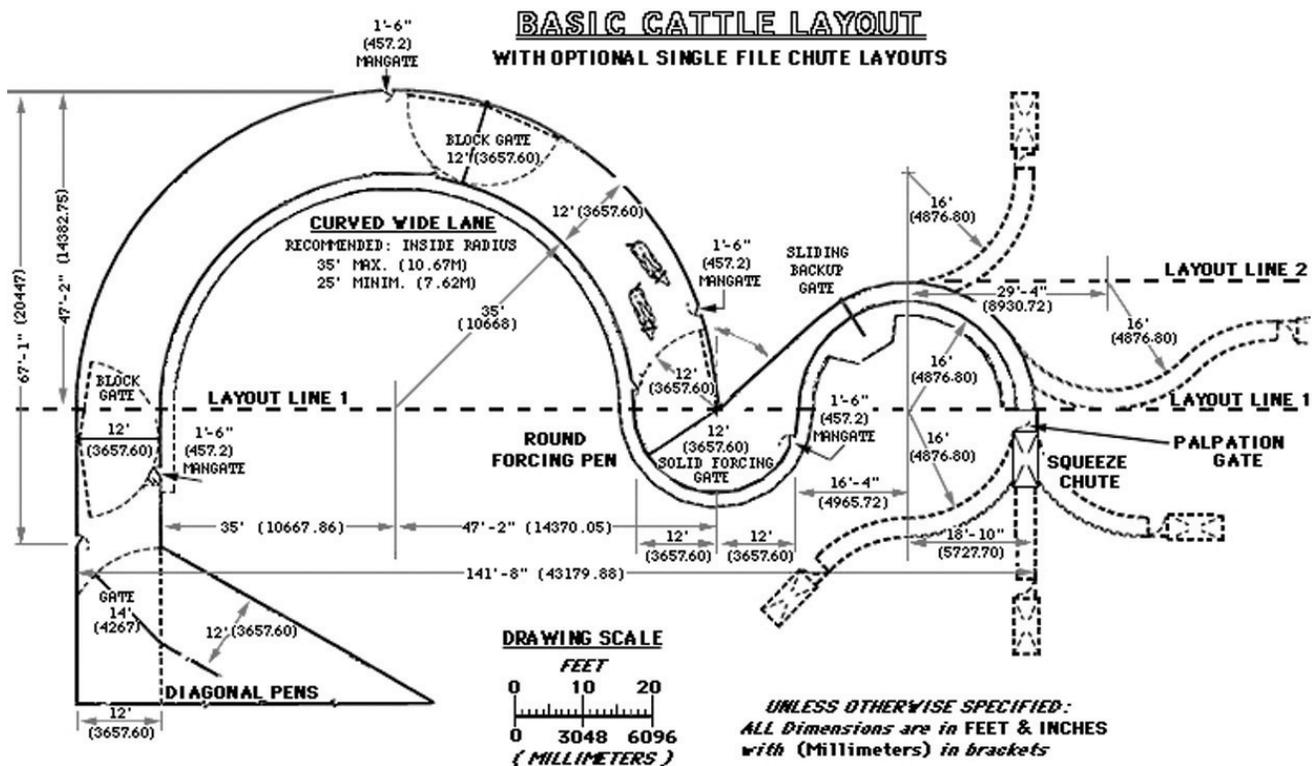
By: Ryan Reuter with the Samuel Roberts Noble Foundation, Inc.

