Windy City Biosolids/Compost

Summer 2022

EQ Compost Appreciation at the Riverside Farmers' Market

Metropolitan Water Reclamation District of Greater Chicago (MWRD) Commissioner Eira L. Corral Sepúlveda attended the Riverside Farmers' Market on Saturday, June 4, 2022.

One of the booths was occupied by the Old Gaffer's Garden, a committed EQ Compost user. The Old Gaffer explained to Commissioner Sepúlveda that he has tried other types of compost, but for him, no other compost stands up to the benefits of EQ Compost on his urban farm.

Commissioner Eira L. Corral Sepúlveda visits with a marketgoer at the Old Gaffer's Garden stand at the Riverside Farmers' Market.

The Mighty Microbe

Microbes, though a small quantity of soil mass, play a vital role in the global carbon (C) cycle, which is important for climate change. When microbes access organic C: do they respire it — emitting it directly to the atmosphere or do they resynthesize it into another form of organic matter to have the C kept in the soil? If the latter, there is a chance that the C in the cycle might be sequestered in soil for decades or longer. Thus, the amount of organic C that microbes can assimilate into their biomass is critical in determining whether soils, the planet's main pool of C, will absorb or emit C.

So, an important question for agricultural scientists is can we drive the microbes to work more efficiently, where more C goes to microbial growth, and less C goes to microbial respiration?

Guanglong Tian, MWRD Principal Environmental Scientist, and his group focus on microbial physiology relevant to soil C sequestration. The conversion of natural soils (grassland, forest) into agriculture caused environmental stress to microbes. Microbes have switched from the growth-dominant mode in the uncultivated soil to survival-dominant mode in the today's agricultural soil as the result of adaptation to the environmental stress. The cost of this change is that more C goes into the atmosphere. Guanglong conceived the concept that microbes in agricultural soil needs to be health-repaired and become C-use efficient in order to have soil C sequestration for most cultivated soils in the world, and he and his group believe municipal biosolids can do that.

The use of biosolids at MWRD dates back to the 1970s for mine land (*Continued on next page)*

