



the dirt on COMPOST

**Topdressing with compost
may give your turf maintenance
program a boost.**

BY JOHN TORSIELLO

Some of the best material to topdress fairways and other portions of a golf course may be right under a superintendent's feet... literally.

Research has shown that using compost gathered in a variety of ways, including grass clippings and other routine maintenance activities, can have positive effects on a variety of grass strands, especially fairway-cut creeping bent grass and *Poa annua* strands. A recent study by Ohio State University researchers and industry experts, among them Dr. Michael Boehm and Dr. Joseph Rimelspach, demonstrated that color and foliar-nitrogen concentrations were positively affected for up to 50 days after topdressing with a locally available compost sludge. The report cited research at Ohio State and elsewhere has documented the disease-suppressive qualities of some composts and that composted material can improve soil fertility and physical structure.

Most composts used by superintendents are produced by piling fresh organic matter and stacking the material, which stimulates decomposition by microorganisms. As microbes involved in the process degrade organic material, they generate a great deal of heat, which, in turn, kills or inactivates many weed seeds, as well as plant, animal and human pathogens. The microbes exhaust the available carbon and nitrogen, the composting slows and the pile begins to cool. Other microorganisms, including wind- and rain-borne types, may then colonize the pile. During the final curing stage, microbes proliferate, including some that are capable of suppressing plant pathogens such as pythium. After compost cures adequately, producers typically screen it and it is then ready for incorporation as topdressing.

Dr. Tom Samples, extension specialist of turfgrass

management at the University of Tennessee, is a proponent of topdressing turf (but not usually golf greens) with appropriate organic materials, such as high-quality, well-decomposed compost, in certain situations and immediately after core aeration. He says the suitability of heavy clay soils for maintaining turfgrasses may be improved by routinely core aerifying and lightly topdressing with a high-quality organic material.

He cautions, "Unfortunately, some organic materials contain a high level of soluble salts and can be detrimental to turfgrass growth and persistence. This can be especially problematic in areas of the country that receive very little rainfall."

He adds that depending on the source(s), organic matter may also contain significant amounts of heavy metals and toxins that can be very detrimental to turfgrass plants. "One goal when using compost as a topdressing material is to increase the organic matter content and water-holding capacity of the root zone soil below the thatch layer. In order to do so, the topdressing material must be moved below the thatch layer, which magnifies the need to core aerify just before topdressing."

Dr. Samples cautions that topdressing turf with organic matter does not ensure that the population of beneficial microorganisms in the soil will rise.

Dr. John Soroachan, assistant professor of turfgrass science at the University of Tennessee, says there are several types of compost materials that can be used for topdressing turf, including decomposed organic waste products, poultry, and yard waste materials. "However, it is important to make sure the compost materials are fully decomposed (beyond the thermophilic stage)." In addition, the compost should be ground and screened to remove any large debris. Finally, composts may contain toxins. Therefore, it is important to know the source and history of the compost product.



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**— DR. TOM SAMPLES,
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The only agronomic drawbacks he envisions would be if superintendents were to topdress with a compost material over a sandy rootzone. This could potentially cause a negative layering affect; where, you would introduce a finer textured layer over a coarser textured layer. “This would restrict water infiltration and drainage that would cause increased disease susceptibility, and decreased rooting and turf density.” The cost, including compost purchasing/production, delivery, and equipment and labor used in the application, may be a consideration.

How much compost is used and how often depends on budget, mowing height and benefit expectations. “You never want to apply too much topdressing where it cannot be incorporated into the turf canopy,” says Dr. Samples. “Topdressing with a compost material, as with sand topdressing, should be done when the turf is actively growing.”

Scott Kinkead, executive vice president of Turfco Manufacturing, says it is important to make sure compost is not introducing a new kind of seed into the turf.

“It needs to be a quality, consistent product that has been tested so you’re not introducing something new to your greens profile,” Kinkead says.

It is also crucial to make sure there’s a consistency to the material and chemical properties of the compost.

“The word compost is pretty far reach-

ing--it can go from someone who is supplying a consistent, granular compost to someone who is getting compost from a municipality,” he says. “There’s a wide variety of meanings with the word compost. There can be a lot of variation.”

Kinkead says his company fields calls regularly from individuals “asking if we can spread a specific kind of compost, and yes, our equipment can spread most of it. But we always tell people they need to know if it’s going to be consistent from year to year. Our patented chevron belts can handle literally any kind of compost material.”

There are a multitude of options when it comes to compost. “It covers a very wide spectrum, so if you’re integrating it into your golf course you need to define it clearly,” says Kinkead. “The last thing you want to do is start using something and have the particle sizes changed on you. You want to make sure you use the same size particles. You don’t want to create layering because of different-sized particles. For example, if you start throwing different sized particles onto the course, they won’t integrate well into your profile. If you have USGA spec’d greens, you want to be careful.”

