



## Roch report

by Roch Gaussoin, Ph.D.

# Punching a hole vs. pulling a core

**It is truly amazing** how many turf cultivation devices and techniques are available to professional turf managers. Turf cultivation, while often referred to as a secondary cultural practice, is critical in high-traffic conditions to sustain turf growth and function.

It is not feasible to cover all aspects of cultivation in a single column. Instead, I want to concentrate on greens and the debate over the merits of solid vs. hollow tines in managing soil organic matter (SOM). Research recently completed at the University of Nebraska indicated that solid and hollow tine cultivation were equal in their capacity to manage SOM. The research also showed that doing no tine cultivation resulted in similar results as either solid or hollow tine cultivation.

Now, before you wonder what is in my coffee cup besides coffee, let's take a closer look at how this research was conducted. The study site was a USGA creeping bentgrass green over 10 years old. Prior to the study, the site was verticut and topdressed every 7-10 days and core cultivated with ½-inch tines twice a year. No visible layering was evident. The average annual sand application before the study was 19-22 cubic feet/1,000 square feet. Treatments included solid, hollow or no tine cultivation twice a year and five less invasive cultivation (LIC) techniques (HydroJect, PlanetAir, bayonet tine, needle tine and no LIC), done every 14 days from June through August.

All possible LIC and tine treatment combinations were performed for a total of 15 treatments. The study was conducted for two years. To ensure the results could be attributed to the cultivation treatment and not the quantity of sand applied, all treatments received 22 cubic feet/1,000 square feet/year of topdressing. So even the no tine/no LIC treatment received the same quantity of sand as the two-times-per-year hollow tine with needle tine LIC.

As you can imagine, the topdressing frequency had to be adjusted to get sand into plots with no cultivation above light verticutting. This resulted in topdressing every 3-5 days vs. every 16-18 days for the more aggressive cultivation treatments. The bottom line, however, is that it is the quantity

of sand more than the cultivation technique that resulted in equivalent SOM. Further, there was no difference in the amount of SOM or the frequency of topdressing between solid or hollow tine cultivation during both years of the study.

So back to the original question: punch a hole or pull a core? If your greens have a uniform sand profile with minimal or no layering to the depth of the tine device, then punching a hole makes sense. Pulling a core makes sense if there is visible layering either from variable topdressing frequency, contamination from the lower profile of a push-up green or if the cultivation needs to do more than simply manage SOM.

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I have had the opportunity to present this research to a number of superintendents at various conferences across the U.S. and Canada. It never fails that several people have come up to me after the presentation and said, very quietly, that they haven't pulled a core in years ... food for thought.

For more information on this study, as well as a wealth of other information, go to <http://turf.unl.edu>.

**GCM**

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