

## **Why is liming important?**

Soil pH affects turfgrass health by influencing availability of plant nutrients and other elements, thatch decomposition, some turfgrass pests, and pesticide activity.

Strongly acid soils (pH less than or equal to 5.5) may lead to deficiencies in calcium, magnesium, or phosphorus and increase availability of aluminum and manganese in amounts that may be toxic to turfgrasses. Liming improves plant nutrient availability and reduces toxicity problems in acid soils.

Many beneficial soil microorganisms do not thrive in strongly acid soils. Some of these microorganisms break-down certain nitrogen fertilizers, thereby releasing the nitrogen for use by the turfgrass. Fertilizers containing nitrogen from urea, sulfur-coated urea, or natural organic sources are not effective unless certain microorganisms are present in sufficient quantities.

Soil microorganisms also aid in the decomposition of thatch and grass clippings. Thatch is the dense accumulation of organic material on the soil surface beneath the grass. A thatch layer restricts movement of air, water, nutrients, and pesticides into the soil. Soil pH in the range of 6.0 to 7.0 increases microbial activity and helps reduce thatch.

Some turfgrass diseases are influenced by soil pH. Although the reasons for this are not well understood, there is some evidence to suggest that in very acid soils the populations of microorganisms that suppress pathogenic fungi are reduced. In addition, plants growing in acid soils may be more susceptible to disease because they are suffering from nutrient deficiencies or aluminum toxicity. Conversely, there are at least two turfgrass diseases (take-all patch and Fusarium patch) that are suppressed in acid soils. Fortunately, these diseases rarely cause problems in home lawns. Optimum pH (6.0 to 7.0) does not prevent turfgrass disease, but it can reduce the severity of infestation.

Acidic soils create conditions that favor growth of certain weed species. One of the most common and difficult-to-control weeds, moss, is more prevalent in moderately to strongly acidic soils than in neutral soils or slightly acid soils. Shepherds purse is a lawn weed that is a good indicator of moderately to strongly acidic soils. Although weeds cannot be controlled with lime applications, applying lime before soils become too acid is one means of preventing severe weed infestation.

Research has shown that the activity of some pesticides is influenced by soil pH. Strongly acid soils can reduce the effectiveness of some turfgrass herbicides and insecticides.

## **Is Lime Needed?**

Liming is needed if the pH of your soil is too low for optimum growth of the turf species you want to maintain. Soil pH can be determined only by a soil test. Although home test kits can provide a fairly good indication of soil pH, they cannot provide meaningful liming recommendations. Most commercial soil test laboratories also can determine soil pH and provide lime recommendations for turf. Test results showing pH and nutrient status of your soil sample and recommendations for limestone and fertilizer applications (if needed) will be mailed to you. Apply limestone only if your soil test results show a need for it, and never guess at the amount of limestone needed.

## **When should limestone be applied?**

Ground limestone may be applied anytime of the year, but is most effective when applied in the fall. Rain, snow, and heaving of the soil during winter help work the limestone into the soil. Movement of limestone into the soil is slow, even under the best of conditions.

When the total amount of limestone needed for turfgrass maintenance exceeds the amount suggested for a maximum single application (25 lb/1,000 sq ft on greens; 100 lb/1,000 sq ft on all other established turf areas), spring and fall applications at the maximum rate are suggested until the limestone need is met.

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