

Evaluating Land Suitability for Grazing Cattle

Midwest Perennial Forage and Grazing Working Group

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When evaluating the suitability of pasture acreage, here are some important features to consider:

- Species composition
- Condition of the pasture
- Water availability
- Fencing condition and configuration
- Land base: soil type, slope, and aspect

Pasture Composition

Good pasture land should have a diversity of perennial plants, including both grasses and legumes, and species of each that contribute to extend the grazing season. There should be little or no bare ground, and few annual plants. There likely be broadleaved plants, but it is important to identify these by species as some make good cattle forage and some can be harmful, even fatal. Each plant group (grasses, legumes and broadleaves) that may be present in the pasture has a different seasonal pattern of growth, so, when considering all unfamiliar pasture, visiting the pasture site over several seasons is useful if your timeline allows prior to grazing.

Cool season grasses

Cool season grasses have the most prolific growth in the spring and fall, when temperatures are mild. These grasses, when they are leafy and have not yet produced a seed head, are highly palatable to cattle. They are desirable pasture species. The drawback of this class of pasture species is they tend to shut down growth in hot summer weather. This is known as the “summer slump,” and it is important to have a plan for supplemental feeding if the situation arise, such as during periods of drought.

More Information:

Cool-season grasses. Illinois Natural Resources Conservation Service (NRCS).

<http://www.il.nrcs.usda.gov/technical/grazing/coolgrass.html>

Identifying pasture grasses. UW Extension. <http://learningstore.uwex.edu/Identifying-Pasture-Grasses-P176.aspx>

Legumes

Legumes (nitrogen fixing plants such as clover, alfalfa and birdsfoot trefoil) tend to have their most active growth in early to mid- summer. Generally, legume content of 30 to 50% of the total forage in a pasture is ideal. Legumes have higher protein content than grasses. Most legumes -- with the exception of birdsfoot trefoil -- can cause bloat in cattle.

More information:

Identifying Pasture Legumes. Dennis Cosgrove and Dan Undersander. 2003. University of Wisconsin Extension.

<http://learningstore.uwex.edu/Identifying-Pasture-Legumes-P179.aspx>

Warm Season Grasses

Warm season grasses have active growth in the heat of mid to late summer. Most pastures will have either warm season or cool season and need to be managed to benefit the dominant grass type. Warm-season grass pastures often are not established with a legume component, and they tend to be lower in nutritive value for cattle than cool season grasses. Never the less, they are still desirable forage, especially for the “summer slump” when cool season grasses are growing very little.

More Information:

*Warm Season Grasses. Illinois Natural Resources Conservation Service (NRCS).
<http://www.il.nrcs.usda.gov/technical/grazing/warmgrass.html>*

*Warm Season Grasses for Hay and Pasture. Stephen K. Barnhardt. Iowa State University Extension. 1994.
<http://www.extension.iastate.edu/Publications/PM569.pdf>*

Forbs (Broadleaf plants, other than legumes)

Though a diversity of plants in the pasture is good, pay close attention to the number and species of forbs present. Many forbs that are considered weeds in row crops are highly nutritious and palatable in pasture settings. These include dandelions, chicory, lambs quarter, among others. Other species such as burdock and thistle species are problematic because they are unpalatable to cattle; although they may be preferred by small ruminants like sheep or goats. Some other forbs, like goldenrod may cause animal health problems if consumed.

With forbs, remember that “the dose makes the poison.” Many forbs have the potential to be harmful if cattle eat too much of them, which may happen if they are in a weedy pasture and run out of other forage. Consumed as a small percentage of total daily intake though, the same forb may not be harmful and may even be beneficial.

More information:

Plants Poisonous to Livestock. Fred Fischel. University of Missouri Extension. Reviewed 2001.
<http://extension.missouri.edu/publications/DisplayPub.aspx?P=G4970#poison>

Plants Poisonous to Livestock. Lisa Axtel and Beverly Durgan. University of Minnesota Extension. Reviewed 2009.
<http://www.extension.umn.edu/distribution/livestocksystems/DI5655.html>

The dirty dozen and beyond. UW Extension. <http://learningstore.uwex.edu/Dirty-Dozen-and-Beyond-Identifying-and-Managing-25-Pasture-Weeds-of-Wisconsin-The-P165.aspx>

Pasture Condition

Livestock will do best if offered high quality feed, and the highest quality forage is available in well-rested, well-managed pastures. There should not be erosion in the pasture, indicated by areas of bare soil, mud holes or gullies. If you're evaluating pasture that is currently being grazed, look for signs of overgrazing. The stubble height of the plants just after grazing should be no shorter than 3-4 inches tall for most plant species found in pastures. A pasture that has been overgrazed – a pasture that looks like a golf course for example -- can often be restored with proper grazing management. It may also require some inputs, such as applications of fertilizer. The need for these inputs should be a factor to consider in the rental price for the land.

