

# Thatch and Its Control

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Thatch can be described as a tightly intermingled layer of partially decomposed stems, roots, and some leaves of grasses which develops beneath the actively growing green vegetation at the soil surface. Stems and roots of turfgrasses contribute primarily to thatch accumulations, while turfgrass leaves contribute little.

## THATCH-INDUCED PROBLEMS

A thin layer of thatch, 1/2 inch, is desirable to add greater impact absorption on turfgrass areas, increase wear tolerance and insulate the soil from extreme temperatures. Excessive thatch accumulations (>3/4 inch) are undesirable because they decrease the vigor of turfgrasses by restricting the movement of air, water, plant nutrients, and other applied materials to the soil. During wet periods, thatch may act as a sponge and hold excessive amounts of water which can reduce the oxygen supply to the roots. During hot, dry weather, thatch may become dry and very resistant to wetting.

Turfgrass disease organisms and insects are harbored in thatch accumulations. Fungicide and insecticide effectiveness is reduced since the materials may not reach the pests.

Thatch may cause abnormal development of grass plants. Thatch accumulations are usually greater under high cutting management; hence, the grass stems may become elongated with the leaves forming at the top. Frequently, these leaves are mowed off and the lawn can appear brown, scalped, or off-color.

Mowing height is also affected by thatch accumulations. As undecomposed material builds up, the mower tends to ride on the thatch and does not cut at the desired height. If the cutting height is lowered in an attempt to overcome this problem, scalping and brown areas can develop.

## FACTORS CAUSING THATCH DEVELOPMENT

- Thatch accumulation in lawns is influenced by the following factors:
- Mowing height. In general, the higher the mowing height, the greater the tendency to produce thatch. Mow grasses for the specific height recommended for each variety and geographic region.
- Noncreeping, Colonial-type bentgrasses develop more thatch than some bluegrasses, perennial ryegrass, and fescues because of their vigorous growth habits. A higher lignin content in fescues, however, can lead to a slower decomposition of vegetation matter and increase in thatch accumulation.
- Never use creeping bentgrass varieties for home lawns because of the proliferation of creeping stems (stolons). Creeping bentgrasses are recommended only for specialized areas, such as golf putting greens.
- Crown tissues, stems, and roots are more resistant to decay than leaves and contribute most to

thatch development in all grass varieties.

- Nitrogen is required for growth and to stimulate bacterial decomposition of thatch. The other essential plant food elements, such as phosphorus, calcium, magnesium, and potassium, must also be present in the proper balance as well.
- Acid soil conditions (pH5) reduce bacterial activity which may result in slow stem and root decay, especially if calcium is deficient.
- Overwatering causes a reduction in soil oxygen and inhibits bacterial activity for thatch decomposition. Saturated root zones
- for extended periods will induce surface rooting and enhance thatch accumulation.

## **THATCH REMOVAL**

**Monitor the thatch depth.** Practice thatch removal on an annual basis if necessary. If thatch becomes too deep in the lawn (>2 inches), renovation may be the only answer. Normal thatch removal will not injure the lawn severely enough to necessitate reseeding.

**Timing.** Early spring is the best period for thatch removal, particularly if large amounts need to be removed. At this time all dead surface debris which accumulate throughout the fall and winter can be removed. Turfgrasses are partially dormant at this time and the least amount of injury occurs. If properly thatched, lawn grasses will recover quickly and exhibit their normal beauty when conditions are suitable for growth. If light thatch removal is all that is required, thatching can be done any time of the year.

Power rakes, rotary mower attachments, or other mechanically driven thatch machines are superior to hand rakes. Considerable force is necessary to slice or scratch into the grass mat and remove all the dead material. Less thorough jobs are done with hand rakes. Operate thatch machines across the turf in two opposite directions. Remove loosened material before changing directions.

Approximately 1/4 inch of thatch will be removed after going in both directions over the lawn. After thatch has been removed from the lawn, mow immediately at the recommended mowing height. Never increase the mowing height of lawn turf at any time during the season. There is no valid reason for changing the mowing height at any time during the year if the recommended height is practiced.

If thatch becomes unmanageable (over 2 inches in depth), it is best to remove all grass with a power sod cutter, cultivate the soil, and re-seed to desirable grasses.

## **SUGGESTIONS FOR THATCH PREVENTION**

- Mow at proper height.
- Maintain adequate fertilization programs for normal growth. Nitrogen is important to stimulate heavy populations of bacterial organisms, but do not overfertilize. A balanced program is essential. (See EB0482, Home Lawns.)
- Water thoroughly and infrequently, never light, frequent irrigations. Do not overwater.
- Check the depth of the soil and examine the soil moisture content frequently during the irrigation period.
- Aerate the soil with hollow-tined aerifiers if it becomes compacted or if water is not penetrating.
- Maintain proper pH levels. If the soil becomes too acid (5.5 or lower) light applications of lime (calcium) may be beneficial to aid in thatch decomposition. Use soil tests to determine this.

Good turfgrass management programs will help prevent thatch accumulations and maintain a healthy lawn. See EB0482, *Home Lawns*, for more details, or consult your local county extension agent.

