

Pastures, Fencing and Watering on Small Acreages

Protecting Our Drinking Water, Families and Animals

Fact sheet 3, Small Acreage Livestock and Horse Series, March 2010

When properly managed, a typical pasture in the northeast consists of perennial cool season grasses and legumes (such as white clover) that are nutritious and desirable to the grazing animals. They provide some or all of an animal's forage needs during the grazing season which typically occurs during the months of April through October. Pastures need to have rest periods during that time to allow for vegetative re-growth.



Photo courtesy of the University of Vermont Extension.

Many livestock and horse owners confuse pastures with livestock yards. A properly managed livestock yard is actually an important part of good pasture management, because it provides the animals with an outdoor loafing and exercise area when pastures are in need of rest and vegetative re-growth.

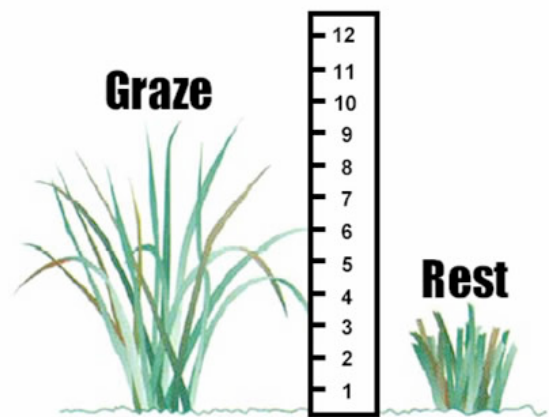
Pastures that are over-grazed and improperly managed can contain sparse vegetation, bare spots, and an abundance of undesirable weeds. The desirable pasture plants will have a very low residue height (one inch or less) which weakens the roots and allows for the bare spots, weed invasions and increased surface runoff and soil erosion.

Depending on the type of animals grazed, the type of soils, and the condition of the pasture, one to two acres of properly managed pasture can support one average mature horse or cow. Under proper management, the desirable pasture vegetation is healthy and vigorous

which reduces risks of soil erosion and surface runoff. This healthy vegetation also recycles the manure and nutrients being deposited, minimizing risks to surrounding water resources.

Pasture management – basic tips

Generally, pasture vegetation should be grazed at a height of 6 to 8 inches down to a residue height of 3 to 4 inches. Animals should then be removed to allow the pasture to rest and re-grow to the recommended 6 to 8 inch height. These grazing heights provide optimal nutritional value and palatability for the animals along with growing conditions for the vegetation to remain healthy and vigorous.



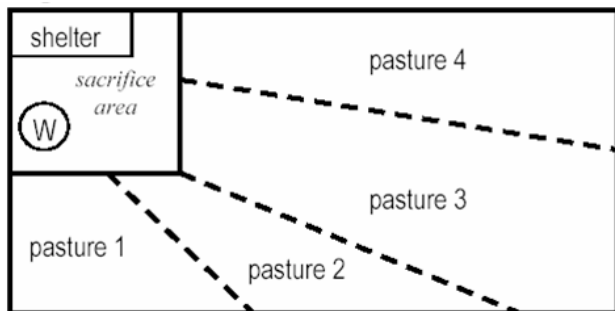
Graphic courtesy of the University of New Hampshire Cooperative Extension.

Adjustments to these grazing heights may be necessary depending on forage species and type of livestock. Sheep may do better to begin grazing at a height of 4 to 6 inches. Horses prefer to graze pastures that are taller and higher in fiber.

Portable electric fencing options allow for the efficient and flexible subdivision of pastures into smaller paddocks to balance forage supply with forage demand for a given time period. Pasture paddocks should be sized as needed to provide the number of animals being grazed with anywhere from a few hours to one week of grazing at a time.

When there is limited pasture land, the goal will be to reduce over-grazing and allow pasture vegetation to have periods of time when it can rest and re-grow. The pasture will not be a primary source of feed in this case. Allowing for some re-growth is especially important during hot, dry summer months when pasture recovery can take as much as 36 to 40 days or more, depending on rainfall. During May and early June, a 14 to 20 day recovery time is typical.

When pasture land is limited, consider splitting it up into two or more paddocks that the animals can rotate between at least every two to four weeks. If this is not feasible, consider removing them from the pasture for a few weeks at a time and keeping them in a properly managed livestock yard or “sacrifice paddock.” Also consider limiting grazing time to a couple of hours each day.



Graphic courtesy of the University of New Hampshire Cooperative Extension.

When there is adequate pasture land, subdividing the area into paddocks that the animals graze for no more than one week at a time is crucial for optimizing pasture productivity and health. Otherwise, animals will start to re-graze the tender new shoots that are trying to re-grow, leaving less desirable forage to head out and go to seed, slowing down its growth and becoming less nutritious. This can actually lead to a situation where some of the area is being over-grazed and some of the area is being under-grazed at the same time.



Watson Farm, Jamestown, RI. These sheep are being moved to a new section of pasture using portable electrified fencing.

When pasture land is adequate, there may be excess forage during the spring because the grass will generally regrow in about half the time as during the summer months. Some pastures may need to be mowed for hay or haylage during the spring. Another option is to graze additional animals and then remove them once the pasture growth slows down.

