

# BACK TO THE FUTURE: Pasture Land Management

When horse people look over their pastureland, they see an exercise and holding area for their horses. When Fred Newcombe looks out at that same land, he sees nutrition for those horses. "Horse owners are missing this concept today," says Newcombe, a land management specialist based in Massachusetts. "Most people don't nurture their fields. They just let them grow as they will."

Pastureland maintained for forage is the best practice for horse and horse owner, he says. Just as many people rely on food supplements for themselves, many horse people rely on supplements for their horses. But just as for people, good nutrition in the form of whole foods is the best source of necessary vitamins and minerals. When hay is cut, it loses nutritional value; growing, living plants are far superior. If pastureland is properly maintained for forage, the essential nutrients will be provided by that food source. Of course, using pasture for essential nutrition is not a new concept, as Newcombe points out, but to many modern day horse owners, it surely seems so.

Forage, especially organically grown forage, is much more nutritionally balanced than stable diets of oats and cut hay or forage grasses grown on soil (especially the sandy soil in Florida) that has not been nurtured organically. Indeed, it would seem that horses eating organically grown forage are less likely to experience the deficiencies and resulting problems that come with an imbalanced diet.

The environment is also a consideration. The USDA Natural Resources Conservation Service claims that good grazing land management helps improve water supplies; is key to mitigating climate change through the absorption of atmospheric carbon by the soil and plants; is one of the most energy-efficient ways

of producing food; and is one of the most important ways that farmers can reduce erosion and water pollution.

So where does one begin? "It is my experience that if you improve the soil, you improve the quality of forage," Newcombe explains. According to Chambliss and Johnson (University of Florida/ Institute of Food and Agricultural Sciences), in Florida two major types of sites are used by the horse industry: (1) upland sands; and (2) flatwoods, which have a higher water table and organic matter content than upland sands, and thus better soil moisture holding capacity. This capacity in turn leads to more productivity. Unfortunately, much Florida soil is sandy and gravelly. Sandy soil doesn't hold nutrients, so it is important to build up organic matter in the soil. "Very deep sandy soils that are excessively well drained and low in organic matter tend to be more drought prone and less productive than other soils," they explain.

"Manures have been used as fertilizer for centuries, but crop fertilization

with manure has received renewed attention in recent years as concern for water pollution potential from excess manure has increased," writes Kidder (University of Florida/ Institute of Food and Agricultural Sciences). However, manure is not toxic if composted properly and is an excellent source of organic matter, Newcombe says. Florida's climate is well suited to composting, as the high temperatures speed up the process and kill any internal parasites. "When properly applied, manure and other organic by-products can enhance the productivity and soil quality of grazing lands by increasing soil organic-matter content, improving soil moisture-holding capacity, and supplying valuable nutrients," notes Kidder. "Dragging the fields, rather than cleaning up and hauling the manure away, just makes sense," Newcombe emphasizes.

Another consideration is the actual management of the pastureland. "Most people give up a whole paddock to a horse, rather than restrict the horse to graze properly," he says. Rotational

grazing is one of the most effective management practices. The rule of thumb is to allow no less than one acre of forage per horse. In order to manage effectively, the land should be sectioned into grazing areas; temporary fencing can be used for this purpose. Intensive grazing is anathema to the program. Once the pasture grass has been eaten down to about three or four inches in one area, the horses must be moved to another area to allow the land to recuperate. The goal is not to overgraze fertile forage land. Even when not eating, horses are tough on grazing areas. Their movements compact the soil, which in turn prevents oxygen from getting into the soil. Additionally, unlike cows, which are ruminant animals, horses have small stomachs, so they must eat a little bit all the time. Horses will often graze 16 to 18 hours a day.

According to Chambliss and Johnson, the choice of forage species for the Florida area depends on the type of site (flatwood or upland sand), fertilization needs, crop-specific pests, nutritional quality, digestibility, and overgrazing tolerance. They recommend that grasses be overseeded with legumes, which generally are of higher nutritional quality than grasses. For example, Chambliss and Johnson suggest an "improved hybrid bermudagrass (Tifton 85...a new variety that is vigorous, high yielding, and has improved digestibility)" might be overseeded with legumes such as Alyceclover, a summer legume, or clover, a winter legume. Though Newcombe suggests that horses do better with white clover than with red clover, Chambliss and Johnson recommend a mixture of white and red (for wetter sites) or crimson and arrowleaf (for well drained sites).

In grass seed, Newcombe cautions, it is important to ensure that it is endophyte free. Endophytes are fungi that discourage surface feeding insects but are toxic to horses. Ryegrass and fescue lawn seed mixtures often contain endophytes. You cannot see these endophytes, as they are IN the grass seed.

Another fungus to be aware of, Newcombe warns, though this one you can see, is ergot. Ergot is a non-endophytic fungus that attacks the seed head of a number of grasses. You can

tell if you have ergot because the seed head is replaced by the black hardened body of the fungus. When consumed, ergot has been implicated in late term abortions in mares and can have a hallucinogenic effect. Perhaps the simplest way to ensure against ergot toxicity is to mow the pasture before it goes to seed, he suggests. The bottom line is asking seed suppliers for their recommendations while making certain that they understand it is for equine use. Cattle and other ruminant animals have different requirements and tolerances from horses.

