

Thatch Control Important In Overall Turf Management Program

Recent research indicates that some pesticides may have a marked effect on thatch accumulation. As reported in the Agronomy Journal, R. W. Smiley, Ph.D., Assistant Professor of Turfgrass Pathology at Cornell University, with research support from M. M. Craven, conducted a study to determine the effects of fungicides on thatch and pH.

After testing 14 fungicides and one nematicide on Kentucky Bluegrass turf through three seasons of application, Dr. Smiley concluded that different fungicides induce significant variations in thatch accumulation, with some spurring significant accumulation while others cause little or no accumulation.

"Our results indicate that decomposition of thatch was possibly impeded through the inhibition of microbial activities by unfavorable pH environment and/or by direct toxicity of the fungicides", Dr. Smiley explains.

Dr. Smiley says that decomposition of sulfur-bearing fungicides contributed sufficient acidity to inhibit the decomposition of thatch and these acidification processes explain the magnitude of thatch accumulation in most instances.

"In this study, the combined application of ethyl thiophanate and thiram contributed the highest sulfur amounts. It would require about three pounds of lime per 1,000 square ft. per year to neutralize the acidity contributed to soil by this fungicide program", Dr. Smiley comments.

Thatch depth measurements where the combination of thiram and ethyl thiophanate were applied showed a thatch depth of 18.4 millimeters and a pH level of 5.7. Non-treated control grass showed a 6.3-millimeter thatch depth and a pH of 6.3.

But, Dr. Smiley points out, acidification is not responsible for thatch accumulation in plots treated with nonsulfur-bearing fungicides, which displayed thatch depths of 13.8, 17.0 and 16.1 millimeters, respectively, while showing pH levels above 6.0.

"For these treatments, it appears that direct toxicity towards the microflora is more important than indirect suppression through acidification of soil", he contends.

In contrast to these fungicide treatments resulting in significant thatch accumulation, turfgrass treated with other fungicides such as cycloheximide (Acti-dione TGF), cycloheximide + quinterozone (Acti-dione RZ), captan (Captan), anilazine (Dyrene) and chlorothalonil (Daconil 2787) showed minimal thatch accumulation and pH levels not significantly different from the check areas.

The Acti-dione TGF-treated turf had a thatch accumulation measuring 2 mm. and a pH of 6.3; Acti-dione RZ-treated turf had a thatch accumulation of 2.8 mm. and a pH of 6.5, compared to a thatch accumulation of 6.3 mm. and a pH of 6.3 for the non-treated control turf. Dr. Smiley says that too often fungicide choice is made only by taking immediate cost and target pathogens into consideration, without considering the long-term effects which the fungicide may have.

"The long-term effects of these fungicides are far more important to the overall economy of management programs and to turfgrass quality than the short-term cost and fungitoxic-spectrum considerations", Dr. Smiley reports. He stresses that costs to remove thatch and to neutralize soil acidity "are likely to exceed differences in costs of fungicides. "Whenever possible, turfgrass managers should attempt to utilize the most economical long-range maintenance programs", Dr. Smiley concludes.

For more information contact LOREN E. BYERS, THE UPJOHN COMPANY, BUILDING 190, KALAMAZOO, MICHIGAN 49001 616/385-6658.