Other pasture management tips:

- To promote uniform and vigorous growth, clip or mow pastures periodically (two or three times each season). This helps to stimulate new growth in areas that have grown tall and gone to seed.
- Scatter and disperse manure clumps by dragging pastures with a chain-link or flexible tine drag. This reduces areas of rejected forage and helps to control parasites.
- Lime and fertilize pastures according to soil test results. Maintaining an optimum soil pH through liming is important for desirable cool-season grasses and legumes. Maintaining adequate nutrients in the soil is also important. Excess nutrients can cause animal health as well as water quality problems, so supplement with fertilizer only when a soil test indicates a need.

Through proper grazing and nutrient management, desirable forage species (cool-season grasses, legumes, etc.) tend to persist and dominate. Pastures can often be renovated without the need to plow up and reseed the area, but it may take a few years to achieve desired results. For more information on grazing systems, pasture forage species and pasture renovation techniques contact the USDA Natural Resources Conservation Service. Also view our Healthy Landscapes website on this topic for additional resources.

Uncontrolled access to water resources

Many livestock and horse owners rely on streams or ponds to provide animals with drinking water. Animals may also have access to these areas simply due to a lack of fencing. Allowing animals to have uncontrolled access to a surface water or wetland can seriously impact water quality. Animals will trample vegetation along the shoreline, causing erosion, sedimentation and bank instability. The surface water is subject to direct manure and urine deposits and surface runoff from surrounding areas. Animals may also have access to the vicinity of a drinking water well due to limited space or lack of fencing.

What about fencing and watering?

Fencing and watering are key components to good pasture management and protecting water resources from uncontrolled animal access. To provide animals with clean drinking water and eliminate access to surface waters, portable watering troughs with automatic float valves are commonly used. The water may be piped to the trough through various pumping or gravity methods depending on the water source.

Fencing and watering tips:

Use secure permanent or semi-permanent fencing to protect streams, ponds and wetlands from animal access. Where possible, maintain a minimum 10 foot strip of vegetation between the fencing and water's edge.



Photo courtesy of USDA NRCS.

- When using a stream or pond as a watering source, consider pumping the water to a holding tank or watering trough that is located within a pasture or livestock yard. Hydraulic ram pumps use the energy of flowing water (such as a stream) to lift water to an elevated storage tank or other discharge point. Nose-operated demand pumps use animal power and may be an option for adult cattle in areas where low lifts of water are needed. Depending on the topography, a storage tank can be located at a high point on the property allowing for gravity feed to watering tubs.



Photo courtesy of USDA NRCS. Nose-operated demand pump draws water from nearby surface water and eliminates shoreline access.

- If livestock must access a stream for crossing, or when alternative watering options are not immediately feasible, consider fencing a vegetative buffer strip for the majority of the shoreline edge, and minimizing the livestock access area. The access area may need to be protected with crushed stone or other erosion control techniques. Check with all laws that may apply. The USDA Natural Resources Conservation Service has planning information on livestock access and crossings.



- Avoid allowing animals to graze or access areas within 100 feet of a drinking water well.

Livestock watering and fencing supplies have come a long way. The importance of shoreline buffers along with a renewed interest in rotational or management intensive grazing systems has created a demand for innovative, effective, and efficient fencing and watering products. Electric fencing can consist of permanent (usually for property perimeter, feedlot, shoreline fencing), semi-permanent (usually consisting of steel posts) and portable varieties (step-in posts and polywire or electraneet fencing), and it is widely used for efficient grazing systems.

Electric fence chargers are very important. They must be properly installed and grounded and provide a charge (joules or volts) that the type and number of animals will respect. AC (alternating current), battery and solar powered chargers are widely available.



Your actions can make a difference
Protecting and improving the quality of our water resources requires each of us to take action. To become a responsible livestock owner and land steward, learn about, plan for and carry out the steps that best suit your farm while protecting the health of your family, animals and the environment.

For More Information and Assistance
University of Rhode Island Cooperative Extension
Home*A*Syst Program, 401-874-5398, or
web.uri.edu/safewater

USDA Natural Resources Conservation Service and
your local Conservation District, 401-828-1300,
www.ri.nrcs.usda.gov for assistance with animal waste management, soil maps, and other programs.

Visit local farms that practice sound pasture management practices – view the Healthy Landscapes website for local demonstration sites.

Information contained in this fact sheet is partially adapted from the following sources:

Bonnie E. Lamb and W. Michael Sullivan. 1993. Horse-Keeping on Small Acreage: Protecting Groundwater and Surface Water. University of Rhode Island College of Resource Development, Department of Natural Resources Science, Cooperative Extension

Darrell L. Emmick and Dr. Danny G. Fox. 1993. Prescribed Grazing management to Improve Pasture Productivity in New York, USDA Soil Conservation Service and Cornell University Department of Animal Science.

Bill Murphy. 1987. Greener Pastures on Your Side of the Fence: Better Farming with Voisin Management Intensive Grazing, Third Edition.

This fact sheet originated in April 2005 as part of the University of Rhode Island Cooperative Extension (URI CE) Healthy Landscapes Program and is authored by Holly K. Burdett, Research Associate, URI CE Home*A*Syst Program, Department of Natural Resources Science, and Dr. W. Michael Sullivan, Professor of Agronomy, Department of Plant Sciences, College of the Environment and Life Sciences, University of Rhode Island. This fact sheet was revised in March 2010 by Holly K. Burdett.