Water Sources

Cattle and other livestock need access to fresh, clean water. This is particularly important for animals with the highest energy and nutrition demands, such as milk cows, and growing steers and heifers. A general rule of thumb is that cattle will consume 1 gallon of water per 100 lbs body weight each day in the winter and 2 gallons per 100 lbs body weight each day in hot weather (see the table below for more specifics) or when grazing dry forage or feed.

	Water per Day
1 Beef Cow	15-20 gallons
1 Dairy Cow	20-30 gallons
1 Yearling Cattle	10-15 gallons

When you evaluate a potential pasture, note the available water sources.

- If the water source is a shallow well or small stream, what is the possibility of that source drying up? You may need to plan for alternative water sources.
- If water must be hauled in, how much storage is available? How far must water be hauled? Hauling is an additional expense that can influence how much you are willing to pay for pasture rental.

- How amenable is the topography and ground cover of the pasture to a paddock design and water system that will bring water close to the cows? The paddock design should ideally offer water within 800 ft of the grazing animals. Cattle tend to congregate around water sources if they are more distant from grazing areas shorter distance to water (less than 800ft) encourages animals to go individually to drink, reducing the concentration of manure and urine nutrients around the water source. Lanes can be used to access a central watering site, but better forage utilization will be achieved when water is available in every paddock.

More Information:

Pumps and Watering Systems for Managed Beef Grazing. Donald Pfof, James Gerrish, Maurice Davis and Mark Kennedy. 2007. University of Missouri Extension and Missouri Natural Resources Conservation Service. <http://extension.missouri.edu/p/EQ380>

The ABCs of pasture watering systems. Ben Bartlett. http://www.extension.org/mediawiki/files/d/d2/9_Watering.pdf

Fencing

Rotational grazing following a grazing plan allows the cattle to be moved based on forage growth. This allows for the highest quality of forage to be available on the pasture, better utilization of available plant growth, extending the length of the grazing season, and the highest environmental performance of the pasture. Appropriate fencing is important to keep the livestock in the designated grazing area, without injury. Look at the condition and location of existing fences.

- There should be a perimeter fence around the outside of the entire grazing area, sufficient to keep livestock in the pasture. High tensile wire, woven wire and barbed wire fences are all common for perimeter fencing. Barbed wire fences should never be electrified due to risk for animal or human injury.
- Notice logical fence-line routes to divide a larger pasture into smaller paddocks, and convenient points where a temporary divider fence could be tied in to the perimeter fence. Temporary fences are commonly constructed out of light-weight, moveable materials, including fiberglass or plastic step-in posts and soft-wire or polyethylene wire and tapes embedded with steel strands called “polywire”.
- You will need a source of electricity to power an electric fence charger (energizer) for the temporary divider fences and the perimeter fence if designed to be electrified. Fence chargers that plug into the grid are generally the least expensive option. If access to the grid is not available, 12-volt energizers are a relatively inexpensive option. These can be run off a deep-cycle marine or RV-type battery with or without a solar charging panel -- these batteries can also be recharged using a common 12-volt battery charger..

More Information:

Grazing Systems Planning Guide. Kevin Blanchet, Howard Moechnig, Jodi DeJong-Hughes. 2003. University of Minnesota Extension and Minnesota Natural Resources Conservation Service. PDF, 3.8 Mb.
<http://www.extension.umn.edu/distribution/livestocksystems/components/DI7606.pdf>

Fencing Materials for Livestock Systems. Susan Wood Gay and Rick D. Heidel. 2009. Virginia Cooperative Extension. <http://pubs.ext.vt.edu/442/442-131/442-131.html>

Managed Grazing Systems and Fencing for Distribution of Beef Manure. Donald Pfost, James Gerrish, Maurice Davis and Mark Kennedy. 2000. University of Missouri Extension and Missouri Natural Resources Conservation Service. <http://extension.missouri.edu/p/EQ379>

Pastures for Profit. UW Extension. <http://learningstore.uwex.edu/Pastures-for-Profit-A-Guide-to-Rotational-Grazing-P96.aspx>

Lanes that keep animals high and dry. UW Extension. <http://learningstore.uwex.edu/Lanes-That-Keep-Dairy-Animals-High-and-Dry-P1390.aspx>

Fencing for managed grazing. UW Extension. <http://www2.uwrf.edu/grazing/#Fencing>

Other fact sheets in this series that address other issues in pasture use:

- The Basics of Contract Grazing
- Pasture and Lease Agreements
- Rates Charged for Two-Party Contract Grazing Arrangements