

How Green is Your Grass?

Five Steps to Better Pasture and Grazing Management



Grazing season has arrived, are your pastures ready? Good pastures provide forage for your animals, absorb rainfall, filter runoff, and reduce erosion, all of which protect streams. Even good pastures are susceptible to compaction during the rainy months and overgrazing year-round. Bare spots created by overgrazing encourage weed growth increased erosion, runoff, and dust, and may cause poor

animal health. Although it may seem daunting, proper pasture management makes it feasible to have lush, green pastures, clean water, and healthy animals.

Pasture management should be thought of as grass farming. Think of the grasses as your crop, while you use animals to harvest that crop. Creating a good crop requires recognizing the differences between poor and good pasture management (Table 1). If pastures show characteristics representative of poor pasture management, there are five steps you can follow to improve and better manage your pastures: conducting an inventory, creating a sacrifice area, implementing rotational grazing, mowing and harrowing, and proper fertilizing.

Table 1: Signs of good and poor pasture management

Poor Pasture Management	Good Pasture Management
Animals graze throughout the year	Sacrifice area set up for animals during rainy season
Single, large, patchy pasture with weeds	Several smaller, lush pastures and few, if any, weeds
Animals have access to streams, ditches or other waterbodies causing eroding banks	Animals fenced away from streams, ditches or other water bodies
Large areas of bare ground	Few, if any, areas of bare soil exposed

1 - Pasture Inventory

Take a walk through each pasture and conduct an inventory of the grass and weed species, fences, gates, and water troughs. When conducting this inventory, determine what kinds and amounts of grass species currently growing and where they are located. Are there bare areas with no grass? Are some areas made up of only one grass species taller than the rest? Animals may overgraze some areas and under-use others due to the species present. You also need to identify weeds in your pasture, particularly species that may be poisonous to your animals. Clark County Weed Management provides free on-site assistance to identify weeds and the best methods to control them (see Resources section).



Next, examine the condition of your fences. You may need to improve some fencing and add other fencing to improve animal distribution and grazing. Providing additional water may be a necessary part of your pasture management plan. Locate any streams, ditches, ponds, or wetlands in your pastures. Consider fencing animals away from these areas to minimize nutrient contamination and protect habitat for fish and wildlife.

A pasture inventory should also determine soil type and fertility. Use the Natural Resource Conservation Services online Web Soil Survey (see Resources) to determine your soil type. You can find out soil's nutrient content of by submitting a soil sample to a local laboratory. Soil testing helps in selecting the correct type and amount of fertilizer and lime necessary to optimize growing conditions for a specific pasture. See the Resources section for additional information on how to take and submit a soil sample for analysis.

2 - Creating a Sacrifice Area: Rest for Tired Pastures

During the wet, winter months when soils are saturated and grass growth is minimal, it is important to rest your grass crop a rest. Allowing your animals to graze throughout the year significantly reduces grass growth later. Soil compaction results when animals graze

on saturated soils, making it difficult for grass to grow in the spring. A sacrifice area provides a place to put animals while pastures rest. It is called a sacrifice area because a small portion of ground is "sacrificed" for the benefit of the remaining pasture. In the late summer when rain is limited and grasses go dormant, using this area will keep your pastures from being overgrazed. For more information on creating a sacrifice area as part of your pasture management, see the factsheet [Reduce Mud and Keep Water Clean: Sacrifice Areas](#).

Grazing grass below three inches stresses the plant by reducing the leaf surface which grasses use to make their own food, thus forcing them to use up food reserves in their roots. Eventually, the grass depletes its stored reserves and dies, leaving bare spots in your pastures. Remember the Grazing Golden Rule: Keep grass at least three inches tall.

Small Acreage Program



3 - Rotational Grazing: Graze the Best, Leave the Rest

Grazing pastures below three inches stresses the plant by reducing the leaf surface which grasses use to make their own food, thus forcing them to utilize food reserves in their roots. Eventually, the grass depletes its stored reserves and, thus leaving bare spots in your pastures.



Grazing's Golden Rule

Grazing Golden Rule: Keep grass at least three inches tall.

2

What are your pasture options?

Less Than One Acre

Pastures of this size should be used primarily as an exercise lot, since it will be difficult to get much forage and you will need to feed your animals (e.g., hay and grain). To maximize grazing, keep animals in turnouts or paddocks for most of the day, allowing them to exercise in the grassy pasture for a few hours. Manure will have to be picked up regularly to avoid nutrient overload in soils and runoff into nearby water sources. Depending on the number of animals, manure may have to be hauled or given away as part of the pasture management plan. If you have a stream, keeping the streamside well vegetated area can help filter runoff from the paddocks, removing manure and sediment particles before they can make it to the stream.

