

Lime, Calcium and Magnesium for Horse Pastures

by Gudrun Mahrt, Columbia River Carbonates

The health of your grazing livestock, especially horses, can depend greatly on how you manage your pastures. Good management considers the grazing behavior of your animals and knowing how fertilizer, soil amendments and manure affect your soil system. Farmers utilizing only natural organic growing systems speak of “feeding the cow underground before you can feed the grazing animal on top.” This is a hint to remind us about the huge microbiological community—the underground ecosystem found in every acre of pasture. Soil, organic matter, and earthworm numbers are simple indicators for you to monitor soil health.

We can improve these systems simply by providing organic matter change (composted manures or other natural composted materials) and adjusting soil pH with natural calcium. This provides a great environment for a healthy underground ecosystem supporting strong forage growth.

Synthetic fertilizers are overused, especially on horse pastures. But while using fertilizers may be unnecessary, using lime is crucial (see Clark County Conservation District publication “Healthy Horses, Clean Water”).

How do you know if your pastures require attention? Taking a soil test is easy and inexpensive. The results can help improve pasture condition and yield by providing you with an exact analysis of what amendments are needed to optimize grass plant growth. Contact your Conservation District if you need instructions or help on how to take a soil test. Some Conservation Districts offer this service for free. Or visit one of the many university soil testing services on the web for test instructions and pricing such as <http://www.umass.edu/plsoils/soiltest/>. Analyze your soil for the following:

pH	Soil pH may indicate whether lime is needed, however a high pH is not always an indication of sufficient calcium levels. High pH levels may be due to high P or K or even high salt (Na) levels and adding calcium is still may be necessary. A soil test will determine the correct requirements based on your specific soil type, nutrient levels and pH.
Lime requirement (SMP)	
Phosphorus (P)	
Potassium (K)	
Calcium (Ca)	
Magnesium (Mg)	

Soils west of the Cascades are naturally acidic and lime applications to your pasture will increase grass and legume (such as clover) growth. Determine the need for lime by soil pH or calcium (Ca) test. The amount of lime required can be determined by the SMP buffer test.

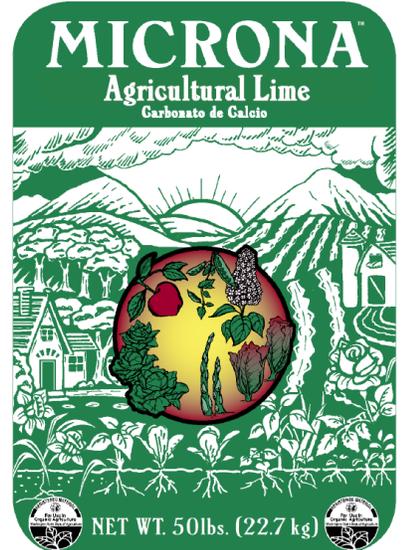
Ultra fine limestone (ag-lime) below 200 mesh in size increases pH and calcium levels faster than coarse liming materials. Do not use hydrated lime since it can burn and be toxic if not used correctly.



SMP buffer	tons of lime per acre needed
below 5.5	4 to 5 t/a
5.5 to 5.8	3 to 4 t/a
5.8 to 6.1	2 to 3 t/a
6.1 to 6.5	1 to 2 t/a
over 6.5	0 to 1 t/a

Dolomite is a natural combination of calcium carbonate (CaCO₃) and magnesium carbonate.

Most soils in the Pacific Northwest do not require additional magnesium. Dolomite is a natural soil compactor and therefore may be beneficial in very sandy pastures to help reduce water and nutrient run-off. If the soil test



recommends magnesium or dolomite additions, alternative natural materials such as K-Mag might be better to keep your pasture soil structure intact.

Limestone or calcium carbonate, a natural mineral, is available in coarse or fine powders and in pelletized form. Since powdered lime can be quite dusty, many organic farmers blend ultra fine calcium carbonate with their finished composts prior to annual field application.



The best time to apply lime to established pastures is in the fall. If sufficient rain falls by October and some new grass growth has started, spread compost and lime on your fields on a moist foggy day. You may want to follow up with your regular annual overseeding of Italian perennial rye, mammoth orchard grass, or other horse pasture blends.

Pelletized lime is easily spread by spin spreader or even by hand.

Gudrun Mahrt is the “Lime Lady” specializing in natural calcium applications for agriculture, horticulture, and gardening systems for [Columbia River Carbonates](#). Years of experiments with different natural product applications have improved the pastures on her family horse farm in La Center in southwest Washington. One ton of ultra fine limestone per acre blended with composted manure from three horses are applied each fall and have resulted in four acres of beautiful soil, not only providing spring and summer pasture but now producing sufficient hay for the time her horses are off pastures in winter.

Gudrun and her husband Peter are active members of the Mt. St. Helens Chapter of Backcountry Horsemen. They have fun riding with two of the greatest trail riding buddies, Tennessee Walker “Early” and their huge 16.2 hand Missouri Fox Trotter, “Blazie.”

Resources

For more information about liming call Gudrun at (360) 225 4108

[Healthy Horses, Clean Water](#)—a guide to environmentally friendly horse keeping in Clark County

[Western OR and Western WA Pastures Fertilizer Guide](#), Oregon State University

[The Lowdown on Lime](#), May 2006 The Green Horse

[Washington State Conservation Districts](#)

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