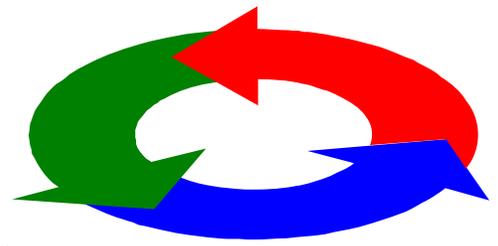


Amendments



Improving Awareness & Advocacy of the Michigan Biosolids Program

Volume 16, Second Quarter

April, 2012

Biosolids Program Update

Program Fees

The Michigan Department of Environmental Quality Resource Management Division will be forming a workgroup with Biosolids Program Stakeholders to discuss the issue of increasing fees and the future of the Michigan Biosolids Program. The tentative convening of this workgroup is May, 2012. Stay tuned.

MBT Departures

Ben Stuart resigned from current position as Senior Technical Services Manager at Synagro Central on December 16, 2011, to take a position as Production Manager at HexArmor of Grand Rapids. Ben started working for Synagro in the spring of 2000 as a Technical Services Manager and was promoted to Sr. Technical Services Manager when he was given the responsibility for the compliance and land program for DWSD. Ben permitted 18,000 acres of farm land for the Detroit program in its first year. Ben's territory included Northwest Michigan, Northern Michigan and the UP. Often times he managed over 30 municipal and industrial customers at once and held a perfect safety and compliance record. Ben holds a Master's degree in Technical Processes from SVSU and was also a Certified Crop Advisor through the American Society of Agronomy. He was active in the MWEA for his entire career in our industry and was slated to become the chairperson of the Michigan Biosolids Team in 2012. We all miss Ben and wish him good luck with his new position.



Graham Chapman retired from the Delta Township Utility Department on March 2, 2012. During his 26 years of service at the Township, Graham worked as the Industrial/Commercial specialist where his job assignments were very diverse. He established most of the procedures for the Utility Department's Industrial Pretreatment Program (IPP) where he was diligent in protecting the wastewater plant from the potentially harmful discharges of its industrial and commercial users. He established sampling protocols for monitoring these users and routinely collected samples to ensure compliance with the Township's local limits. One of Graham's major accomplishments was in establishing the local limits and gaining MDEQ approval for these limits that were utilized by the Township for several years.

Graham became the Township's cross-connection inspector in the year 2000 and became responsible for the inspection of over 890 locations to verify that the public water system was protected from possible sources of contamination by way of backflow or backsiphonage. It was through these inspections that Graham became one of the most recognizable public servants in Delta Township.

Another important role that Graham served a capacity in was protecting the sanitary sewer system from unwanted sources of oil and grease. This job was accomplished as part of his IPP and Cross Connection responsibilities. He obtained his pesticide applicator licenses early on in his career and was responsible for maintaining the numerous grounds that required upkeep by the Utility Department.

Graham graduated from Michigan State University with a degree in Crop and Soil Sciences. It is not any wonder that Graham's most passionate responsibilities working for the Utility Department was in the area of the Township's Land Application program. He was instrumental in navigating the state and federal guidelines for approval of a "Class A", exceptional quality Biosolids. Because of the work that Graham did, Delta Township has the distinction of being the State of Michigan's first wastewater treatment facility to have this "Class A" designation. Graham, along

with Don Stypula and other individuals, diligently worked on garnering support from the MDNR and MDEQ in having a State-run program for the management of Biosolids. Graham was a key member in developing the necessary language that established a program that was to be a joint effort between the applicator's and the State regulators.

He has been a great ambassador in advancing the committee's vision: to make Michigan a national leader in environmentally sound Biosolids processes and product. He has attended numerous events and served on various subcommittees. Graham was awarded with the highest honor of appreciation by receiving the crown of "Baron of Biosolids" in 2010. Graham has started his own consulting business: *Chapman Consulting, LLC*.



Jim Johnson retired from his current position of State Biosolids Coordinator on March 16, 2012, to take a position with the Metro Wastewater Reclamation District, in Denver, Colorado, as Technical Services Officer. Jim began his work for the State of Michigan right after his graduation from Michigan State University with a degree in Agricultural Engineering in 1979. Jim spent the first 10 years working for the Surface Water Quality Division in the Michigan Department of Natural Resources in the Land Application Unit which managed the land application of sewage sludge. He moved on to work for the Geological Survey Division during the next four years, and then spent six years with the Solid Waste Planning Program, before coming back to the Water Division of the MDEQ in 1999 to take the job of State Biosolids Coordinator until his retirement. Jim was a strong advocate for the Michigan Biosolids Program and assisted in nearly all public relations activities. Jim worked with USEPA Region 5 to help Michigan be a delegated state for land application of biosolids, worked with several facilities to obtain Exceptional Quality Biosolids designation, and even picked up the Southeast Michigan District Biosolids Programs. Jim was an active member of the Michigan Biosolids Team and participated in several subcommittees. Jim was born and raised in Napoleon, Michigan on his family farm and enjoys skiing and boating. He is an avid train buff. Jim will be providing future articles

from Denver and Region 8 for these *Amendments*. He was also a past Baron of Biosolids.



