

# Managed Grazing Information Packet



**This document includes some great grazing information put together by the Golden Sands RC&D grazing staff.**

**It's simple, but gives a good starting point for learning and research.**

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<https://www.goldensandsrkd.org/managed-grazing>

# Managed Grazing Overview

## What is Managed Grazing?

- Controlling where and when a livestock species grazes an area of land to promote regrowth of forage & even manure distribution.
- The pasture will be sectioned off into paddocks where livestock are rotated through over a period of time that varies based on the available forage and density of animals.
- Typically livestock are in a paddock anywhere from a couple hours to several days, and do not return to the same paddock until 30-45 days later depending on the intensity of grazing and recovery rate of the grasses.
- The goal is to size each paddock to allow livestock to harvest half of the available plant height while leaving the other half for vigorous regrowth. Not letting the grass height get below 4 inches. Managed grazing provides continuous ground cover and when properly managed yields high quality forage for ruminant livestock.

**IT'S NOT THE COW, IT'S THE HOW**

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CONTINUOUS GRAZING	MANAGED GRAZING
<ul style="list-style-type: none"><li>✗ Less wildlife habitat</li><li>✗ More exposed soil</li><li>✗ Reduced forage diversity</li><li>✗ Increased rainfall runoff</li><li>✗ Less healthy animals</li><li>✗ More parasites</li></ul>	<ul style="list-style-type: none"><li>✓ Better wildlife habitat</li><li>✓ More microbial diversity</li><li>✓ Increased rainfall absorption</li><li>✓ More carbon sequestration</li><li>✓ Healthier animals</li><li>✓ Fewer parasites</li></ul>

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## Livestock Fence Recommendations

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**\*For further guidance on specifications, refer to the fence design or consult the standards below:**

-Practice Standard: 382 - Fence

-Wisconsin Construction Specification 10

### **Permanent Perimeter Fence**

- 3-4 strands, High-Tensile-Electric (HTE) is required for perimeter fences for cattle.
- 5 strands. High-Tensile-Electric (HTE) is required for perimeter fences for sheep and goats.
- All wire must be 12.5 gauge Class III High-Tensile Wire - rated for 140,000 psi.