As for how much compost should be used in topdressing and when it should be applied, Kinkead says it depends upon the composition of the compost material and how it fits into a maintenance program.

Compost isn’t rigorously tested and

monitored like fertilizer or synthetic chemicals. “The supplier needs to show they are providing a consistent product. Compost can change seasonally or due to weather patterns or the diet of animals. You just have to find something that has been rigorously tested before adding it to your program. We can spread anything, it’s just a matter of whether you want that ‘anything’ on your golf course.”

Scott Phelps, head superintendent at The Golf Club at Newcastle in Washington, has conducted several trials using different sources of compost as a topdressing. He’s tested poultry waste and food waste products on his course’s practice facility, tees, divot mix boxes, highly compacted areas, and areas that typically show drought stress in the summer time.

“I have also tested compost products more as a fertilizer,” Phelps says. “These would include a pelletized poultry material, and liquid food and fish waste products.”

He concludes, “As a topdressing material it increases our CEC, it holds more water, it provides nutrients for the microbial population and seems to improve the overall soil structure. We have noticed slightly quicker seed germination and better color and growth of new seedlings.”

He says cost is usually the biggest drawback in the process. “This is especially true if you are using the compost in large enough quantities for it to replace syn-

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Topdressing Compost Golf

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thetic fertilizers. In some cases the odor from the products prevents us from using them. I have not been bold enough to use compost as a topdressing on greens because of the layering effect that it may cause."

Phelps believes there are many materials that can be considered a useable compost, including animal and human wastes, food wastes, and plant wastes. "They are packaged and formulated in many different ways. You can choose the best method for you based on why you are using the compost. Is it being used in flower beds around the clubhouse or as a topdressing on tees?"

When Phelps employs compost as a topdressing he uses 1/8 to 1/4 of an inch of the product in raw form. "We aerate first and then apply and drag in. We also use a 80/20 sand to compost ratio with 1/4 inch screened compost when we aerate and top dress our tees. We also use this in our divot mix boxes and bottles."

Phelps says the practice is not without its concerns: layering, odor, and salt content being the biggest three. "You have to make sure you are using a well-aged material and are testing the material at a laboratory prior to use." He says that A1 Organics of Colorado has developed a classification system for composts that he uses when determining if a compost is suitable for turfgrass or in planter beds. "I have the compost tested several times a year because it is amazing how much the same compost can change

from one load to the next."

The Meadows of Sixmile Creek in Waukegan, Wis. has had significant success using Purple Cow Organics. Purple Cow Organics has seven composting sites processing yard trimmings in the southern Wisconsin area. Beginning with fairways and tee boxes in 2008 and 2009, within three years The Meadows of Sixmile Creek was able to replace 100 percent of its synthetic fertilization and 95 percent of its chemical herbicides.

Rob Schultz, superintendent at The Meadows of Sixmile Creek, says Wisconsin's ban on phosphorous fertilizers was one of the reasons the course stopped using synthetic, granular fertilizers, "which have coatings, and tend to release other ingredients."

Topdressing with a Turfco CR-10, compost is applied in the spring and again in the fall at a rate of three to four cubic yards of compost per acre. The compost has been effective in providing the nutrients once supplied by fertilizer, at lower cost, Schultz says. "It took two or three years to get enough material in the soil, and then we started seeing results. One of the reasons maintaining healthy course grass is challenging is that in most areas the bent grass is cut to a half-inch height, which is shorter than a traditional, bluegrass lawn," he explains.

Now used on fairways, roughs and tee

boxes, the course superintendents also use a sand-compost blend on greens after they are aerated. The compost applications are further supported by a comprehensive liquid biological program using compost teas or extracts as the delivery vehicle for a range of additional soil amendments.

Says Schultz, "We've seen a reduction in thatch, and an increase in water holding capacity, the benefit especially evident in the severe drought of 2012. There is no question that healthier soil has resulted in healthier turf."

When developed in 1995 the area around the golf course included several farmed wetlands that were not functioning ecologically. There was a tremendous interest, says Schultz, in reducing runoff to improve water quality and fish habitat, in addition to controlling erosion. These areas have been mitigated into what are today working wetlands, and the neighboring property is now a nature refuge.

"The one thing that must be ensured; you have to use good compost. Aerobically maintained, fully mature compost will be weed seed and pathogen free. It will have a carbon to nitrogen ratio that 'gives' rather than 'takes' from the soil."

It's available, effective, has few serious drawbacks, and is, well down to earth. **GCI**

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