Answering the Most-Asked Questions About Thatch

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WITH GOLFERS’ increasing expectations for closely cut fairways, tees, and greens, creeping bentgrass use in this country and around the world has never been greater. From time to time, it is important to re-acquaint ourselves with management factors of bentgrass and bermudagrass and thatch development. Thatch control is one of the more important ones.

QUESTION: What is thatch?

In the Dictionary of Golf Turfgrass Terms, published by the Green Section, thatch is defined as a “tightly intermingled layer of dead and living parts (roots, stolons, shoots, stems, leaf tissue, etc.) that develops between the green vegetation and soil surface.

QUESTION: How much thatch is too much?

Generally, some degree of thatch is necessary and desirable. It depends. A modest layer of one quarter to half an inch helps the soil to retain moisture, the turf to resist wear, and provides resiliency in the sod. Concern arises when the accumulation exceeds one half to three quarters of an inch.

QUESTION: What factors contribute to thatch accumulation?

Several primary ones. Basically, thatch accumulates and becomes a problem when it develops more rapidly than natural forces decompose it. Factors like 1) frequency of mowing, 2) height of cut, 3) amount of traffic over the area, 4) excessive growth from fertilization, 5) type of mower used, i.e., floating versus rigid mowing heads, 6) type of grass, 7) use of certain pesticides, 8) clipping removal, 9) topdressing, aeration, and vertical mowing practices, 10) irrigation and drainage factors. There may be other reasons for thatch accumulation, but these are the primary ones.

QUESTION: Why is excess thatch undesirable?

A number of reasons. Excess thatch harbors insects and diseases. It also ties up pesticides, especially herbicides and insecticides, which should move down into the soil profile for maximum effectiveness. While a little thatch helps the soil retain moisture, too much (especially when it dries out) impedes the movement of water into the soil, contrib-
...but to such problems as isolated or localized dry spots. Grass growing in deep thatch is much more shallow rooted, which contributes to a number of problems ranging from increased winterkill, reduced drought stress, and a tendency for the grass to become fluffy, puffy, and prone to scalping by mowers.

The importance of deep rooting is well-known, but it was brought into clear focus last season in some eastern states where severe restrictions were placed on water use for golf course fairway irrigation, brought about by an extended drought. Thatchy fairway turf suffered most. Fairways with less thatch and with deeper rooting survived very well, surprising even the most optimistic turf managers. Bentgrass fairways survived well enough that the Grüners of thatch, but with the root system of the grass to become fluffy, puffy, and prone to scalping by mowers.

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The vertical mower should be set so that the rotating blades of the machine just make contact with the blades of grass and do not cut into the crown of the plant or the soil itself. At this very light setting, bent greens may be double cut (at a 90° angle) every few weeks during the active growing season, however, but not during periods of very high temperatures.

QUESTION: What are the best methods of controlling thatch on bentgrass or bermudagrass fairways?

Certainly the use of lightweight mowers (triplex or five-gang units) and the removal of clippings will help considerably in improving fairway quality. The very same practices and procedures used on greens and tees for thatch control will also work on fairway turf, but of course the scale must be much larger.

An aggressive fairway aeration program will break up the matted turf, relieve compaction, and bring up fresh soil cores that will serve as topdressing material. The more soil brought up the better. This is why more and more golf courses are using hollow-tine putting green-type aerators on fairways. It is slow and expensive, but it does the required job. Of course, conventional fairway aerifiers will do a good job if they’re used often enough. Several new pieces of fairway aeration equipment have been developed in recent years. Perhaps this is a sign of the times and a realization of the importance of fairway aeration and its resulting topdressing in thatch control.

Again, the use of hydrated lime several times a year (during cooler periods) at 100 pounds per acre will significantly contribute to thatch reduction. Mowing and fertilization practices, pesticide use, along with other measures, are all elements in the same game.

Vertical mowers on fairways are also of increasing importance. Indeed, deep vertical mowing of fairways does have a
place, particularly in the South, where it is used not only to slice through the mat and bring up fresh soil, but for preparing winter seedbeds as well.

In summary, thatch control on greens, tees, and fairways is within today's realm of turfgrass management. It requires an aggressive, persistent and planned program. The problem will not be corrected overnight, but like most problems in this business, it will yield to the experiences of the past, modern research, and the development of new, innovative equipment. Thatch — be gone.

(Top, left) In contrast, a turf with little or no thatch.
(Top, right) Grinding up the soil cores for fairway topdressing.
(Left) Traditional fairway aeration, two times over. Large holes that are slow to heal. Nevertheless, a necessary program.
(Above) Intensive springtime fairway aeration with putting green equipment.