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Mowing, Thatching, Aerifying, and Rolling Turf

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Creating and maintaining quality turfgrass involves more than irrigation, fertilization, and pesticide applications. A dense, healthy turf demands proper mowing techniques, occasional dethatching, and aerification in addition to fertilization and pest control. Knowing when and how to use these cultural practices will help enable one to have a dense, vigorous turf.

Mowing

Improper mowing causes more problems on lawns than any other maintenance practice. Most lawns are mowed too short, not often enough, and/or with a dull mower blade.

Mowing height depends on the grass species. Kentucky bluegrass, or any mix containing Kentucky bluegrass, should be mowed at 2.5 to 3.5 inches; perennial ryegrass and fine fescue should be mowed at 2.5 to 3.5 inches; tall fescue at 3.0 to 4.0 inches; and zoysia at 1.0 inch. Mowing below the optimum height restricts root growth and increases susceptibility to damage from insects, disease, drought, and traffic. Low mowing also favors weed infestations. Shaded areas should be mowed 0.5 to 1.0 inch higher than optimum.

Mowing frequency depends on how fast the grass is growing. Some lawns may need mowing twice a week during spring and fall and only once every 2 weeks during summer. Mow frequently enough so as not to remove more than 1/3 of the leaf blade a single mowing. For instance, if you are mowing at 3 inches, mow when the grass reaches 4 inches. If the grass has grown too tall, raise the mowing height and gradually lower it back to the original height over a few mowings. Avoid mowing during midday when temperatures are above 90° and the soil is dry because you may damage the turf. If you must mow during a hot and dry period,

wait until temperatures moderate in the early morning or late evening.

The mower blades must be sharp and may need sharpening four to six times a year. A sharp blade results in a cleaner and healthier cut, leaving a more attractive lawn. Reel-type mowers often give a better cut, especially at lower heights, but they are more difficult to maintain.

Clipping removal is generally not recommended on most turfgrass areas. Though once thought, clippings do not cause thatch. Furthermore, returning clippings will recycle valuable nutrients to the soil thereby reducing fertilizer requirements. Clippings are not harmful if your mower spreads them evenly and if they are not thick enough to shade the grass below. Mulching mowers are recommended, but research suggests that mulching mowers increase clipping breakdown only slightly faster than conventional side-discharge mowers when used on cool season turfgrasses. Catching clippings is labor and time intensive and should only be done if the clippings are used for mulch or compost. Few, if any, landfills will accept clippings and other yard waste.

Thatch Control

Thatch is a tightly intermingled organic layer of dead and living shoots, stems, and roots that accumulate just above the soil surface. Thatch accumulation is due to either over-fertilization, over-watering, and/or soil compaction. A neglected lawn will never accumulate a thatch layer whereas an intensely managed lawn will. A small amount of thatch is desirable because it moderates soil temperature fluctuations and provides a cushion on the soil surface. Too much thatch interferes with water and air movement, reduces fertilizer and pesticide response, and

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increases disease and insect activity. Eventually, roots may start growing in the thatch, and since thatch does not hold much water, the turf then becomes very susceptible to drought stress.

Dethatching machines are power rakes with blades that cut through the thatch down to the soil surface. As the blades revolve, dead and live organic material is torn loose and brought to the surface. Dethatching machines that cut with knives or blades are preferred for their effectiveness. Avoid machines with flexible rake-type tines and dethatchers that attach to your rotary mower blade.

Dethatching machines can be rented from rental companies, or dethatching can be done by a professional lawn care company. The organic material removed by the dethatcher must be raked, removed, and used as a mulch or in a compost pile.

If the thatch layer is 0.5 inch or more thick, a number of passes in different directions with the dethatcher will be necessary. Several passes will produce large quantities of refuse, and the lawn will look very ragged for some time. Reseeding may be necessary after dethatching lawns with 0.5 inches or more of thatch. Thatch thicker than 1.0 inch is most easily removed with a sod cutter. A sod cutter set at the soil surface removes the sod easily in light and manageable strips. The lawn must then be reestablished. Although reestablishment is hard work, it is better in the long run. Refer to AY-13, "Turfgrass Renovation" for more information.

Kentucky bluegrass and fine fescue should be dethatched in the spring (April) or fall (Sept.) when it is actively growing and never in the summer. Zoysiagrass, on the other hand, should be dethatched in the summer when it is actively growing. Tall fescue and perennial ryegrass rarely develop a thatch problem.

Aerification

Aerification is the mechanical removal of soil cores. Aerification relieves soil compaction, improving water and air movement into the soil, increasing rooting, and greatly improves turfgrass health. Additionally, aerification will also reduce thatch. Aerification is most

beneficial in compacted areas such as sport fields, heavily trafficked areas next to sidewalks, and areas with intense foot or pet traffic.

Aerification is most beneficial when the largest tines or spoons available are used, penetration is 2 to 3 inches deep, and when 20 to 40 holes are punched per square foot. Aerifiers with reciprocating arms are the most effective, whereas the aerifiers that roll behind garden tractors are less effective because they do not penetrate deep enough nor punch enough holes per square foot. Most aerifying machines available at rental agencies may not punch enough holes per square foot, thus multiple passes will be needed to achieve the 20 to 40 holes/ft². The same is often true with aerification services provided by lawn care operators. Practices such as slicing or spiking remove no soil and are not considered aerification.

Aerification of Kentucky bluegrass, perennial ryegrass, fine fescue, and tall fescue should be done in the fall (Sept.) or spring (April) when the turf is actively growing. Zoysiagrass should be aerified in early-to-mid summer.

Rolling

Rolling is not considered a necessary turf maintenance practice. Heavy rolling of saturated or clay soils in spring will cause soil compaction and increase soil moisture stress the following summer. This is why rolling is generally not recommended by turf specialists. However, rollers do have some usefulness in turf. Light rolling is effective immediately following seeding to insure good seed-soil contact. Rolling can also insure good sod-soil contact after sodding. Rolling may also help in other isolated occurrences such as severe mole damage or frost heaving. Rolling should never be used to correct surface undulations caused by improper grading. Water-filled rollers are usually available from rental agencies.

More information and mentioned publications are available at www.agry.purdue.edu/turf