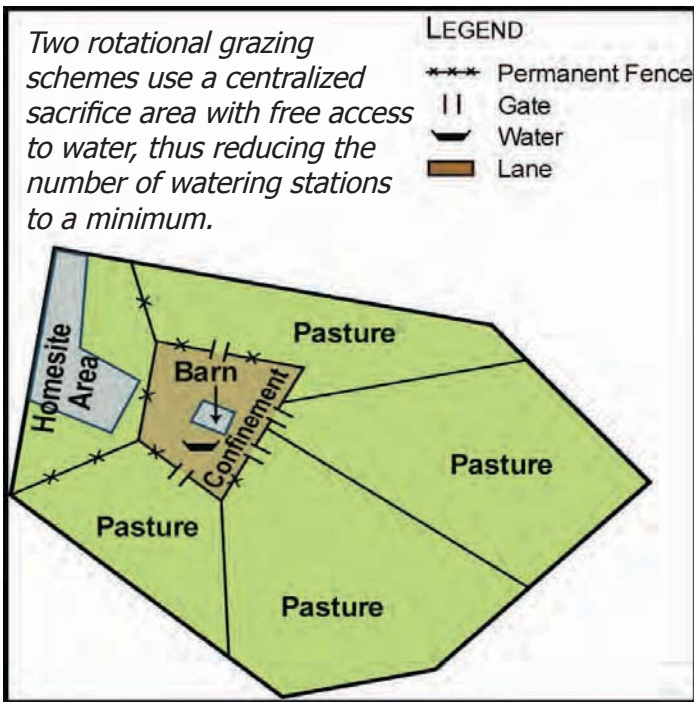
One to Five Acres

Dividing pastures and implementing a rotational grazing scheme will help maximize forage and lower feed costs. To keep grass healthy, move animals between pastures when the grass height reaches 3-4 inches. Using a sacrifice area or animal paddock during the winter will be a fundamental component of the pasture management plan for pastures of this size. Depending on the number of animals, manure may be recycled back onto pastures as a source of fertilizer.

More Than Five Acres

With more acreage, it may be possible to manage parts of your pasture for hay. Be sure reserve a contractor before grass is ready to be harvested, since custom farming businesses in Clark County are typically already booked by this time. Many custom farming businesses also have a minimum acreage requirement for haying. For larger pastures, fertilizer requirements may not be adequately supplied from recycling animal manure back onto the grass. Additional fertilizers may be required and can be determined by a soil test.

Figure 1: Rotational Grazing

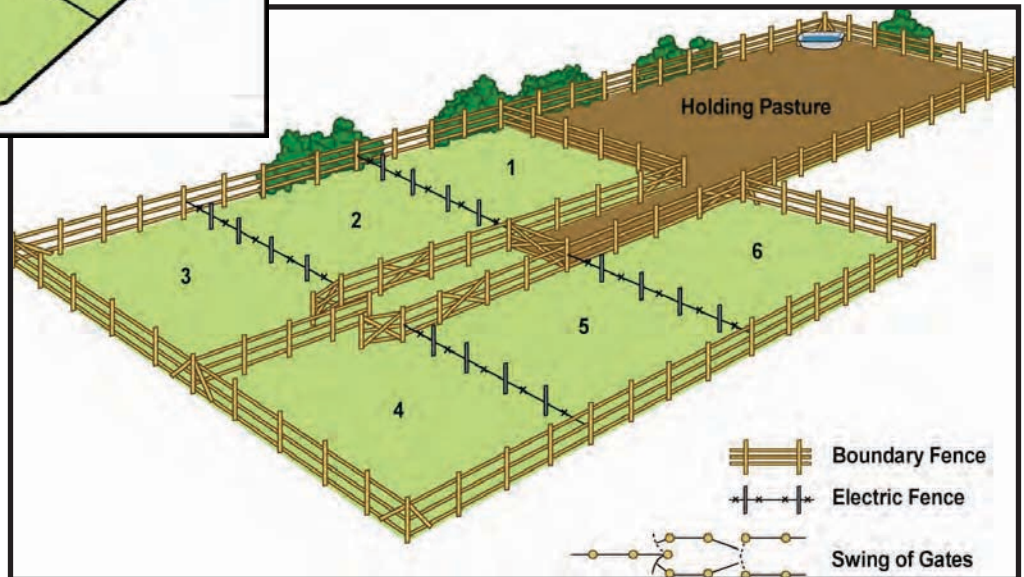


As part of your inventory, you may have found areas in your pasture where animals grazed the grass closer to the ground than in other areas. In a large, single pastures, animals selectively graze, eating short, tender grass down to the ground, returning as it regrows, while snubbing taller grass considered less palatable. Eventually, grass in the overgrazed areas die, increasing erosion and runoff potential and leaving space for weeds to colonize.

