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BIOSOLIDS DIGEST

PUBLISHED BY THE WESTERN LAKE SUPERIOR SANITARY DISTRICT

FIELD GREEN® The wiser fertilizer™

GPS/GIS Helps Spreading Accuracy

This spring, the WLSSD land application team began using new GPS (Global Positioning System) and GIS (Geographic Information System) technology to spread Field Green® fertilizer. These systems enable us to make and use detailed maps while spreading. The new GPS unit is the Trimble R2 (pictured above). This receiver attaches to the front of the tractor and relays information to a tablet or smartphone for the driver—providing immediate feedback and accuracy (within inches). While it may not have the capabilities of R2D2 from *Star Wars*, the combination of precision and instant feedback makes the new setup a powerful force. Dave Reuer often drives the tractor and can already tell a difference after a couple months of use. Kevin Shea, Lead Biosolids Operator agrees, saying, "The new GPS system is very user friendly. It's extremely helpful having all the information in the palm of your hand."

Ensuring fertilizer is spread precisely is an important part of nutrient management. We want the nutrients where they will be taken in by plants and employ setbacks to reduce risk of runoff near waterways, wells, roads, and homes. Our permits from the MPCA require a 100-foot setback from grassed waterways and a 200-foot setback from ponds, lakes, streams, private homes, and wells. The new Trimble R2 helps us maximize coverage while staying within safe boundaries.

The Trimble R2 can connect directly to multiple devices so information can be updated in real time. In the past, if a change was made to a spreading location, the GPS unit could only be updated at WLSSD. Now, updates can be made in the field and updated across all devices. Mapping information can quickly be sent from employees in the fields to staff at WLSSD offices and vice versa. "I can look up field information on demand versus going back to WLSSD and looking it up," said Shea.

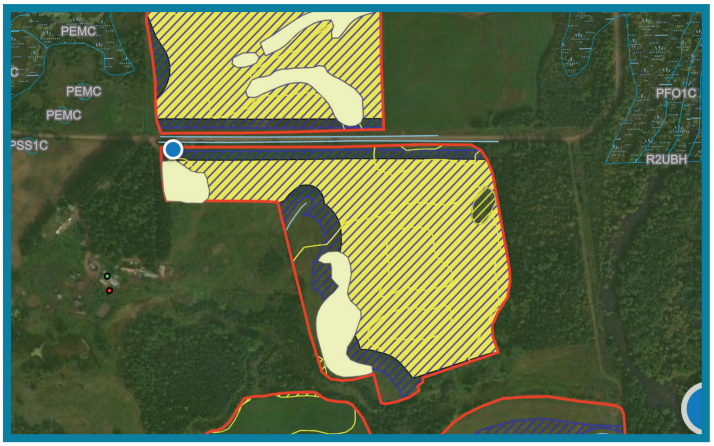
Increased map data storage is another benefit of the new system. Previously, we could only store mapping information for about three fields at a time. Now, maps from all sites are available at all times on all devices. While this may not be critical when spreading Field Green®, this is a huge improvement for soil sampling. With GPS and all maps accessible on a smartphone, staff can take samples from many more fields in a day and ensure they are sampling within permit boundaries. This makes the soil samples more reliable for calculating spreading rates of Field Green® fertilizer for each site.

The GPS system also has 3D mapping capabilities that aid in determining field slopes. Currently, we calculate field slopes using rise over run calculations, which give an overview of slope for the field. Our new mapping system will calculate specific slopes throughout the field as we drive. This will help ensure biosolids are applied as designated by our permit.

NEW THIS DIGEST

Let us till for you!

A friendly reminder that we can incorporate biosolids into the soil after it has been applied. Biosolids can be incorporated on fields with slopes up to 12%, so this may qualify more of your land. We use our discing equipment, so this can be a great option to consider if you are planning on discing your field.



A field map as seen with GIS software from the tractor, a phone, or computer.

