

Does Lime really kill or control Moss?

Lime, do you really need it? Whether from well meaning neighbors, farmers, or an unnamed national gardener with a penchant for homemade recipes, homeowners and gardeners are bombarded with advice telling them to put lime on their lawns and gardens to “sweeten” (to make less acidic) the soil. Some other suggestions for lime have been to get rid of moles, break down pine needles, eliminate mushrooms or to kill moss. All of these suggestions are presumably to alter the pH of the soil to make it more alkaline and thereby curing the problem, although I’m not sure how this relates to moles.

The pH of soil itself is mired in misconception from the past or other areas. For years it’s been thought that oak and pine trees acidify the soil so if your property had naturally occurring pines and oaks, it was assumed that lime should be added to ‘sweeten the soil’. While certain species of pine tree needles, most notably the Austrian pine can acidify the soil, in our area this is usually not the case. Our soils do not hold the acidity that other soils can. In fact, the soils in the Traverse City area tend to be alkali if anything.

Another misconception is that the appearance of moss indicates that the soil is acidic or sour. In truth, the most common reason for moss is that the area is shady. Moss will thrive in shady areas while turf grass needs an acceptable amount of sunlight to survive. In addition, we have also seen many cases where moss exists in dry, sunny and sandy soils (including my own). Although it is common to believe that this indicates an acidic soil condition, it more often indicates poor soil fertility, with organic matter and nutrients at a very low percent. Once again, many of the conditions that moss can thrive in, turf grass cannot.

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Part of the confusion can be attributed to the pH scale itself. The scale runs from 0 to 14 with 7 being neutral. When test results indicate a high pH, it is easy to assume this means your soil is acidic. However, on the pH scale, numbers higher than seven mean the soil is alkali (the opposite of acid) and lower numbers, less than seven, mean the soil is acidic. Of our soil tests for the last four years **only 3 percent tested acidic and 6 percent slightly acidic**. Most of these acidic soil samples are from farming areas around Copemish, Lake Ann, Upper Peninsula or swamp bogs.

In contrast, 30% of our test results indicate an acceptable pH for turf grass and **a whopping 61% indicate a pH too high (alkaline)** for healthy turf grass.

If your soil pH is too high for turf grass, it will often be unsuitable for most common vegetables, flowers, trees and many plants. (See chart below)

pH	Description
< 5.5	= Strongly acid
5.5 - 5.9	= Medium acid
6.0 - 6.4	= Slightly acid
6.5 - 6.9	= Very slightly acid
7.0	= Neutral
7.1 - 7.5	= Very slightly alkaline
7.6 - 8.0	= Slightly alkaline
8.1 - 8.5	= Medium alkaline
> 8.5	= Strongly alkaline

Another source of confusion can be the greening effect that lime (from calcium/magnesium) has on turf grass. Although many lawns can benefit from calcium & magnesium, lime's pH changing ability happens over a period of 4 to 6 months so even though the immediate effect can be positive, the soil can gradually turn too alkali and incapable of supporting healthy turf grass and plants. (If calcium is actually needed there are other sources of calcium that will not have a pH changing effect) Given that our usual soil pH is around 7.2 to begin with; slightly alkaline, the addition of lime each year can gradually raise the Ph deteriorating the growing conditions till grass and other plants start to die. Incidentally, there are many mosses that can grow in these conditions.

When the soil pH is too "acid" or "alkaline" nutrients present in the soil become locked-up or unavailable. In order for nutrients in soil to be utilized the most efficiently (and sometimes at all) by plants, the pH must be in the ideal range for a particular species. Some agronomists believe there is little use in providing fertilizer unless the pH of the soil is addressed as well. As the pH changes outside of the ideal range, the plants ability to utilize the nutrients becomes less and less.

One note for gardeners: most compost has an alkaline pH. The city leaf compost for example has a pH of 7.6 or higher. It will usually be necessary to acidify this soil to be successful with your garden.

Whether for a lawn, flowers, vegetables or trees, if you want the best results from your efforts, have a reliable soil test done. (The home testing kits are usually inaccurate so we no longer sell them) We offer a service in which you can bring your soil sample in and we mail it to a lab to be tested. Also our local extension office sells a collection kit which you mail to MSU to be tested. Both require the simple collection of several samples which we explain further in our soil testing guide. The cost is around \$11 and takes about two weeks. In addition to the pH of the soil, our test reports calcium, phosphorus, potassium, magnesium, organic matter, CEC and their proper ratios. We are always glad to go over either of these tests with you and help you develop a suitable soil amendment plan.

Plant Type	Preferred Soil pH
Turf Grass	6.0 – 6.8
Tomato	6.0 – 6.8
Corn	6.2 – 6.8
Potato	5.0 – 5.5
Bell Pepper	6.2 – 7.0
Green Bean	6.5 – 7.0
Pumpkin	5.5 – 6.8
Blueberries	4.0 – 5.2
Rhododendron	4.5 – 5.5
Azalea	6.5 – 7.0
Marigold	6.5 – 7.0
Rose	6.0 – 7.0
Crabapple	5.5 – 6.5
Apple	5.0 – 6.5
Sugar Maple	5.5 – 6.5
Colorado Spruce	6.0 – 7.0
Black Walnut	6.0 – 7.5
Cedar	6.0 – 7.0
Birch	5.0 – 6.5

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