Dr. Temple Grandin is nationally known for her work on Livestock Corral designs and animal behavior research. Attached are a few of her corral designs. This and much more are located on her web site: <http://www.grandin.com>

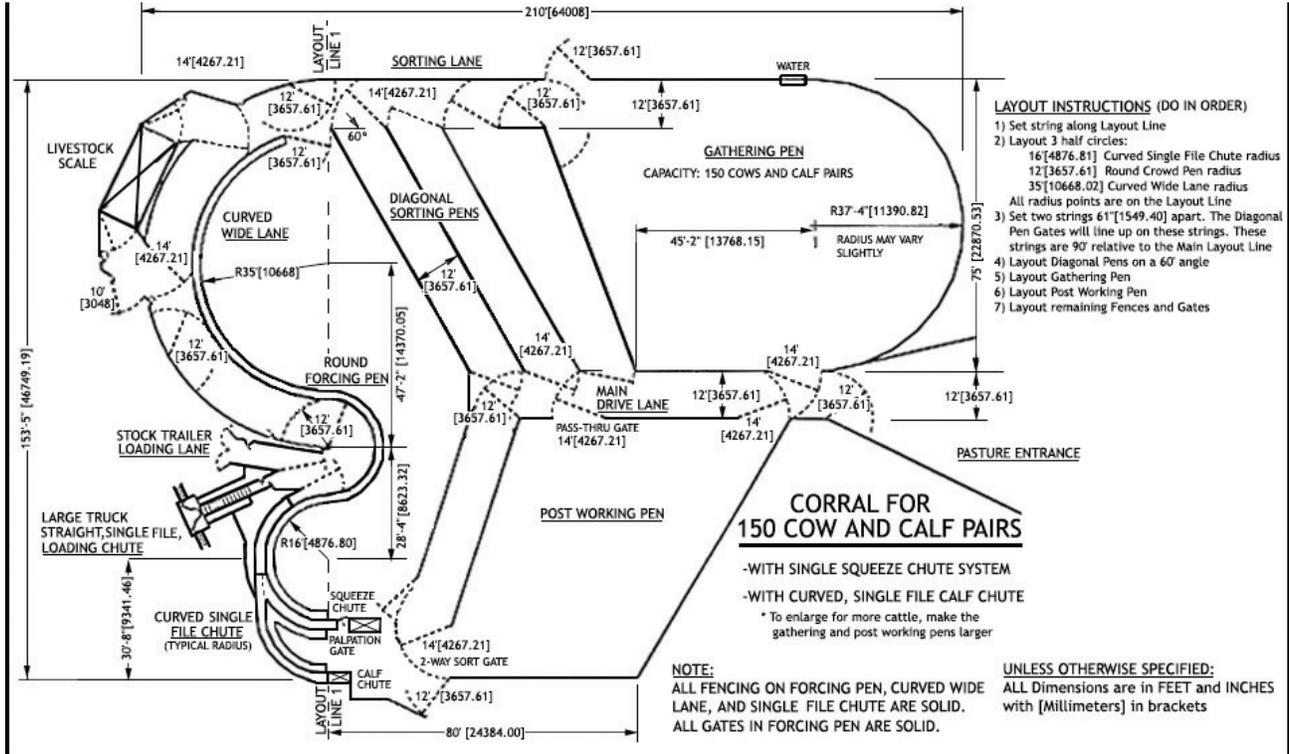
Basic Forcing Pen



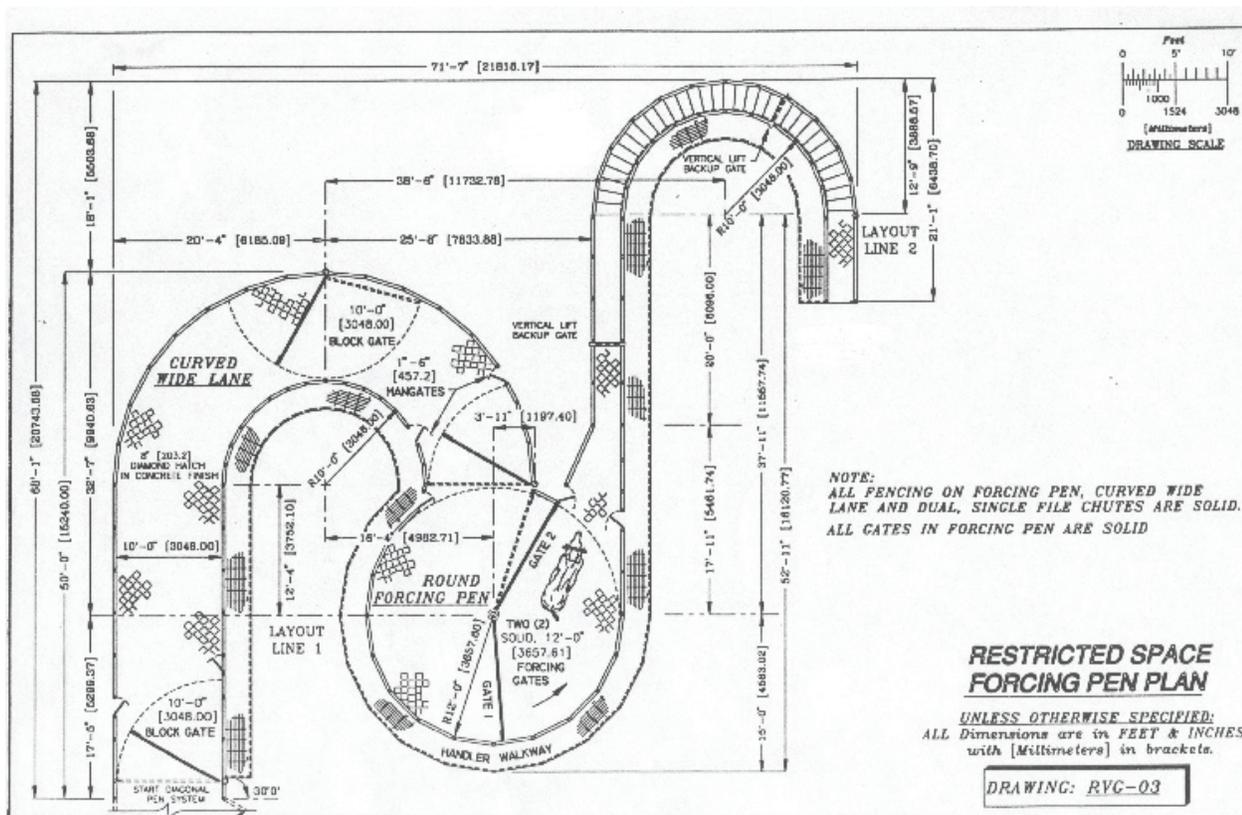
Basic Cattle Layout



Corral for 150 Cow/Calf Pairs



Restricted Space Forcing Pen Plan



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Livestock Handling Facilities

Sheep and Goat Handling and Facilities Options

Illinois

Why Handling and Facilities are Important

Profit, pride, good husbandry, instincts and training are the reasons that sheep and goat producers concentrate on care and management of their sheep and goats. Good management shows the producers that with proper handling and management skills, the result is comfortable, contented and productive animals. Experienced producers soon recognize that well-designed working facilities and buildings reduce work and physical exertion required to provide the necessary care for sheep and goats. This reduces stress on both the livestock and herder. Management jobs, such as health care, are scheduled and performed in a timelier and routine manner when good facilities are available, rather than being avoided or ignored due to lack of proper handling corrals and chutes. Also, carrying out these jobs is possible in a more humane manner with less risk of injury to the animals or handler. Finally, the animal's wool or hair is maintained cleaner and in a valuable condition. It is important to remember that proper handling and use of a well-designed facility will increase productivity and profit from the sheep and/or goat operation.

Determine What is Needed

What constitutes adequate handling facilities? If you have fewer than 200 sheep or goats, adequate facilities can be made from a few portable 8-foot panels and a few special purpose metal gates. Figure 33 shows how these panels and gates can be quickly arranged in an existing corral or building to form a simple, effective layout. For larger flocks, a more permanent handling facility should be considered. This will require some additional thought and planning.

First think about what sheep or goat management jobs need to be done on your farm or ranch. Make a list of these jobs. Beside each job, note what time(s) of the year it is done and the number of animals handled at each time.