To prevent overgrazing and force animals to graze more evenly, try creating a rotational grazing scheme. Divide larger pastures into several, smaller pastures and then rotate animals through these fields. Temporary fencing (often electrified) works best to set up smaller fields and leaves flexibility to rearrange as necessary.

Turn your animals out to graze a field when grass reaches six to eight inches and move them when grasses reach three to four inches in height. Grasses in the first pasture rest while the animals start on a new pasture. Resting grasses allows them to re-

grow and collect energy to survive. Growing conditions determine the length of time necessary for grass regrowth. For example, when grass grows quickly in the spring, animals may be able to return to a field within two to three weeks. As growth slows down in late summer and early fall, fields may need to regrow six to eight weeks. In this instance, sacrifice areas used in late summer and fall provide a place to put animals if all your pastures require a rest to recover. Rotational grazing entails more effort, but pays off in healthy animals, thriving pastures, decreased feed and vet costs, fewer weeds, less bare soil, and reduced runoff.



4 - Mowing and Harrowing

Once animals graze down most of the grass in a pasture to three inches, in addition to moving them to another pasture, it is often necessary to mow the just grazed pasture. Mowing after animals graze a pasture evens out the grass height, which promotes more even grass growth of all species during the recovery period. Mowing also encourages plants to produce more leaves and fewer stems, thus producing a more palatable, thicker, and hardy grass stand. Mowing also helps control some weed species. Mowing weeds, such as thistle, prevents them from going to seed, thus reducing the number of weeds later. Animals, such as sheep and goats, graze some weed species, particularly if the weeds are kept short, making them more palatable.

Harrowing (dragging) your pasture after grazing breaks up manure and evenly distributes the nutrients in the manure. Breaking apart manure piles prevents grass from being smothered by manure. Dispersing manure piles also helps control parasites and pest insects, such as flies, who prefer fresh manure for laying their eggs and survive for days within the moist middle of manure. Breaking apart piles



Small Acreage Program

exposes fly and parasite larvae to sunlight, which dries them out and kills them.

A harrow with teeth or tines may be adjusted to tear up the ground a more aggressively which may be useful if you are planning on overseeding any pastures. A section of chain link fencing, weighted down with concrete blocks makes a simple and inexpensive harrow, as does using an old metal bedspring, metal gate, or similar item.

5 - Fertilizing: Right Rate, Right Time

Like any plant, grass requires nutrients to grow. By following recommendations provided with soil test results, you will apply the correct amount of fertilizer with the correct balance of nutrients required by your pasture plants. This saves money and avoid over-application, which allows fertilizer to runoff into nearby streams, waterbodies, and possibly, your well. Excess nutrients harm fish and wildlife, and even pose a potential health risk to your family and animals if they make their way into drinking water. If a soil test recommends an application of fertilizer, consider utilizing manure as inexpensive source of organic fertilizer. Avoid applying any fertilizer or manure during rainy months, since the fertilizer nutrients are more likely to leach into nearby water, wasting your time and money, and potentially harming fish and wildlife.

While soil tests may not recommend fertilizers, they often recommend lime. In part due to the rainfall received in Western Washington, Clark County soils are often acidic. Acidic soils release fewer nutrients to grasses, Over-applying fertilizers also increases soil acidity, exacerbating the problem. Applying lime increases the pH (measure of acidity), releasing more nutrients from the soil which make them more available for grasses. Liming also enhances the effectiveness of fertilizers or manure you apply. Furthermore, raising the pH makes soil bacteria more active, which releases more valuable nutrients. Lime contains calcium and magnesium, both important for healthy plant growth. After applying lime to pastures, a flush of growth may make it look like you just fertilized, since the lime releases much needed nutrients. For more information on fertilizer and lime application for pastures, see the Resources section.

Putting it all together

Healthy plants begin to grow earlier in the spring, become more productive through the summer, and continue to grow later into the fall. To maximize pasture forage, follow the five key management principles described above throughout the year. Healthy, properly managed pastures produce better quality and greater quantities of forage for your animals and lengthens the grazing season, producing healthier animals and reducing costs. Lush pastures also conserve water and filter out manure and nutrients, keeping them from entering nearby water bodies, protecting water quality, human health, and animal health.

Small Acreage Program



Pasture Management Calendar

January, February, March. Confine animals to sacrifice areas or winter turnouts to keep them off wet pastures. Pick up manure every one to three days from these confinement areas and keep the manure covered. Take soil samples to determine fertilizer and lime application rates, if recommended.

April, May, June. Once soils begin to dry out, set up a rotational grazing system before turning your animals out. Walk fencelines and repair as necessary. Apply approximately one-third of the recommended annual fertilizer in mid- to late-spring and again in early summer. Mow and harrow pastures after moving animals to a new pasture. Monitor grass height, moving animals when average grass height reaches three to four inches.

