

EXCESSIVE THATCH CAN TURN LAWNS BROWN

As soon as hot summer weather arrives, we often start to see brown spots or larger areas showing up in many area home lawns. Is it an insect or disease problem? Is it a watering problem? Is it a cultural problem? From the lawn samples that I've been asked to check, the most common problem appears to be thick thatch.

What is thatch? Thatch is an interwoven layer of living and dead organic matter produced by grass plants. Accumulated thick thatch consists mostly of partially decomposed stems, roots, rhizomes, and leaf sheaths. These portions of the grass plant are more resistant to breakdown and decay. Leaf blades and grass clipping contribute very little to thatch since they break down quite readily, returning nutrients to the soil.

As grass grows, thatch normally develops between the green tops of grass plants and the soil surface. Some thatch is good for a lawn. A thin layer of thatch, one-half to three-quarters inch thick, provides a cushion that reduces potential soil compaction. Much like a pad beneath a carpet, a layer of thatch also increases the durability of a lawn. Thatch protects the grass from extremes of temperature and drought. It can also prevent some annual weeds from germinating and growing.

Problems arise when thatch gets too thick....thicker than three-quarters inch. Excess thatch becomes a liability because it restricts the movement of air, water, and nutrients into the soil and grass root zone. Thick thatch also makes a lawn more susceptible to insect and disease problems. As the thatch layer gets thicker, it's comprised of more and more roots. This means that fewer and fewer roots are reaching into the soil. The fewer the roots in the soil, the more likely the lawn will suffer from drought stress.

Another problem arises if thick thatch dries out during hot weather. The dry thatch becomes hydrophobic (resists wetting). The result is localized dry spots or areas popping up here and there in a lawn.

To determine if the brown spots in your lawn are related to a thick thatch problem, remove a two inch deep wedge from your lawn. Measure the thatch or brown spongy layer between the soil surface and the green grass plants. If the layer is greater than 3/4 inch, you have too much thatch.

CAUSES OF THATCH

Compaction and Failure to Properly Prepare the Soil

Roots can't penetrate compacted soil very well. Before a lawn is planted from sod or seed, it's imperative that soil be loosened by tilling and then settled with grading and irrigation. Even sandy soils can be compacted by construction equipment and traffic. Compacted soils lead to shallow roots and the development of thatch. While not a substitute for proper soil preparation, aeration can help relieve moderate amounts of soil compaction.

Mowing

The higher you mow, the greater the tendency to develop thick. Bluegrass and fescue lawns in our region should be mowed at a height of 1.5 to 2.5 inches, no higher.

Fertilization

Nitrogen is needed to assist the production of bacteria critical in the decomposition of thatch. However, excessive amounts of nitrogen, especially in the spring, encourages the production thatch. A balanced fertilizer program provides for adequate grass growth, as well as for the decomposition bacteria, without stimulating the over-production of decay resistant tissues.

Watering

Both frequent, shallow watering and frequent, excessive irrigation lead to grass roots growing primarily near the soil surface. With light frequent watering, roots only grow where they can get water. Over-watering leads to saturated soils and a reduced

amount of available oxygen. Roots need air, so they stay near the soil surface where they can get it. Over-watering also inhibits the decomposition bacteria needed for the decay of the thatch layer. (They need air too!) As I already mentioned, shallow roots lead to the development of thatch. The best lawn watering approach is to water more deeply, less frequently.

Grass Varieties

Generally, the more vigorous the grass, the greater the tendency to develop thatch. Bentgrass and vigorous varieties of improved Kentucky bluegrass develop thatch more quickly than older varieties of common Kentucky bluegrass. While not vigorous growers, fine fescue grasses have a strong tendency to develop thatch because their high lignin content makes them more resistant to decomposition.

SOLVING A THATCH PROBLEM

The best way to deal with thick thatch is to avoid it. The second best way to deal with thatch less than two inches thick is to remove it. Early spring (before mid-April in our region) is the best time to attack a thatch layer. Thatch removal is most effective when you use a power rack or vertical mower to tear or vertically cut thatch out of the grass.

[Note: If thatch is greater than two inches, you should consider removing all the grass and thatch with a sod cutter and then start a new lawn.]

To remove thatch with a power rake or vertical mower:

1. Set the blades or tines 1/8 inch above the ground when the machine is setting on a solid, flat surface.
2. Run the machine across the lawn in one direction. Remove the debris brought to the surface.
3. Make another pass across the lawn in a different direction. Remove the debris. You may want to consider additional passes, but you should stop when the machine starts to rip up chunks of grass, instead of the thatch material.
4. Mow the lawn at the recommended height.
5. Fertilize and water the lawn after dethatching to encourage recovery of the lawn.
6. Aerate the lawn with a power core aerifer.
7. Repeat this again the next spring, if excessive thatch still remains.

Since it would be very damaging to remove thatch during the warmer months of late spring and summer, the only approach available at this time of year involves getting water to penetrate the thatch and enter the soil. First, apply a wetting agent that will cut surface tension and aid water penetration through the water-resisting thatch.

Second, aerate with a hollow-tined power aerifier. If you have a choice of machines, the closer the tine placement and the deeper the tines, the better. As with dethatching, several runs across the lawn in different directions with the aerifier does the best job. Cores brought to the surface can be left there and broken up with mowing or you can remove them by raking.

If you check your lawn and thatch doesn't seem to be a problem, brown spots may be related to inadequate water, uneven irrigation, shallow or compacted areas of soil, disease or insect problems. Check out the possible causes. If you need help checking the thatch in your lawn, bring a four-inch square of turf with an inch of soil on the roots to the Kennewick Extension office (735-3551) in the Benton County Annex at 5600 West Canal Drive.