

BIOSOLIDS NEWS

News and Information from the Virginia Biosolids Council • October 2014

Biosolids applied with GPS precision on farms

Precision farming is becoming an increasingly important practice for many Virginia farmers. It utilizes Geographic Information Systems (GIS) and Global Positioning Systems (GPS) technology to provide crop yield mapping and monitoring, delineating boundaries and the ability to achieve far more precision and economy in applying fertilizers, pesticides and herbicides, which reduces their impact on the environment.

For Douglas Garrett, a sixth generation farmer in Caroline County, the capability of his biosolids contractor to employ GIS and GPS technology is essential to his implementation of precision farming.

The technology provides an accurate delineation of the physical boundary of the biosolids application, as well as the buffers that receive no application. This provides the farmer a critical tool for nutrient and crop management on his farm. There are also benefits for the biosolids contractor, which can use this data for regulatory reporting.

“It’s been a recent, but important, addition to our management practice,” Garrett said. “We’ve been using biosolids on our farms for about 10 years and I have come to understand how important this material is to accomplishing our goals.”

Garrett owns about 250 acres in the Rappahannock Academy community, near Port Royal in Caroline County. However, he farms about 3,000 acres that he leases in Caroline, Stafford and Spotsylvania counties, growing corn, wheat and soybeans. He, his brother and Douglas’ son, Cory, run the operation—taking the reins from the father, Dick Garrett.



Douglas Garrett (l.), pictured on their farm in Caroline County with his father, Dick, farms more than 3,000 acres in three counties.

Like many farmers in the Chesapeake Bay watershed, Garrett practices ‘no-till’ farming, which is a way to grow crops without turning over the soil. No-till also increases the amount of water that infiltrates into the soil thereby increasing organic matter and reducing soil erosion.

“What I have learned to appreciate about biosolids is that they don’t leave the field,” explained Garrett. “They stay right where they’re broadcast. We follow behind the spreader with turbo-till equipment (a secondary tillage tool designed to leave a finished seedbed). When the weather conditions work, it provides some of the best corn and bean yields we’ve ever had.”

He added, “the other benefit we see is the organic material biosolids contribute to the soil.”

Like most farmers, Garrett manages his soil conditions carefully. Biosolids contain organic matter that improves

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The Virginia Biosolids Council supports the recycling of biosolids in Virginia through information and education on the beneficial use and safety of biosolids. The Council is supported by municipal wastewater treatment plants, land application and composting companies and biosolids users, and is available as a resource to those who need information about the recycling of biosolids.

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soil quality, reduces compaction, increases water-holding capacity and provides an energy source for necessary microbial activity.

Within the coastal plain of Virginia, long-term research continues to be conducted by Virginia Tech and the Hampton Roads Sanitation District at Progress Farm in Virginia Beach. This research has been active for more than 25 years. Neither Tech nor HRSD has identified any environmental issues resulting from the application of biosolids.

"I understand that some people might not like biosolids," said Garrett. "However, we haven't experienced

any issues with it. There is a smell – sometimes – but it doesn't last long. As I said before, I really like its nutrient value. We plan to continue to use it when we can."

There is a perception by some in the public that biosolids are just "dumped" on fields. The techniques employed by the Garrett family demonstrate, however, that biosolids are applied with the same or greater precision as commercial fertilizers. Combining the GIS/GPS technology provided by his biosolids contractor with the precision farm management tools at their disposal, biosolids have become a value-added nutrient and soil conditioner essential for increasing yields, profits and sustainability.

Virginia Tech to conduct biosolids webinars

The Department of Crop and Soil Environmental Sciences at Virginia Tech will conduct three informational webinars later this year on biosolids.

The webinars are designed to provide basic information about biosolids to local officials—administrators and their staff, elected officials, planners, local attorneys and other interested individuals.

The Department of Crop and Soil Environmental Sciences provides teaching, research and outreach on environmental and agronomic (crops and soils) sciences. Currently more than 230 students are enrolled in its two undergraduate degree programs, Environmental Science, and Crop and Soil Science, and more than 60 graduate students are studying for M.S. or Ph.D. degrees.

According to Dr. Greg Evanylo, Professor and Extension Specialist, it seemed like a good time to offer this webinar. "The new comprehensive biosolids regulations managed by DEQ are now being implemented," said Evanylo, "and there are many people within our local governments who could benefit by having basic information on biosolids, its regulations and how it is used on farms and forests in Virginia."



Dr. Greg Evanylo

The three webinars are scheduled for November 18, from 1:30-3:00 p.m.; December 4, 10:30 a.m.-12:00 p.m.; and December 16, 10:30 a.m.-12:00 p.m.

Biosolids Webinar

SESSION ONE: Basic Information

WHEN: November 18, 1:30 – 3:00 p.m.

Introduction to Biosolids	Dr. Greg Evanylo, Virginia Tech
Understanding biosolids generation	Mr. Chris Peot, DCWater
Virginia's biosolids regulatory program	Mr. Neil Zahradka, DEQ
Summary & Questions	Dr. Greg Evanylo

SESSION TWO: What's in biosolids that would impact health or environment

WHEN: December 4, 10:30 a.m. – 12:00 p.m.

Heavy metals and nutrients	Dr. Greg Evanylo, Virginia Tech
Trace organics	Dr. Kang Xia, Virginia Tech
Pathogens	Dr. Brian Badgley, Virginia Tech
Summary & Questions	Dr. Greg Evanylo

SESSION THREE: Biosolids use and management

WHEN: December 16, 10:30 a.m. – 12:00 p.m.

Agriculture and urban soils	Dr. Greg Evanylo, Virginia Tech
Reclamation and disturbed lands	Dr. Lee Daniels, Virginia Tech
Forestry	Dr. Tom Fox, Virginia Tech
Summary & Questions	Dr. Greg Evanylo

Pre-registration is required for each individual webinar. You may register for Session One at:
<http://goo.gl/reYVvP>

More information is at www.virginiabiosolids.com

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