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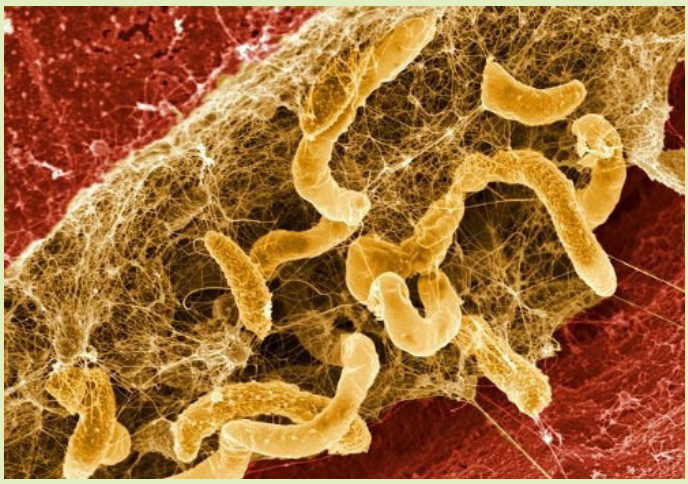
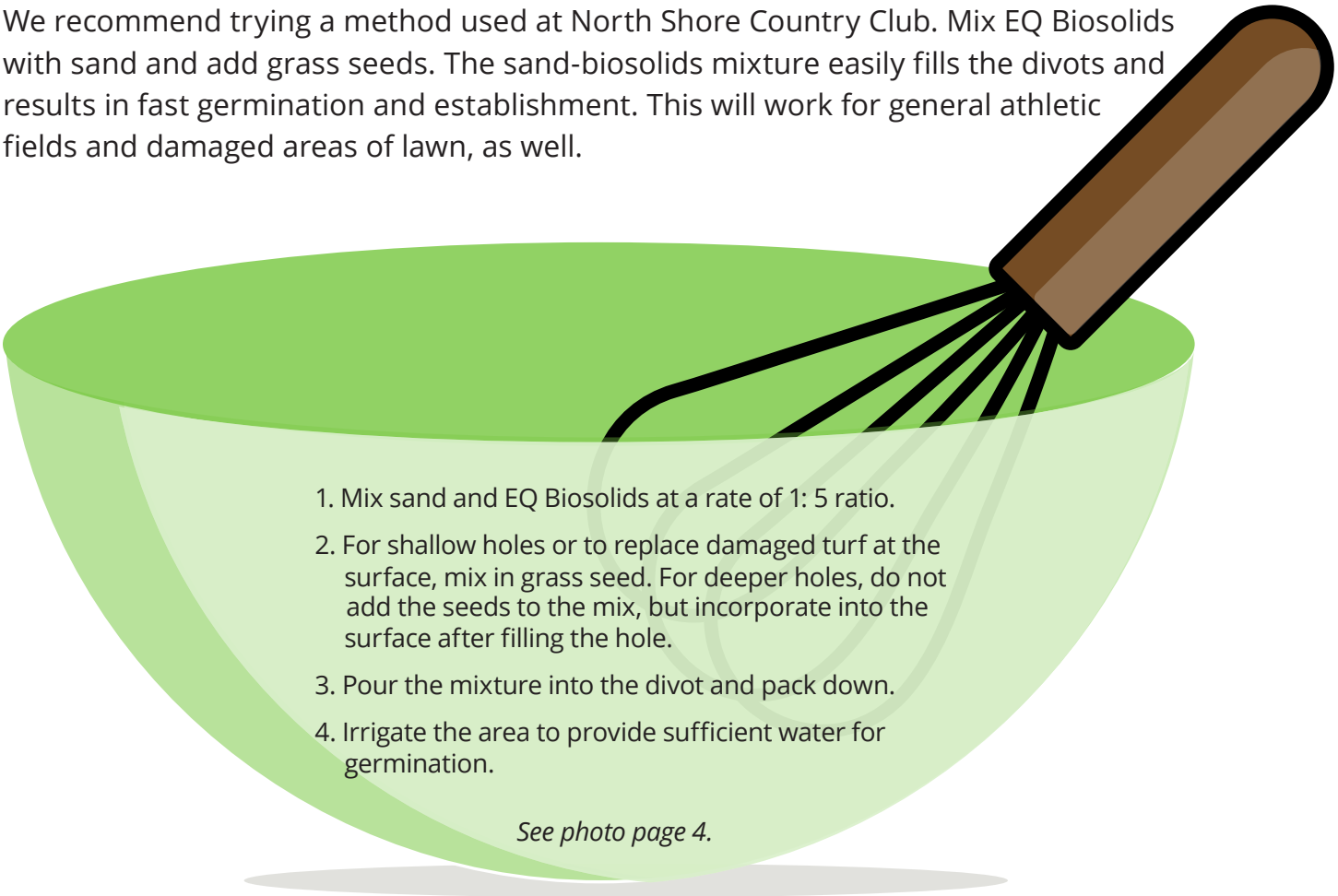
The Mighty Microbe, *continued*

reclamation in Fulton County. Years of tests from production fields at Fulton County, where one million tons of biosolids were used successfully for mine land reclamation from 1970s - 2000s showed change for microbes towards greater C use efficiency, besides other benefits for soil chemistry and physics from the application of biosolids. Microbes in biosolids-amended soil have relatively less C going to respiration and more C going to microbial biomass growth. Fields amended with biosolids possess a high rate of retaining crop residue-C in soil, and less C emission, which is definitely needed for achieving global net zero emission by mid-century.



Try this Recipe for Divots!

Golf courses are continuously pocked by divots in the fairway. These scars on the playing surface can reduce the aesthetics of the course and negatively impact play. Filling the holes and seeding for rapid turf replacement is important for maintaining a high-quality course. We recommend trying a method used at North Shore Country Club. Mix EQ Biosolids with sand and add grass seeds. The sand-biosolids mixture easily fills the divots and results in fast germination and establishment. This will work for general athletic fields and damaged areas of lawn, as well.



1. Mix sand and EQ Biosolids at a rate of 1: 5 ratio.
2. For shallow holes or to replace damaged turf at the surface, mix in grass seed. For deeper holes, do not add the seeds to the mix, but incorporate into the surface after filling the hole.
3. Pour the mixture into the divot and pack down.
4. Irrigate the area to provide sufficient water for germination.

See photo page 4.

Sustainable Landscapers' CORNER

Dan Dinelli

Dan Dinelli has been a golf course superintendent at North Shore Country Club in Glenview, Illinois for nearly 40 years.

Dan Dinelli

North Shore Country Club in Glenview, IL

Dan has served on industry committees, authored numerous educational materials and research findings, and has received sustainability awards, including the Metropolitan Water Reclamation District's Biosolids Beneficial Use Award and 2021 Sustainable Landscaping Award.