Updates from Past Biosolids Digests

Drought

Drought conditions have impacted farms throughout the U.S. in recent years. How did our region's record snowfalls impact drought levels? Thankfully, the snowpack helped reduce drought in our region this spring. In fact, many fields took longer than usual to dry out this year, and road bans were lifted later than usual. April and May spreading of Field Green® was delayed. As of mid-May, all WLSSD regions were out of drought conditions but if dry weather continues, it is likely drought will return.

Energy from anaerobic digestion

Field Green® biosolids are the product of anaerobic digestion in which bacteria break down solids from wastewater treatment and produce methane. This process occurs in two different high-temperature phases: ~10 days at 130° F and then ~15 days at 100° F. The captured methane is currently combusted in boilers to heat WLSSD facilities and processes. New generators arrived this spring and, once installed, will convert the methane into electricity. WLSSD anticipates a reduction in the electricity we purchase at WLSSD by 30%—50%.

Fertilizer prices

Commercial fertilizer prices are still sky-high. As mentioned in last summer's article, fossil fuels are required to produce and transport commercial fertilizers. Higher energy costs continue to contribute to higher fertilizer prices. Inflation and the Russian War in Ukraine have also impacted commercial fertilizer prices. Field Green® remains a cost-effective option when considering your nutrient needs.

Still looking for winter spreading sites

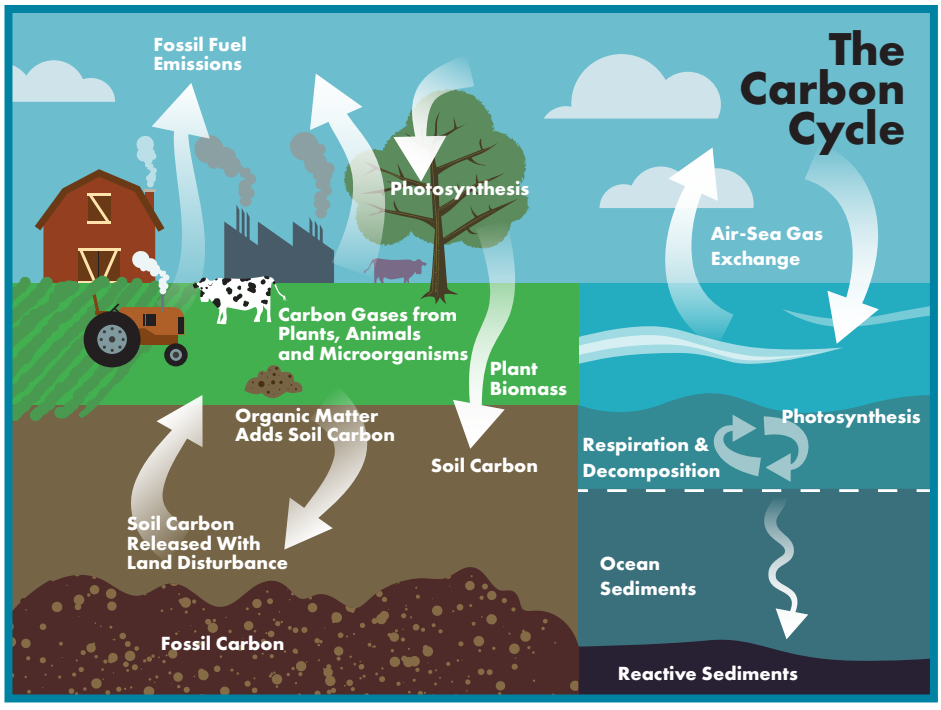
While our schedule for land application during the growing season is booked until the 2024 growing season, we have availability for winter application in Minnesota. State and federal regulations are more strict during winter months in order to protect surface water quality. To prevent biosolids from moving off of fields with spring run-off, a suitable field must have <2% slope. Contact us to find out your eligibility.