This list will help you determine the facilities you need for your management system. For example, some shepherds control external parasites by dipping their sheep, others by spraying. Each of these techniques requires different types of facilities. It will also help in setting the priority since it points out the frequency of each task and the number of animals handled at any one time. In addition, items which require the most thought in design and special attention on construction will be identified. For example, the number of animals handled at one time determines the dimensions of the pens and chutes. If holding pens are too large, you'll waste time and energy chasing the animals. If too small, you'll waste time and energy moving sheep from pen to pen. Allow about 4-5 square feet per sheep or goats for holding pens. When completed, your list might look like this:

Task	Facility Required
Holding	Gathering pen and forcing pen
Sorting	Narrow sorting chute, sort gate, At least two holding pens to sort into
De-worming	3' wide chute or small pen
Vaccination	3' wide chute or small pen
Weighting	Weigh crate in chute
Foot trimming	Tip crate or small pen

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Determine What is Needed

(continued)

Add or delete items and list the number of animals, as well as times to handle, to suit your situation. During the planning process, keep in mind a few basic principles. To work effectively, your facility should enable you to gather and hold your animals in a gathering pen, move them into a forcing pen, which will in turn allow you to force them into the treatment and sorting area, and then out into sort pens. To successfully get sheep to flow through pens with a minimum effort and stress on both you and the animals, basic principles of sheep and goat behavior should be understood.

Reference

The reference material for this article largely came from the Sheep Production Handbook. For more information on sheep handling principles and management contact the: American Sheep Industry Assoc., 6911 S. Yosemite, Englewood, Colorado 80112-1414; Phone: 303 -771-3500; web site: <http://www.sheepusa.org/>

