Is It Grass That's Really Greener on the Other Side of the Fence?

Introduction
Properly managed pastures serve not only as a great nutritional source for grazing animals, but they also reduce the loss of soil by anchoring it in place. Pastures are most valuable to farm operators and to the environment when they contain a thick productive stand of grass and possibly legumes that grow well in the climate and soil type, and tolerate grazing. Bare or open spots in pastures are unproductive and allow for weed encroachment and soil erosion.

When deciding whether to reestablish a pasture, renovate a pasture, or change pasture management practices, it's important to take into account the percentage of a pasture's ground surface that is covered by vegetation. This is called pasture vegetative cover. To maintain a productive pasture, the goal of the farm owner is to maintain a minimum pasture vegetative cover of at least 70% desirable plant species.

Desirable Pasture Plant Species
A desirable plant species is one that is acceptable in nutritional quality, has a relatively high forage yield during the growing season, and is palatable to grazing animals. Desirable plant species usually consist of perennial cool-season grasses and legumes suitable for pastures like orchardgrass, Kentucky bluegrass, and tall fescue. Legumes, such as white clover, are also common desirable plant species in pastures as long as they as they don't make up more than 20% of the existing species. Depending on the climate, warm season grasses like bermudagrass may also be desirable pasture species.

Undesirable plant species are usually annuals unsuitable for grazing livestock because of poor forage quality and possible toxicities. Examples of undesirable plant species are goosegrass, narrow and broadleaf plantains, dandelions, buttercups, thistles, dock, and foxtail. Soil testing, liming, fertilizing, herbicides, overseeding, mowing and rotational grazing are management practices that can be used to achieve at least 70% pasture vegetative cover.

Identifying Desirable Plant Species
Identifying plant species is an important component of a pasture management plan, but it can be quite a challenge to distinguish between those that are desirable and undesirable. Most farm operators can tell a grass from a weed or legume (e.g., white clover). Basic plant identification skills are necessary in order to estimate pasture vegetative cover. Here are some websites that provide more information on identifying common pasture plants:

- Forage Identification Pages - Purdue University
  - http://www.agry.purdue.edu/ext/forages/ForageID/forageid.htm
- Forage Identification and Use Guide - University of Kentucky
  - http://www.ca.uky.edu/agc/pubs/agr/agr175/agr175.htm
- Weed Identification Guide - Virginia Polytechnic Institute and State University
  - http://www.ppws.vt.edu/weedindex.htm
- Weed Identification - University of Illinois
  - http://weedid.aces.uiuc.edu/

How to Estimate Pasture Vegetative Cover

Estimating pasture vegetative cover compares the percentage of a pasture's ground surface that is bare soil with that covered by vegetation. Pasture plants vary with the changing seasons; for Maryland conditions, assessing in late fall (November) and in midsummer (July) will give the most accurate picture of how a pasture is performing. The pasture should be 3-4 inches tall, either from recent mowing or grazing. At this height it is easier to see the array of plants with different growth habits and bare soil. A yard stick from the hardware store or "pasture stick" from your local soil conservation district can be useful when measuring plant height.

Of the many pasture vegetative cover assessment methods developed over the years, this document describes one that we believe is the simplest and most practical. The "step-point" method involves walking through each pasture and noting the presence of plant cover type or bare soil.

The Step-Point Method of Pasture Vegetative Cover Assessment

Step 1 To get started, make a small white mark on the tip or side edge of a shoe or boot with white paint or typewriter correction fluid, e.g. Liquid Paper® or WiteOut® (Figure 1).

Figure 1. Example of where to place white mark on shoe.

Step 2 Print a copy of the Pasture Vegetative Cover Form (located at the end of this document), secure it to a clipboard and bring along a pen or pencil.

Step 3 Walk through the pasture in a random zig-zag pattern stretching from one corner of the pasture to the other. Avoid walking through heavily used areas near gates, waterers, laneways and feeders. Every 5 to 10 steps, stop to see what is directly under the white mark on the boot. For smaller or larger pastures, adjust the number of steps you take between stops to cover the entire pasture. At each stop, the white mark will fall directly on top of either grass, legume, weed or bare soil. Mark an "X" in the box corresponding to the stop number and the pasture cover type on the Pasture Vegetative Cover Form. If the white mark falls on top of something other than plant or bare soil (e.g. rock, trash, or hay), mark the box labeled "other".

Step 4 After recording 50 stops, add up the number of X's for each pasture cover type and record that in the Total X's box located at the bottom of the form.

Step 5 Calculate the percentage of pasture vegetative cover for each cover type by multiplying the number of X's in each column by 2. For example, if the white mark lands on top of a grass species 23 times out of a total of 50 stops, the percentage of grass in that pasture is 23 x 2 = 46 or 46 percent.

Step 6 Repeat the above steps for each pasture being grazed by livestock; use a new Pasture Vegetative Cover Form each time.

Using Pasture Vegetative Cover Information

Once you determine the percentage of pasture vegetative cover, use that information to make management decisions to reach the recommended 70% pasture vegetative cover. Here are some general management recommendations:

If pasture vegetative cover is:	Management recommendation is to:
Less than 50 %	Kill existing forage and reestablish pasture with desirable grass or grass/legume species
50-70%	Renovate pasture through weed control and reseeding, improve pasture management practices
More than 70 %	Maintain current level of pasture management practices

Pasture Vegetative Cover Photo Gallery

Photographic examples of pastures with different percentages of pasture vegetative cover are available online at: www.mda.state.md.us/pdf/grassgreener.pdf.

Additional Resources

The Maryland Horse Outreach Workgroup has posted more pasture and manure management resources at: www.horseboard.org/HOW. In addition, local University of Maryland Extension or Soil Conservation District offices also advise farm operators on pasture management and renovation.

Authored by: Dr. Amy Burk, Extension Horse Specialist, University of Maryland and Dr. Richard Taylor, Extension Agronomy Specialist, University of Delaware

Reviewed by members of the Maryland Horse Outreach Workgroup. The Horse Outreach Workgroup was established to provide information to horse owners on pasture and manure management issues. Technical assistance is available from local county Soil Conservation Districts/Natural Resource Conservation Service and the Maryland Cooperative Extension office. The workgroup consists of representatives from local Soil Conservation Districts, Maryland Department of Agriculture, Natural Resource Conservation Service, University of Maryland Extension, the Equiery, and the Maryland Horse Council. The Maryland Department of Agriculture's Office of Resource Conservation provides coordination for the workgroup.

For more information on horse manure management and other soil conservation and water quality practices, contact you local Soil Conservation District. For more information contact your local Soil Conservation District/ Natural Resources Conservation Service/ (SCD/ NRCS) office or county University of Maryland Extension office. Addresses and phone numbers can be found at www.mda.state.md.us/resource_conservation/technical_assistance/index.php , www.md.nrcs.usda.gov/contact/directory or extension.umd.edu or check the listing County Government for SCD/MCE or US Government, Department of Agriculture for NRCS of the phone book blue pages. January 2010

Pasture Vegetative Cover Form

Pasture Name/ID: _____

Stop Number	Pasture Cover Type				
	Grass	**Legume**	**Weed**	**Bare Soil**	**Other**
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
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31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
Total X's:					
Percentage (Multiply by 2)					