ST Paper and biosolids production rate

Field Green® production decreased since the closing of Duluth's Verso paper mill in 2020. Recently, ST Paper took over the facility and is now operational. Their production method is different than Verso's so it is difficult to know exactly how biosolids production will change. However, our 2022 biosolids production total increased from 2020 and 2021 levels.

Storing carbon with Field Green®

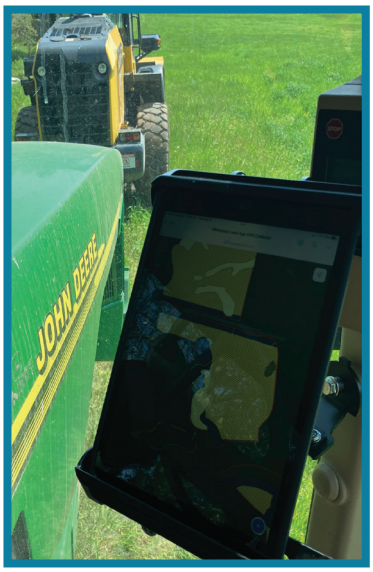
Field Green® biosolids are a great way to add carbon in the form of organic matter back into the soil. Increased organic matter can improve water retention in soils, lessening the impact of drought conditions.



Introducing New Land Application Staff

Tyler Mattson

Tyler is a new land application operator. He started work for WLSSD at the Materials Recovery Center (MRC) in 2017. The MRC is a facility where the public can bring materials to dispose of like mattresses, furniture, electronics, etc. Tyler enjoyed seeing the wide range of material that was brought there and appreciated that much of it was diverted from the landfill. Tyler feels at home in the new position helping with the land application of biosolids. At home, he enjoys planting food plots on his family property. He helps disc in the spring and chop corn in the fall at his sister's farm near Ellsworth, WI. Farming is familiar to Tyler, and he enjoys driving around the countryside while delivering Field Green®. In his free time, he enjoys all kinds of hunting and fishing. The next time you see a boat on Lake Superior, it might be Tyler trolling for salmon and lake trout.



A view from inside the tractor looking at the GPS unit and the GIS maps on the iPad.

Erik Johnson

Also new to helping the Land Application team is Erik Johnson, who started as the Environmental Program Coordinator working with biosolids in March. Erik grew up in Duluth, then studied biology and secondary education at college amongst the farm fields of Iowa. He moved to southwest Wisconsin and taught high school biology and environmental science for ten years. One of his favorite memories of teaching involved helping start an annual Conservation Field Day at an area farm. Nearly one hundred students attended each year and they walked to multiple stations around the farm. Topics included rotational grazing, trout stream ecology, prairie restorations, forestry, and soil run-off prevention. He is happy to be back home in Duluth working at WLSSD, helping to educate about environmental topics like clean water and the benefits of using Field Green® fertilizer. Erik enjoys running and mountain biking on the area trails and raising his two-year-old daughter, Hope.

Field Green® Program
Western Lake Superior Sanitary District
2626 Courtland Street
Duluth, MN 55806

Clear Answers for Clean Water℠

Contact us

Already a customer? Schedule a field or ask questions about a recent application:

Kevin Shea, Lead Land Application Operator
(218) 740-4767 or kevin.shea@wlssd.com

New customer or community member? Enroll in the biosolids program, or ask for information:

Erik Johnson, Environmental Programs Coordinator
(218) 740-4808 or erik.johnson@wlssd.com

General questions?

Paul Wilken, Biosolids Program Supervisor
(218) 740-4764 or paul.wilken@wlssd.com

FIELD GREEN® The wiser fertilizer™

Field Green® Fee Schedule

WLSSD charges a nominal fee for land application of biosolids. If the farmer would like the biosolids tilled into the soil, there is an additional fee. A delivery fee is applied for distances greater than 40 miles from WLSSD's treatment plant.

SERVICE	RATE
First 300 tons/year	$19/acre
300-900 tons/year	$17/acre
900+ tons/year	$15/acre
Primary Tillage	$12/acre

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