

ACLP TURFGRASS MAINTENANCE

TURFGRASS DETHATCHING AND AERATION FOR LOW ELEVATION TURFS

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Turfgrass aeration and dethatching are two distinct cultural management practices which are used to promote a healthier, more vigorous turf. Turf is actually the grass and soil which comprise the "lawn" as we know it, it is important to manage the soil which indirectly affects the growth and well being of the grass.

Dethatching involves the mechanical removal of thatch. Thatch is a problem on most turf grasses sites. It consists of a tightly intermingled layer of dead and living tissues derived from leaves, stems and roots. Thatch is located between the green vegetation and the soil surface and thatch accumulates when turfgrass organic matter production exceeds its decomposition.

Small amounts (less than ½ inch) of thatch can be beneficial because it increases the turfs resiliency, improves its wear tolerance, and insulates it against soil temperature changes. When thatch layers exceed ½ inch, however, the disadvantages generally outweigh the advantages. The turfs tolerance to heat, cold and drought decrease with increasing thatch accumulation. Localized dry spots, scalping, disease, and insect problems often increase. As thatch accumulates, there is a tendency for root and rhizome growth to occur primarily in the thatch layer rather than in the soil. This result is a weakened, poorly rooted turf that is prone to stress injury and requires intense management.

Leaf clippings contribute very little to thatch accumulation. Dead and decaying roots, rhizomes, stolons, and shoots are major contributors to thatch since these structures resist decomposition.

To determine thatch accumulation, cut a pie-shaped wedge of grass and soil from the turf, remove it and measure **the organic matter that has accumulated. Measure the accumulation from several areas in the lawn, since thatch** is not always uniformly distributed. If this layer exceeds 1/2 inch, then need to be taken to reduce it !

Thatch Removal

Remove thatch during periods of active turfgrass growth. Remove thatch when at least 30 days of favorable growing conditions are anticipated following the process. This will ensure turfgrass recovery and minimize potential stresses associated with dethatching.

Dethatching of bermudagrass grass is often done before overseeding, which is INCORRECT. If done too late in the summer or early fall when temperatures are warm (above 90°F), dethatching may indirectly injure the turf. This is because the bermuda puts energy back into new growth, when existing growth should be normally slowing down and preparing for winter rest. In this case, the Bermuda is busy re-growing when it's warm, and does not store for the winter. This results in a weak Bermuda in the spring, causing a poor transition back to Bermuda. If dethatching is done LATE in the fall (often with overseeding) the bermudagrass stolons remain cut and damaged because it is too cold for them to re-root and grow. They slowly fade away in the winter, resulting also in a poor spring transition.

Thatch can be removed by hand raking or with a power rake. Hand raking is laborious and is only practical for small areas. Power rakes can be rented from rental shops, or the service hired from a professional lawn care company. Power raking devices (also called verticutters or vertical mowers) use rigid wire tines or steel blades to lift thatch debris and a small amount of soil to the lawn surface. The soil should be moist, not dry, for best results. Power raking wet soil tears and pulls the turf from the soil instead of slicing and lifting the thatch. Remove clippings and thatch debris immediately after dethatching.

After dethatching in early summer, apply a pre-emergence herbicide to prevent the potential encroachment of crabgrass. This application can be done in combination with fertilization (1.0 lb /N/ 1000 sq feet).

Minimizing Thatch Accumulation

Thatch accumulation can be minimized by using proper cultural practices.

Proper mowing frequency and height are the principle cultural practices that can be used to reduce thatching tendency. Mowing frequency should be dictated by the turfgrass growth rate. No more than one-third of the leaf blade should be removed with any mowing. If proper mowing frequency is maintained, clippings do not need to be removed. Turfgrass leaf clippings contribute very little to thatch buildup. They break down rapidly, and recycle nutrients when returned to the turf.

Apply fertilizers at rates and in programs that meet, but do not exceed, the nutritional needs of the turf. Excessive nitrogen applications may result in organic matter production rates that exceed breakdown and stimulate thatch accumulation. Avoid light, frequent irrigations. It is best to irrigate turfs deeply and infrequently, watering when the turf shows moderate signs of moisture stress.

Use pesticides only as needed. Thatch accumulation can be minimized by avoiding unnecessary use of pesticides because pesticide applications may affect desirable microorganism and earthworm populations.

Core cultivation (aerification) can be used to minimize thatch accumulation. Core cultivation is not as effective as power raking in removing thatch debris, but it is less injurious and disruptive. Soil cores are removed during the cultivation process. These cores can be allowed to breakdown and redistribute soil throughout the thatch. This uplifted soil helps to modify the physical structure of the thatch, making it a better growing medium. Soil incorporation also enhances thatch breakdown by improving physical properties of thatch and introducing microorganisms. Soil cultivation should be done once a year during the vigorous growing season for bermudagrass. Most turfgrasses growing on heavy clay or highly disturbed soils require annual cultivation to restrict thatch buildup. Remember that core cultivation is not a substitute for dethatching!

Core cultivation allows air, water and nutrients to penetrate the soil. This is especially important if soils are compacted. Better turf growth results from aerification due to the increased root growth which follows soil cultivation. Aerification can be done once a year on home lawn and commercial turfs when the turf is actively growing. Do not attempt to core cultivate if the soil is very dry, or poor penetration will result.

Thatch layer on top of “real soil”



*THATCH LAYER (from stolon and rhizomes).
Roots become “lazy” and root in the thatch,
instead of the soil.*