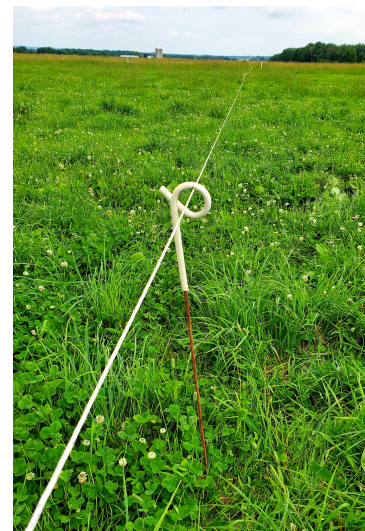


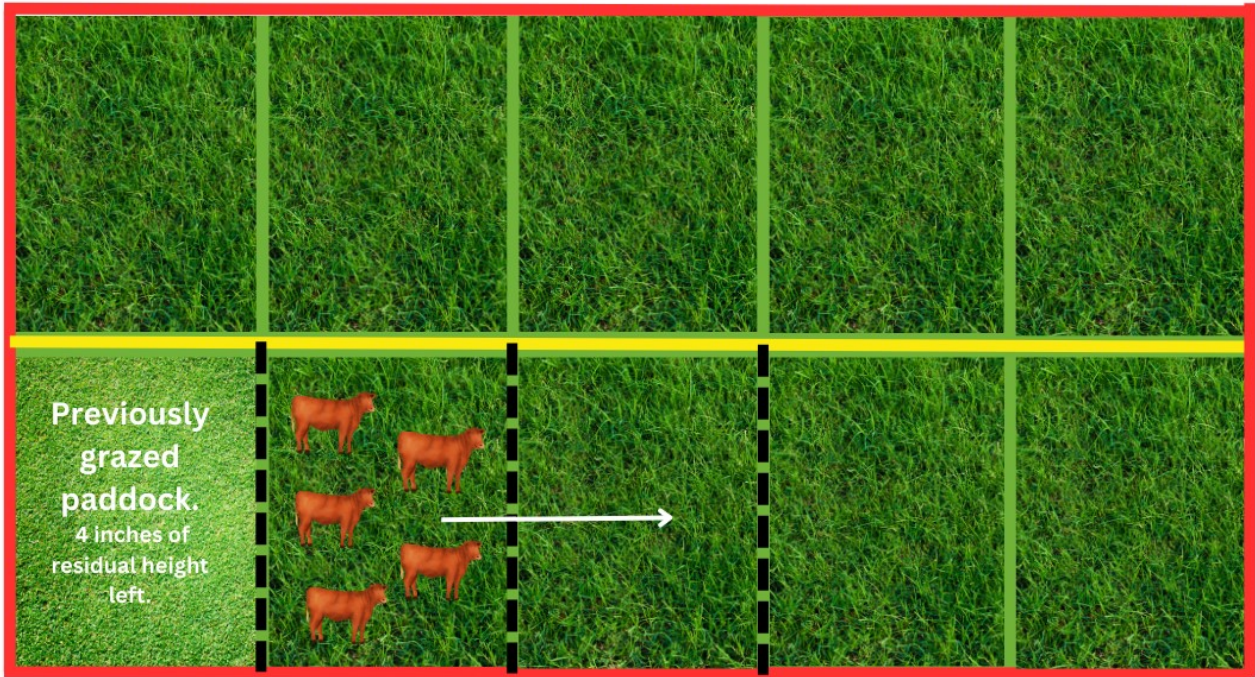
### **Permanent Interior Fence**

- 1 strand, HTE wire is recommended for all interior fences for cattle.
- 3 strands, HTE wire is recommended for all interior fences for sheep and goats.
- All wire must be 12.5 gauge Class III High-Tensile Wire - rated for 140,000 psi.

### **Temporary Fence - Paddock Fence**

- Temporary fence is used to create individual paddocks.
- A single strand of Polywire is recommended for cattle, whereas electro netting is recommended for sheep and goats.
- Temporary fencing must have a minimum of 6 strands of stainless steel filament and must be made with UV-resistant polyethylene.
- A minimum of 3 sets of temporary fencing is required to properly manage livestock in a rotational grazing system (see image on right below.)





- Temporary Fence
- Interior Fence
- Perimeter Fence

Once cattle are moved to next paddock the back temporary fence will be moved to the front to create the next paddock

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## Energizer

- Minimum 6 Joule fencer required
- Low impedance energizer
- 5,000 minimum peak voltage output
- 35-60 pulses per minute
- Energizer must be grounded per manufacturers recommendations.
- A portable voltage meter is recommended.
- Lightening and surge protection are required.



## **Livestock Pipeline Recommendations**

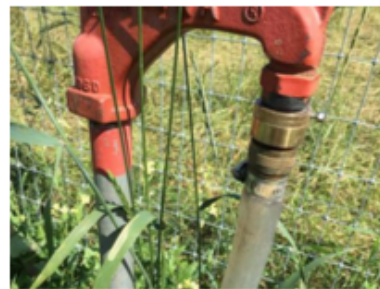
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**\*For further guidance on specifications, refer to the pipeline design or consult the items below:**

- Practice Standard: 516-Livestock Pipeline
- Wisconsin Construction Specification 516

## Water Line

- Anti-backflow valves must be installed between all hydrants and pipeline connections.
- All surface pipelines must be Black D2239 HDPE and have a "C" indicating 2% carbon black.
- Buried water line must be D2239 HDPE Polyethylene
- **See pipeline design for required diameters and pressure ratings of specific pipelines.**



## Couplers

- Quick connect couplers are recommended for ease of water tank movement. Be sure all couplers and fittings meet NRCS standards and specifications.
  - Place couplers every 150-300' depending on paddock size.
  - **See examples of recommended pipeline fittings on the next page.**
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## Pipeline Fittings - Example Images

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Compression Fitting 3 way Barbed Tee



Compression Fitting Straight barbed Inline



Compression fitting with 1/4 inch threaded adaptor



Must use stainless steel hose clamps with this barbed "T"

Compression fitting with 1/4 inch threaded adaptor (Pipeline End)



Quick Coupler Female Adaptor (1/4 inch)



Quick Coupler Male Adaptor (1/4 inch)



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## Livestock Watering Stations

### Portable Watering Tanks

- Water tanks should be able to hold a minimum of 30 gallons, but may vary depending on livestock type and availability of livestock to access various height water tanks.
- Tanks should be equipped with automatic flow valves to maintain proper water level.