Prepared by

Roger Staff, NRCS Grazing Specialist

Figure 33.
Simple Layout
for Small Flocks

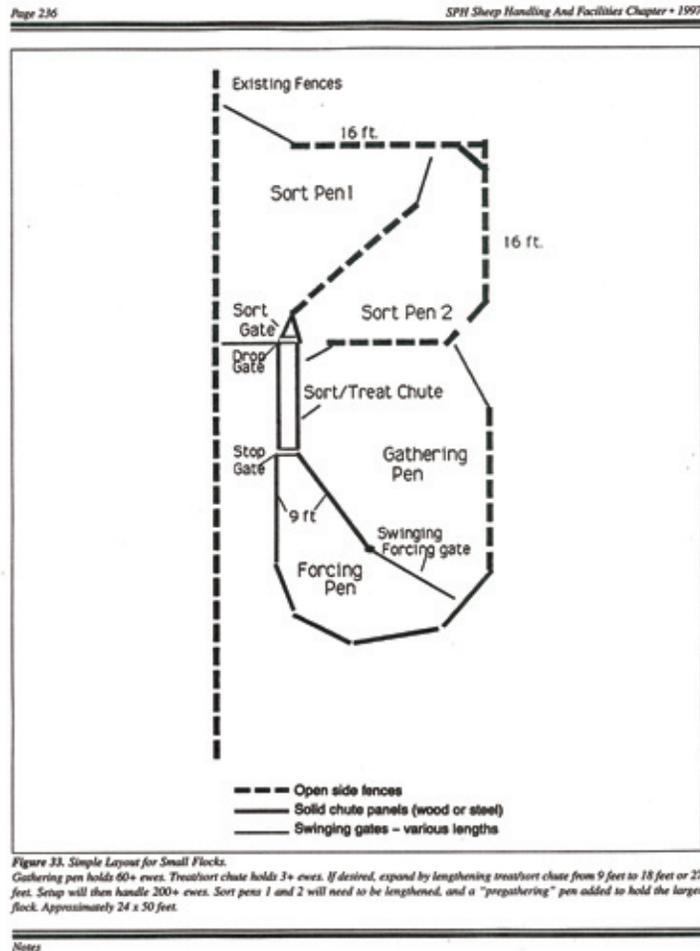


Figure 34.
Possible Simple
Layout for Small
Flocks

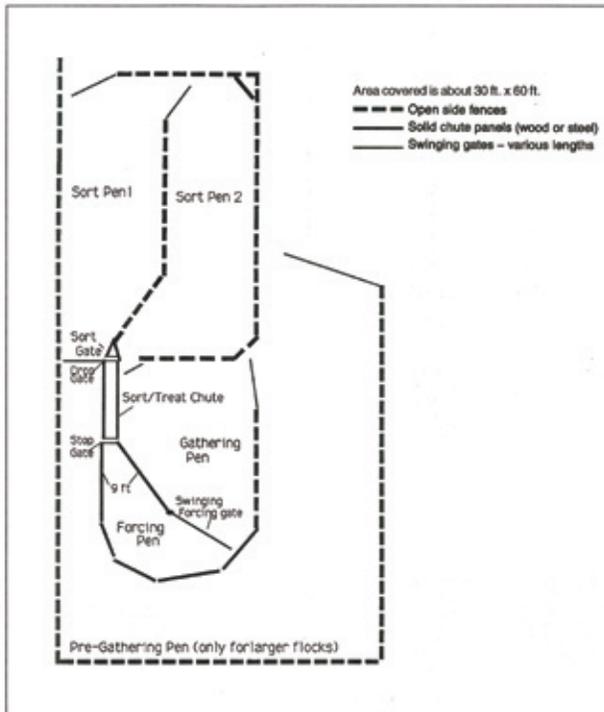


Figure 34. A Possible Simple Layout for Small Flocks. Gathering pen holds 60+ ewes. Treatment chute holds 3+ ewes. Simply by lengthening treatment chute from 9 feet to 18 feet or 27 feet, twice as long, setup will handle 200+ ewes. By adding the extra pre-gathering pen (as illustrated) and increasing length of sort pens, setup will handle 300+ ewes.

Figure 35.
Possible Simple
Layout for Farm
Flocks up to
800 Ewes

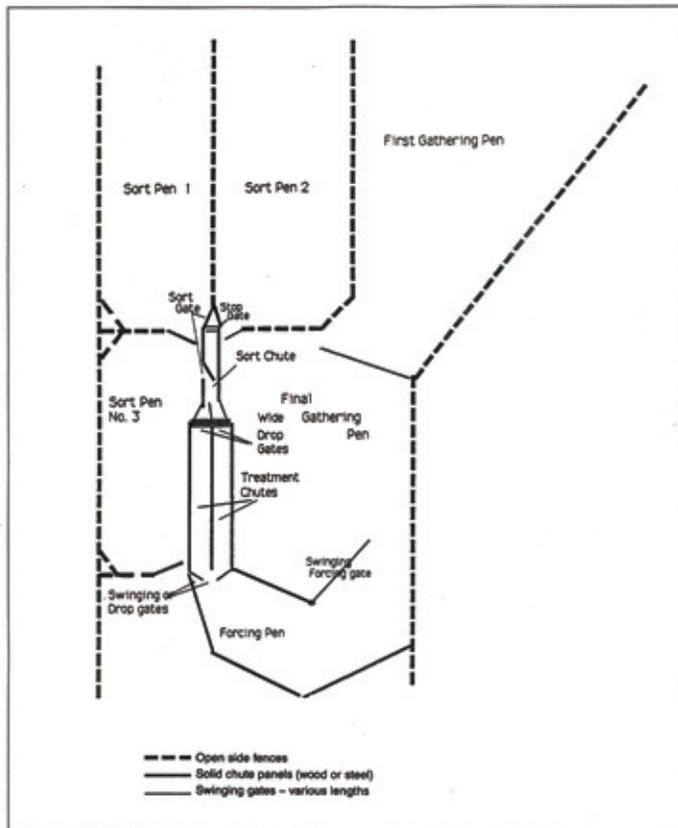


Figure 35. Possible Simple Layout for Farm Flocks up to 800 Ewes. Final gathering pen as shown holds 150+ ewes. Treatment chutes shown are 18 feet by 3 feet holding 50 ewes total. Sort pens can be any length.

Notes