Successful Landscaping's note…
This document was prepared for Montana.

Regarding the passage about fertilization… for this Portland/Vancouver area, we have varying soil, but most neighborhood soils on which lawns are planted are notoriously poor… also highly compacted during construction… both things that add to poor growing conditions for grass, but good conditions for moss.

Regarding the passage about pH… unlike in Montana, we are in an area of generally lower pH soils, but it really depends on the area and other conditions. Never just assume your soil is high or low pH. But if you have moss, chances are very good it is LOW pH (acid). Moss is an indicator plant… it indicates any or all of the following… wet, poor drainage, compaction, low fertility, low pH, shade.

Moss in Lawns

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Posted Sept. 1997 by Sherry Lajeunesse, Extension Urban Pest Management Specialist.

Moss in lawns is a common problem in many parts of the state, especially in high-rainfall years. Some folks don't mind the bright green appearance, others "want it out". If you are among the latter, there are several things you can do.

Short-term control can be achieved by raking the moss out by hand. If a large bare patch is exposed, sprinkle some grass seed on the spot and rake lightly and keep it moist. When moss growth is first seen, the site can be made unfavorable for moss growth by treating with ferrous sulfate or ammonium sulfate according to label directions. Safer's Moss Killer, a highly refined soap, is also useful on smaller patches.

Long-term management of moss can be helped by watering turf deeply and infrequently, raising mowing height, and controlling thatch. Apply enough water so it soaks 6-8 inches deep, then do not water again until the top inch of soil has dried out. The dry soil creates periodically unfavorable conditions for moss growth and encourages grass to develop deep, competitive roots. Raise the cutting height of your mower to the highest setting possible- taller grass is more competitive against all pests, including moss and weeds, providing less favorable habitat for these pests.

Thatch refers to the accumulation of dead, non-decomposed rhizomes (underground stems) that interferes with air, water, and nutrient movement within the soil. To manage thatch, use mechanical methods such as power rakes, rotary mower with a thatch attachment, or a hand rake. Make sure that you set up the equipment low enough to penetrate the thatch layer. If possible, schedule the de-thatching before the grass starts to growth in the spring or in fall when the grass is coming out of dormancy.

To permanently be rid of a chronic moss problem, it is important to change the conditions that favor the moss. Soil compaction, low soil fertility, and shade all create a perfect environment for moss.

By changing growing conditions so they favor your grass, instead of the mosses, the grass can usually outcompete the moss.

If soil compaction is a problem, it can be alleviated by using an aerator that removes a core of soil several inches long. Rental shops often rent core aerators by the hour. Adding organic matter topdressings, such as finished compost, will help prevent the soil from becoming compacted again. Although earthworms create nuisance "mounds", they are one of the best means of aerating soil, digging up to 1200 tunnels in a cubic yard of soil. These tunnels can extend to depths of six feet or more. (They also add large amounts of very high-quality fertilizer and beneficial microorganisms to your soil.)

To see if low soil fertility is contributing to a moss problem, take a representative soil sample from the areas where moss usually grows and have it tested. If tests show deficiencies in certain nutrients, addition of those nutrients could alleviate the problem. Avoid adding fertilizer "just in case" or just "because it is spring". Many Montana soils simply don't need additional fertilizer. Over-fertilization can cause another whole set of problems, including pest infestations and possibly groundwater contamination, while your moss problem remains unaffected if low soil fertility was not the cause to begin with.

Low soil pH can also encourage moss growth, but in most parts of Montana, low soil pH is not a problem. Low pH indicates a soil with high acid content. Montana soils more commonly exhibit high pH levels, which indicate alkaline content. Tests for pH are simple, and you can do them yourself with materials available from yard and garden suppliers. Results will indicate if you live in one of the relatively few areas with low pH. If so, addition of gypsum (calcium sulfate), aluminum sulfate, powdered sulfur, or organic matter can bring the soil to a more neutral pH. Over time, however, it will revert to original pH levels, so maintenance applications of such products will be required periodically.

The last, and most common cause of moss in lawns is shady, damp soil. To permanently alleviate the condition will require pruning or otherwise opening the overhead canopy, if the shade is cast by vegetation, and/or by improving drainage. If this is not an option, or if the shade is cast by buildings, you might consider replacing that portion of lawn with a shade and moisture-tolerant ground cover, or with a permanent gravel or bark mulch layer over a woven weed mat. Many shade-loving ground covers are very attractive and can provide a nice addition to your landscape.

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