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## Pasture Seeding

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- **For Cost Share assistance it is required that all pastures have soil tests conducted, and fertilizer needs addressed before seeding occurs.**
- Seed must be of high quality and meet requirements of the Wisconsin seed law for Certification.
- As a minimum, it is recommended that a pasture contain no less than 30% legumes. Legumes fixate nitrogen and by having 30% legumes in your pasture it should reduce or eliminate having to apply nitrogen fertilizer to your pasture.
- Spring seeding dates are April 15th June 1st. Fall seeding dates are August 1st - August 21st.

**Contact NRCS for prior approval if seeding will take place outside of seeding dates.**

- Seeding Rates are based upon Pure Live Seed (PLS). PLS is determined through purity of the seed source and germination rates.
- If you are receiving financial assistance, any changes to the rate or species of the seed must be approved before seed is purchased.



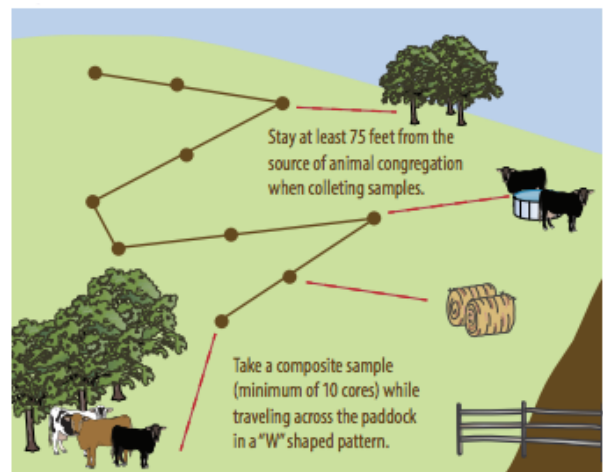
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## Soil Testing

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- Soil fertility guidelines are based on soil testing. Soil testing measures plant-available nutrients as well as acidity levels (pH). If soil testing determines that P or K levels are potentially limiting, nutrient applications will be recommended. These nutrients can be supplied with fertilizer applications or may be met by deposition, or application, of manure. Agricultural lime applications will be recommended if soil acidity is greater than optimal (low soil pH), especially when legumes are included in the pasture mix.

- Care must be taken to collect representative soil samples so that test results accurately portray the soil fertility of the pasture. Generally, one composite sample should be taken per five acres of field or paddock. If paddocks are smaller than five acres, then two or more paddocks with similar management history can be combined into one management unit for sampling. A composite sample is made up of a minimum of ten soil cores taken to a depth of 6 inches with a soil probe. The ten cores should be collected in a “W” shaped pattern across the field. Cores should be collected in a bucket, mixed thoroughly, then placed in a labeled bag for delivery to the lab. Your NRCS or county extension will be able to provide you with information on labs available to submit samples to.



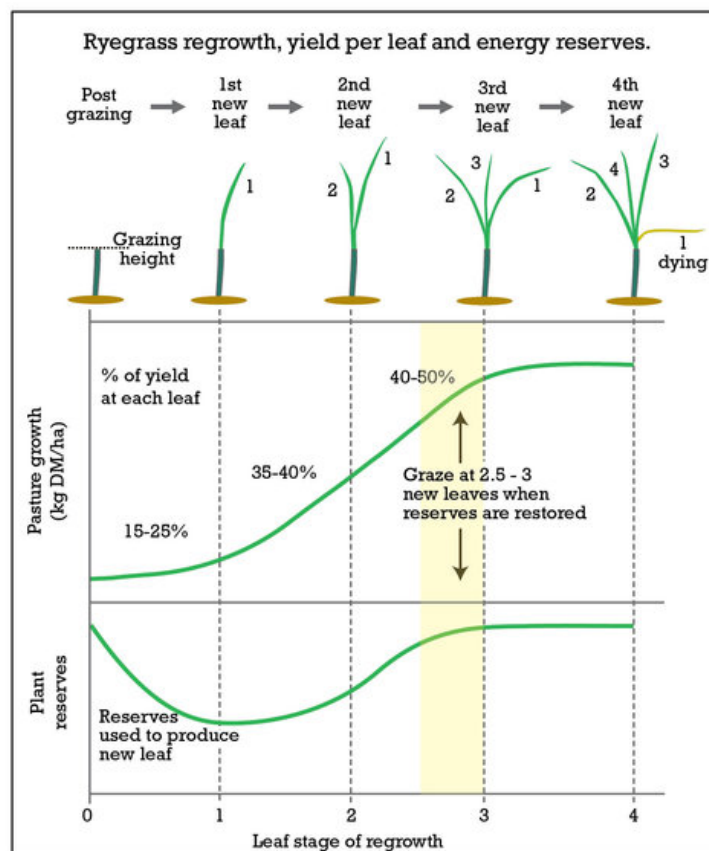
- Guidelines and recommendations for soil testing can be found in UW-Extension publication A4034-Soil Fertility Guidelines for Pastures in Wisconsin. This publication can be found through the UW Learning Store:

<https://cdn.shopify.com/s/files/1/0145/8808/4272/files/A4034.pdf>



## Maintaining Pasture Productivity

- Optimal beginning plant height for grass to be grazed is 10-12 inches or even better, 3-leaf stage. This is because pasture grass species will have different growth heights.
  - The 3-leaf stage can be determined by plucking a stem at ground level, and counting the leaves.
  - ❖ Count mature leaves, or leaves that are collared- the leaf blade goes all the way around the stem, like a collar on a shirt. You want a majority of the plants in the pasture to be at the 3-leaf stage. Cool-season grasses can be grazed in the spring, but need to develop 3 leaves before you graze. After the third-leaf stage, the plant has captured enough energy reserves to regrow after the plant has been defoliated. The plant's stores are not quite built up at the two-leaf stage. Grazing at the two-leaf stage could weaken the plant.
- Grass should be grazed or cut before it is allowed to develop a seed head. Grass allowed to produce seed heads loses nutrient and fiber content reducing palatability and becoming less desirable to livestock.



**\*\* Residual height should be no shorter than 4 inches. "Take half, leave half" is a good motto.**

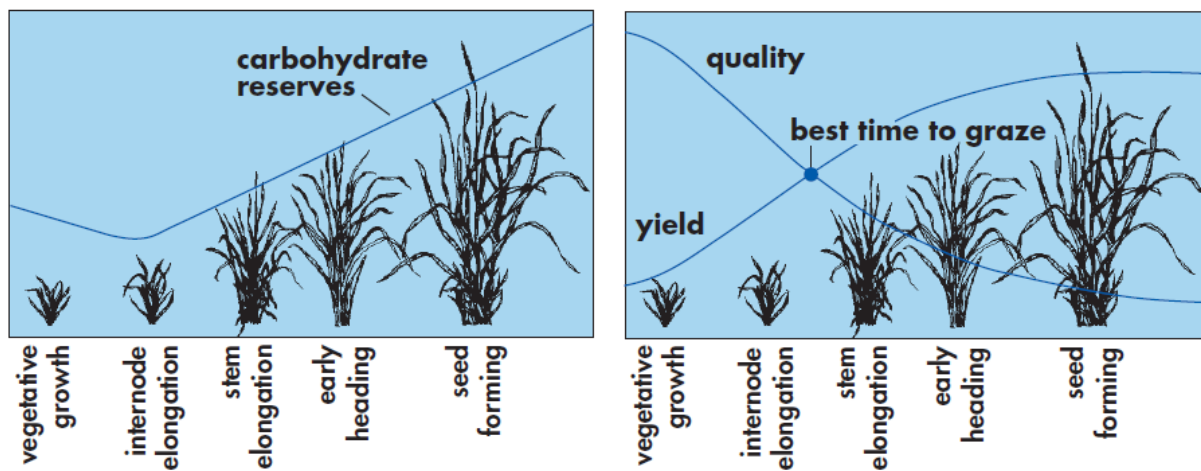
• Residual height is critical to the plant's ability to regenerate before the next grazing period. Four inches of residual height allows the grasses to keep producing at high levels, maintains an adequate cover to protect the soil and retain moisture, and allows for continuous wildlife cover. The residual left will be beneficial with a faster regrowth response time.