Susie Banta, farm owner and hunter/jumper equestrian, has been sold on Newcombe and his approach. She is dedicated to living as organically as possible. Her farmland in Topsfield, Mass., supports her five horses organically with Newcombe's help. She is now trying to do the same at her Ocala, FL, farm. This guardian of the land is anxious to begin a campaign in Florida to bring holistic and organic practices and approaches to the horse industry, with the help of friends in the horse show industry and her connections with breeder associations.

"I wish I could find someone here in Florida like Fred. It is imperative that we horse people provide our horses the kind of land upon which they can truly thrive and do our share to keep pesticides out of the aquifer."

Pasture for forage and organic pastureland management seem to be at the forefront for today's horse owner. As Fred Newcombe says, "It is a matter of environmental, nutritional, and dollar sense."

Special thanks to Fred Newcombe of Massachusetts, a NOFA Organic Land Care Accredited Professional, member of the Ecological Landscaping Association (ELA), instructor at North Shore Community College in their Landscape Certificate program on Healthy Lawns — Organically, and owner of PKC & Company. Fred can be reached at 978-432-1019 or [www.pkcecological.com](http://www.pkcecological.com).

For soil sampling information, contact:

UF/IFAS ESTL  
PO Box 110 740  
Wallace Building 631  
Gainesville, FL 32611-0740  
Tel: 352-392-1950 Ext. 221  
SUN: 622-1950  
Fax: 352-392-1960  
Email: [soilslab@flas.ufl.edu](mailto:soilslab@flas.ufl.edu)

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## Soil Sample Procedures

Performing a soil test is the 1<sup>st</sup> step to a successful organic fertilization program. Below is a general description of sample collection. Check with your local lab for more specific instructions or variations in collecting samples. It doesn't hurt to inform the lab that the land is being tested to prepare the soil for equine forage.

### Sampling area:

Look your property over to determine if the overall area is similar in appearance, color, and soil condition and past fertilization practices. Most areas are generally the same. Soils that are distinctly different should be sampled separately. If one area seems healthy and another has bare or yellow areas, you should sample healthy and unhealthy areas separately. Avoid areas on the fringes or that have recently been fertilized.

### Soil Sampling Instructions:

- Each sample submitted should be a composite or mixture of approximately 6-8 scattered samplings (totaling 2 cups) taken throughout the turf.
- Using a clean flat edger cut 3 sides and fold turf back to obtain soil from the primary root zone. Take a handful of soil from the top 4 inches. Fold the turf back down and step into place. (Do NOT use brass, bronze, or galvanized tools because they will contaminate samples with copper and/or zinc.)
- Spread the material on clean paper or other suitable material to air dry. Do not send wet samples.
- Place each of the random samplings for an area in a clean container and mix thoroughly.
- Mix the soil again and place about 1 pint of soil in a labeled sample bag.
- Keep a record of the areas sampled (label each container) and the corresponding sample number.

## PROCESS FOR SOIL ENRICHMENT

1. Test the soil (see sidebar) to determine what you are dealing with chemically. Take random samples throughout the fields, ideally 12 - 15 per acre.
2. Send the soil sample to a commercial lab. Many universities have testing labs, as, for example, the University of Florida, Gainesville.
3. What to do next depends on the results. Most properties usually need liming, especially sandy soils, which tend to be acidic. A range of 6.5-6.8 is needed. Varying types of lime occur. Most are lower in calcium and higher in magnesium (dolomitic lime). For pasture lands, just the opposite is needed: soil high in calcium and low in magnesium. The balance affects a horse's nutrition.
4. Apply organic fertilizers. Since composted manure doesn't supply enough nitrogen, the organic fertilizers are needed to supply this vital nutrient. There is no need to worry about contact issues with the horses; they can eat immediately after the application of the fertilizers, provided they are organic.
5. Spread the composted manure: top dress at 1/4 to 1/2 inch. (Often, horse owners pay good money to have manure trucked off the farm, then pay good money to get it back, in composted form.) On the average, one horse provides 90 pounds of manure per day. Be sure that the composting area is away from water or an area that might be washed away by rain. Though it takes work

to initially set up a system for composting, which involves turning and aging the manure, it is well worth the effort.

6. Check the amount of organic matter (this is part of the post testing). It should read at five percent. Organic matter holds the nutrients for the plants, especially important in sandy soil, which doesn't hold the nutrients as, for example, clay soil does.
7. Use the appropriate pasture seed mix. Do not plant ryegrass or fescue, which contain endophytes; these may be good for residential lawns because they keep surface feeding insects from devouring a lawn, but they can make a horse ill, sometimes even sterile.
8. Irrigate well initially. This encourages a strong root system. The organic approach strives to achieve this strong root system, which in turn yields a more drought tolerant pasture.
9. Every so often, submit samples of the pasture forage for analysis. Track the progress of the plants to assure adequate amounts of protein and minerals in the feed. Forage quality varies widely due to variations in genotype, maturity, season, management, and anti-quality components. Because of all these factors and their interactions, static tables of forage quality and nutritive value are unlikely to provide complete or useful information about particular forage. Therefore, it is important to test forages frequently. (Kidder, 2006)