In attempts to reduce the input of chemical fertilizers and fight pests without harmful chemicals, Dinelli has experimented with and continuously used Biosolids and EQ Compost, extracts from vermicompost, biochar, and compost made of leaf mulch and brewing waste. Through Dinelli's leadership, North Shore Country Club is growing the field of sustainable golf course management. He is transforming the golf course into a vibrant sanctuary for golfers and wildlife alike.

Dinelli is far more than a golf course superintendent. He is an innovator and scientist, experimenting with new methods of improving turf performance while reducing the impact of North Shore Country Club on the local environment. He developed an innovative drainage system to capture and reuse rainwater, reduce nutrient runoff, and improve water quality. In fact, he has been turning the image of a sterile green landscape around by reducing chemical inputs and increasing habitat for pollinators, birds, and amphibians.

MWRD: What are some ways you recommend using Biosolids and EQ Compost?

Dan: Adding it to the seed mix for turfgrass, topdressing, establishing trees are all the ways to use it.

MWRD: Dan, what is the purpose of using different types of compost?

Dan: I developed systems to inoculate areas of the course with microbial populations, particularly fungi that do not typically thrive in turfgrass but help the plants access nutrients and suppress disease. The combined leaf mulch and brewers waste provide certain fungi that grows in forests but is not commonly found in turfgrass.

MWRD: What is the benefit of using EQ Compost?

Dan: I use EQ Compost as a soil amendment to feed the soil, not the plants. There's something about [EQ materials] that help those microbes thrive. I think they provide the right C:N ratio so that the microbes are breaking down thatch. Take a look at how little thatch there is on the fairway!

MWRD: The way you describe the soil is fascinating. You talk about it like a system. Are you a soil scientist?

Dan: [Laughs] It is a system much like the human body. It needs to have a healthy balance of "good" microbes. Many people see a lawn or athletic field and think that the best thing to do for it is to add fertilizer and herbicide. I add food for the soil rather than food for the plants. The soil is what supports a robust turf that is more resistant to drought and other stresses.

Dinelli showed me a shed where pumps, injectors, and meters were housed. His system of irrigation is optimized continuously to adjust the pH of irrigation water, balance nutrients, and conduct some of his lesser-known experiments on perfecting turf. He points out one of his meters and explains that he's able to deliver the right amount of nitrogen so that the turf greens up like it does right after a good thunderstorm with a lot of rain and lightning, which is a natural supplier of nitrogen.

MWRD: Do you actually see a difference in the turf color after lightning?

Dan: We do! Except where we applied EQ Compost. That area is already fully green.

MWRD: What is your advice for superintendents or other turfgrass managers who are not sure about using EQ Biosolids or not sure where to start?

Dan: Start a trial in an area to see the results for yourself and do this more than once. One trial will not give you the full picture.

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North Shore Country Club in Glenview, IL, *continued*

On the left, a divot newly repaired with a mix of sand, EQ Biosolids, and seed. The right photo is a fairway at the club that reflects the care and innovations that Dan Dinelli uses in his turfgrass maintenance.

Beyond creating ways to keep his turfgrass healthy, he is also improving wildlife habitat on the course through inclusion of a small pond attractive to amphibians and birds, native plants in the rough, and protection of long-standing trees. In fact, the course is home to a 200 year-old oak, which supports many birds, insects, and other wildlife. Area universities have established research projects on the course to study its support of wildlife.

EQ Compost Demand is High

Trees from MWRD's Restore the Canopy program are placed in containers full of EQ Compost and covered in woodchips in preparation for establishment at North Shore Country Club.

A dumptruck refills the empty site outside of the Stickney Water Reclamation Plant on June 16.

Over 240 loads of EQ Compost have been delivered to the Bring-Your-Own-Bucket piles since May 1. This popular program draws residents to the District plants daily to pick up free compost. Piles are quickly depleted and regularly refilled. The Stickney Plant is filled most weekdays. Egan, Hanover Park, and O'Brien Plant in Skokie are typically filled on Tuesdays and Thursdays. We received over 300 residential orders for delivery of compost within the first week of compost season, so please be patient as we fill orders. You can continue to place delivery orders for 10 cubic yards through October, contingent upon material availability.

For more information on the use of EQ biosolids or to include them in your projects, please visit our website at mwrd.org/biosolids or contact:

Theresa Johnston, PhD, *Senior Environmental Soil Scientist*
Monitoring & Research Department, Biosolids Utilization and Soil Science
6001 W. Pershing Road, Cicero, IL 60804
Phone: 708-588-4066 Email: johnstont@mwrd.org