July, August, September. Mow and harrow pastures each time animals move to a new field. If no pastures have adequate grass height, use a sacrifice area to rest pastures. Once the season begins to cool, reseed or overseed pasture areas with bare soil where animals will not be grazed again until spring. Apply lime and additional fertilizers as indicated by your soil test recommendations. Monitor pastures when the fall rains begin to determine if animals need to be removed.

October, November, December. Confine animals to winter sacrifice area(s) and pick up manure every one to three days.



For additional information on pasture, mud, or manure management, weed control, and runoff control:

WSU Clark County Extension 11104 NE 149th Street, C-100 Brush Prairie WA 98606 360-397-6060 extension 7720 http://clark.wsu.edu/	Clark County Clean Water Program 1300 Franklin Street Vancouver, WA 98666 360-397-6118 http://www.clark.wa.gov/water-resources	Clark Conservation District 11104 NE 149th Street, C-400 Brush Prairie WA 98606 360-883-1987 extension 5 http://www.clarkcd.org	Clark County Weed Management 11104 NE 149th Street, C-100 Brush Prairie, WA 98606 360-397-6140 http://www.clark.wa.gov/weed
--	--	--	--

Resources

Soils and Soil Testing

Web Soil Survey - Natural Resource Conservation Service <http://websoilsurvey.nrcs.usda.gov/app/>

Washington State University Soils and Soil Testing Website: <http://www.puyallup.wsu.edu/soilmgmt/Soils.htm>

Soil Testing - Oregon State University <http://extension.oregonstate.edu/catalog/pdf/ec/ec628.pdf>

Soil Test Interpretation - Oregon State University: <http://extension.oregonstate.edu/catalog/pdf/ec/ec1478.pdf>

Winter Paddocks/Sacrifice Areas

Reduce Mud and Keep Water Clean: Sacrifice Areas - WSU Clark County Extension
<http://clark.wsu.edu/horticulture/smallAcreageProgram/sacrifice-areas.pdf>

Pasture Renovation and Grass Species

Pasture management for reduced weed problems – Oregon State University
<http://forages.oregonstate.edu/main.cfm?PageID=221>

Identifying Pasture Grasses - University of Wisconsin Extension <http://cecommerce.uwex.edu/pdfs/A3787.PDF>

Pasture and Hayland Renovation for Western Washington and Oregon - Washington State University Extension
<http://cru.cahe.wsu.edu/CEPublications/eb1870/eb1870.pdf>

Pasture Management: Understanding Plant and Root Growth in the Fall - Oregon State University Extension and Washington State University http://extension.oregonstate.edu/yamhill/pdf/late_summer_fall_pasture_ver2.pdf

Fertilizing and Lime

Pastures: Western Washington and Western Oregon Fertilizer Guide – Oregon State University Extension
<http://extension.oregonstate.edu/catalog/pdf/fg/fg63-e.pdf>

Fertilizer and Lime Materials – Oregon State University <http://extension.oregonstate.edu/catalog/pdf/fg/fg52-e.pdf>



References

Blickle, Alayne. *Five Keys to Better Pastures*. Horses for Clean Water. 2005, 6 pp.

Ekarius, Carol. *Pasture Primer*. Hobby Farms Magazine. March/April 2006, p 69-75.

Emmicx, D. L. *ABC's of Rotational Grazing*. King County Conservation District. 2001, 3 pp. http://www.kingcd.org/pub_pas_abc.pdf

Gardner, E., Robotham, M. & Hart, J. *Soil sampling for home and small gardens*. EC628. Corvallis: Oregon State University Extension Service. June 2002, 5 pp. <http://extension.oregonstate.edu/catalog/pdf/ec/ec628.pdf>

Karreman, Hubert J. *Grazing Basics: Paddock Maintenance – Naturally*. Acres, U.S.A. March 2007, p. 42-45.

King Conservation District. *Pasture Inventory*. 2001, 2 pp. http://www.kingcd.org/pub_pas_pas.pdf

King Conservation District. *Pasture Management Schedule*. 2001, 3 pp. http://www.kingcd.org/pub_pas_pasman.pdf

Lindemulder, Bobbi. *Spring is Here, Are Your Pastures Ready?* The NEXUS, Snohomish Conservation district. Spring 2007.

Washington County Soil and Water Conservation District. *Managing pastures: Grazing for profit, not pollution. Tips for small acreages in Oregon, Fact Sheet # 7*. January 1999, 4pp. <http://www.or.nrcs.usda.gov/news/factsheets/fs7.pdf>



The Small Acreage Program is sponsored in partnership by [WSU Extension Clark County](#) and the [Clark County Clean Water Program](#).



Extension programs are available to all without discrimination.
Report evidence of noncompliance to your local Extension office.

Pasture and Grazing Management