• **RESIDUAL and REST** are the most important factors in pasture management.

• Rest. If you start running out of pasture during the growing season, it is better to feed a little hay rather than going into pastures that have not recovered yet. You will set yourself back further.

• It will be required to keep a yearly monitoring and rotation record, as well as to conduct a pasture inventory during the years 528 - Prescribed Grazing is contracted. It is advised to continue keeping pasture records and inventory beyond the required time period. This will allow for best management of pastures, and prepare for decisions, changes.

• Monitoring can be recorded any way that best fits your situation. There are pasture monitoring guides online. You can create your own spreadsheet. NRCS has books available, or using a calendar whether paper or online.



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## Mineral Supplements

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- It is a good idea to supplement micronutrients to livestock on pasture to prevent malnutrition and illness.
  - Free choice mineral is the preferred method by many grazers. It allows the livestock to access mineral whenever they need it.
  - Supplemented Iodine can help to limit pink eye issues in the herd.
  - Micronutrients excreted by livestock can improve forage production by supplementing the plants with limited micronutrients. Potentially, up to 70% of micronutrients get cycled through the animals to the soil. Great way to fertilize.
  - A thorough soil test can indicate which micronutrients are lacking. Often the micronutrients lacking in the soil are the same micronutrients lacking in your livestock.
- \*\*Some micronutrients can be toxic to livestock in high quantities. Consult a veterinarian for recommendations on mineral amounts.**
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## Prevention of Pasture Bloat in Livestock

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- Be particularly careful of bloat when grazing alfalfa, but any pasture rich in legumes can lead to bloat issues. Follow the guidelines listed below to limit bloat related issues in your herd.
- Never move livestock in the morning. 2 to 5 pm is the best time of day to move animals.
- Monitor livestock grazing habits. Observe what they are eating and make sure they are mixing their alfalfa with grass.
- Moving livestock during rain is not as dangerous as moving livestock two days after a rain, when it is hot and alfalfa is growing rapidly putting animals at high risk.
- Have "escape" pastures, the ability to exit from alfalfa if conditions for grazing are very poor or livestock are at high risk. Substitute with baled feed until conditions improve.
- Do not graze each paddock below 4" before moving. This will create bigger swings in nutrition and a greater risk for livestock to bloat.
- Be careful during early fall frosts; cell walls are broken by freezing and make alfalfa highly digestible. As a rule, two weeks after a strong killing frost, alfalfa is safe to graze.
- You can use CRC bolus – Rumensin to prevent bloat.
- Alfasure liquid bloat product is 100% effective in preventing bloat and can be used during high risk periods. If the water source is controlled it works well. Dioctyl can also be used to relieve bloat in animals.
- In Emergency situations dawn dish soap dispensed down the animal's throat can be effective in reducing bloat.

## Feed Inventory/Assessment

You can calculate your estimated feed needs by taking 4% of your total herd weight, then multiply by the number of days you will be feeding.

**Example:** 20 cows weighing roughly 1000 lbs.  $20 * 1000 * 0.04 = 800$  lbs of Dry Matter per day needed.

### How to Calculate Paddock Size based on Herd Weight

1. \_\_\_\_\_ X \_\_\_\_\_ = \_\_\_\_\_

Total Livestock Weight X Percentage of Body Weight (4 or 5%)= Forage Demand per Day  
 -Use 4% as the standard  
 -Use 5% only if outwintering on pasture

2. Estimated tons of DM to lbs for pasture. Use pasture stick to estimate or forage suitability groups.

Tons of DM	1	1.5	2	2.5	3	3.5	4	4.5
lbs of DM/Rotation	333	500	667	833	1000	1167	1333	1500

3. \_\_\_\_\_ X \_\_\_\_\_ = \_\_\_\_\_  
 Forage Demand per Day ÷ Lbs of DM per Rotation = Paddock Size per Day (acres)  
 -To convert acres to sq feet  
 multiple by 43560.

