JB COMMENTS

Types of Hydrophobicity Must be Considered

There is a need to change current thinking concerning hydrophobic turf-soil problems. The concept in the past has been to consider this problem as one single entity and to employ cultural-management strategies accordingly.

Actually there are at least three different types of hydrophobic problems associated with turf-soil situations. One problem is (a) **hydrophobic dry patch** caused by constituents from the mycelia of soil basidomycetes coating the soil-sand particles to create a relatively severe hydrophobic condition. The symptoms typically evolve initially as distinct patches. They are most common on high–sand content root zones. Other problems are (b) **general soil surface hydrophobicity** associated with a shallow surface layer of higher soil organic matter content in the upper soil profile, and (c) **turf thatch** of sufficient density and depth that a hydrophobic condition develops. The thatch may be partially decomposed, but usually has no intermixed soil present.

Typically, one of the more effective means of treating these various types of hydrophobicity has been the use of certain effective wetting agents. **Evidence is starting to evolve that certain wetting agents may be effective only on one or two of the three major types of hydrophobicity just listed.** It's possible that other cultural practices related to the prevention or control of these types of hydrophobicity also may vary by type. Thus the need in problem diagnosis to recognize that there are different types of hydrophobic turf-soil problems!

RESEARCH SUMMARY

Lawn Chemical Effects on Soil Organisms

Turfgrass growth is strongly interrelated with the health of the soil system, including its biological components. Questions have been raised about the effect of lawn chemical treatments on the biological components of turfgrass soils. An ongoing study is under way at Michigan State University to assess the biological status of soils that have received eight different commercial treatments typically used in lawn maintenance operations. The effects of these treatments were compared to an untreated control turf, plus an adjacent cropland area. Direct counts were made of bacteria and fungi using fluorescent microscopy and computerized image analysis, as well as assessments of carbon and nitrogen mineralization potentials and carbon-to-nitrogen ratios.

The first year data reveal that the turfed areas exhibited on the order of two to three times the mineralization potential for both carbon and nitrogen compared to that on adjacent cropland. Furthermore, **no significant differences in carbon and nitrogen mineralization potentials were found between the untreated turf plots and those that received various chemical lawn treatments which included an all-organic program.** This investigation will be continued in the coming year, with the monitoring of earthworm populations and the decomposition of organic matter being added to the assessment techniques. **By J.E. Ravenscroft, Jr., E.A. Paul, R.R. Harwood, and P.E. Rieke, Department of Crop and Soil Sciences, in 1998 Michigan Turfgrass Field Day Report. 22 pp.**

ASK DR. BEARD

Q *What should my strategy be in terms of cutting height during the late autumn period?*

A **Raising the cutting height during the last few weeks of growth prior to entering the winter dormancy period is beneficial for most turfs.** First, the higher cutting height allows greater leaf area to support photosynthesis and the production of carbohydrates to be accumulated for needed winter hardiness. The result is better tolerance to winterkill stresses such as direct low-temperature kill. The higher cutting height also provides carbohydrates needed to replace roots that may have been lost during the summer. Furthermore, the higher cutting height results in a greater aboveground canopy biomass, which functions as an insulation zone against direct low-temperature kill of the grass crowns and also reduces damage from winter traffic stress on dormant turfs, which have minimal recuperative ability.

A potential negative is allowing the grass to grow too high, so that it tends to lay over as a mat. In these situations the potential for winter diseases such as Typhula blight (gray snow mold) and Microdochium patch (pink snow mold) is increased.

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