## Determining Pasture Yield Using the Clipping, Weighing and Drying Method

Information Gathered from

<http://extension.msstate.edu/publications/assessing-needs-and-feed-sources-how-much-forage-do-i-have>

Step 1: Cut the forage from a measured area (1 or 2 square feet) about 2 to 3 inches into the soil surface depending on forage species. It is important to collect forage from several areas in the pasture to account for variation in vegetation. If the pasture is very uniform, three to four samples might be appropriate. In pastures with high variability in vegetation, it would be best to take eight to ten samples.

Step 2: Place each sample into a paper bag, weigh it, and dry it. You can dry the sample in the paper bag in a 100-120 °F oven for one day or more. However, oven drying is time- and energy-consuming; microwave drying is recommended. The dry weight will be used to determine the amount of forage dry matter per acre.

Step 3: Microwave drying: Weigh approximately 50 to 100 grams of chopped forage onto a microwave-safe dish or container. Heat the sample for two minutes at full power. If forage does not feel completely dry, reheat it for 30 seconds. Reweigh it. Continue drying and weighing until back-to-back weights are constant. Be careful not to heat the forage to the point where it chars. If charring occurs, use the previous weight. Caution: Microwaves vary considerably in drying capacity. It is better to dry for short intervals and reweigh until the last two weights are constant than to risk burning the forage and damaging the microwave.



Step 4: Calculate the moisture percentage, subtract the last dry weight from the original wet weight and divide this number by the wet weight. Now multiply by 100. This is the moisture content of the sample.

$$\text{moisture percentage} = [(\text{wet weight} - \text{dry weight}) \div \text{wet weight}] \times 100$$

Step 5: Determine the amount of forage based on dry matter percentage. Using the size of the collection area (1ft x 2ft =43,560/ac or 2ft x 2ft=21,780/ac) and the total weight (in grams) of the sample collected in the square. Remember that a subsample will be used for determining the dry matter percentage.

$$\text{Available Forage (lb/ac)} = \% \text{ DM} \times \text{area} \times \text{total sample weight (grams)}$$

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## Winter Management Strategies

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**Overwintering Strategy:** Taking the livestock off pasture to feed in a barn or sacrifice area.

**Out-Wintering:** Outwintering can be described as any method of feeding livestock outdoors over winter.

- Winter Bale Grazing is placing bales on pasture, often pre-set in a grid pattern prior to winter. Restrict cattle access to round bales with temporary fence and use round bale feeders to protect the bales from trampling. Move animals to fresh bales as necessary. Waste from hay that cattle leave behind and manure are deposited back onto the soil. This has an additive effect on lower quality pastures and puts nutrients back into the soil. Here is a great resource to review if you are interested in bale grazing

<https://cropsandsoils.extension.wisc.edu/articles/bale-grazing-a-winter-feeding-strategy/>

- Winter paddocks should be rotated every year. Good areas for winter paddocks are pastures that contain soils in need of additional nutrients.



**Shelter:** Provide livestock a windbreak or access to shelter in extreme weather.

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## Animal Handling Areas

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The selection of the site for the handling facility needs to be planned carefully. It needs to be accessible for easy loading of cattle by trailer. It must be strategically connected to fields and lanes. There should be access to water, feed and electricity. The area should be well drained and have good surface materials. Protection from weather or access to shelter and supplies are important considerations also.

The design of the facility should enable the operator to entice rather than force animals to move through it. Understand that animals usually want to escape, and will move toward their herd mates, feed or water. Animals will have less fear and improved disposition with proper handling. Alleys should be narrow, so animals can't run around you. The squeeze chute should be curved, so that animals think that they are returning from where they came, as circular movements are natural for cattle. The facility should be designed to minimize distractions and eliminate potential injury points.





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## Contingency Planning

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- Three to six months of additional stored feed should be available at all times of the year as back-up feed for periods of drought, or saturation when the pastures may be unproductive or unavailable.
- During times of extreme weather (sub-zero or hot temperatures, high winds, etc.) livestock should have access to temporary shelter to prevent stress or fatality.
- Wetland areas should be carefully managed to prevent degradation of wetlands. The wetland areas are not part of the pasture rotation and should only be grazed 1-3 times a year during dry periods.
- Make available a planned sacrifice area such as a barnyard for periods of drought or a higher elevation for saturated conditions. It is important to remove livestock from paddocks during drought conditions to not overstress the forages and ensure vigorous re-growth. Livestock allowed on pastures during saturated conditions will quickly destroy a quality pasture.