Michigan Biosolids Team Activities

Biosolids Seminars

The Conference Subcommittee of the MBT met at the City of Ann Arbor WWTP to discuss the planning for a one day seminar for September, 2012 and a two day conference for March, 2013. Possible topics discussed are phosphorus, asset management, sustainability, energy costs, and dewatering. The Subcommittee is **calling for abstracts, hot topics, or ideas** to assist us in the planning of these events. Feel free to contact Steve Mahoney at mahoneys@michigan.gov or 517-241-2508 if you have any questions, comments, or suggestions.

Around the Great Lakes

Ohio

OWEA Residuals Management Committee Update – Spring 2012

The OWEA Residuals Management Committee continues to remain active in the monitoring of issues related to biosolids management and to seek opportunities to serve the membership of OWEA. A few updates on our traditional focus areas:

- ◆ **Farm Science Review** – This year's Farm Science Review will be held September 18th through September 20th. It's never too early to plan to become involved! The Residuals Committee provides manpower and educational materials on the benefits of biosolids land application at the OWEA sponsored booth. A large number of attendees typically visit the booth. Promotional items are normally given away as an enticement to visit the booth and learn about biosolids. We will definitely continue to use the "wheel of trivia" to

spur conversation, curiosity, and hopefully a little “BS”.....in a good way – HA!

- ◆ **Biosolids Workshop** – The 2011 workshop was held on December 8th in Columbus. We had a record number of attendees – 148! A special thanks goes out to the speakers who shared their time and talents and to Steven Reese for organizing the workshop and for “mcing” the event. Also, thanks to Judi for her efforts in coordinating this successful event. The 2012 workshop is scheduled for December 6, 2012. If you have an idea or topic you would like to present, please let me know. It will be tough to top the last workshop, but I’m aiming high for this year!

This year, we will be continuing to work on additional items, including the following:

- **Exploring new venues for booth / information / PR** – members are exploring other events where we can showcase the information that we normally present at the Farm Science Review. If you have any ideas related to good locations for a display or information related to biosolids, please let me know.
- **Verify member list / update contacts** – If you haven’t received any correspondence from me lately and were previously on the committee email list, this probably means that we need to update your information. Drop me an email if you’d like to be included on our mailing list or if your contact information has recently changed.
- **Reach out to neighbor associations** – We are in the process of reaching out to our neighboring associations in Indiana and Michigan. We hope to continue our dialogue with these groups and find ways to work together to provide information on biosolids issues. Thanks to Rob Smith (Arcadis / Malcolm Pirnie) for his continued efforts on this initiative.
- **Alternate locations for our Residuals Committee Meetings** – we are exploring the possibility of hosting our meetings at a venue different than Olentangy (no offense to the facility or staff). We are investigating different plants at which we can host our meetings and

have a short facility tour. If you have any ideas related to this, please let me know.

- **Review / discussion of P management requirements under revised land application regulations** – As a committee, we are exploring ways to constructively evaluate and review the requirements for management of phosphorus in land applied biosolids. The revised regulations that will go into effect with new changes have caused a host of concerns and debates. These concerns are focused on the lack of distinction in the types / mobility / availability of different forms of P, particularly in biosolids. As a committee, we will strive to objectively review and discuss and continue to inform you, the OWEA membership on the latest issues.

Our meeting schedule for this year is as follows:

1. April 10, 2012
2. July 10, 2012
3. October 9, 2012

We would love your involvement throughout the year. The Residuals Management Committee is focused on serving the OWEA membership through education, promotion of effective biosolids management, technical information on biosolids, and interface with OEPA on regulatory issues. We always welcome new membership and we would love to have you at our next meeting. If you are interested in getting involved or if you have any questions about the committee, please contact Jamie Gellner at 513-317-0337 (jgellner@hazenandsawyer.com).

Tough phosphorus problem has no easy solutions

By Matt Reese

At the Conservation Tillage and Technology Conference in Ada this week, attendees were bombarded with photos charts and graphs illustrating the water quality problems in Ohio. A glass full of green ooze scooped out of Lake Erie, an algae



This bird's eye view of the Western Basin of Lake Erie shows the sediment and harmful algal blooms that hurt water quality and will likely require some changes from agriculture.

filled spray behind a jet ski, countless charts showing a steady drop then a sharp rise in phosphorus levels in Ohio's waterways – there is no shortage of evidence that [there is a problem](#). There is, however, a shortage of viable across-the-board solutions to the problem.

“We know what the issue is, but we don't know how to solve it. We need research on this. Environmental groups are just saying, ‘Well, stop using phosphorus.’ We know we can't do that,” said Glen Arnold, with Ohio State University Extension. “We had the worst algal bloom in 40 years in Lake Erie that provides 5 million people with drinking water it and contributes \$10 billion to the economy.”

The numbers though, have many scratching their heads.

“We're using less phosphorus than we ever have before, but the amount of dissolved phosphorus is going up,” Arnold said. “Even though we are using less, more is getting away from us. And it is not a lot of phosphorus that we're losing in terms of the total amount applied, but we have got to get it under control. Just a quarter of a pound of loss per acre can make a big difference.”

The current problem is the dissolved form of phosphorus that can move with the water through surface drainage or through tile lines.

“A pretty good chunk of that phosphorus is going out of the tile,” Arnold said. “Rainfall, tile, incorporation,

surface roughness, vegetative buffers, concentrated flow areas, waterways, crop residue, tillage, and the location nutrients applied all affects the movement of nutrients off fields. We really want water to absorb into the ground if at all possible. Frozen ground and heavy rain are perfect conditions for big losses of nutrients. Don't apply on frozen ground. Currently there are no proposed regulatory changes for the state, but it is critical for farmers to use common sense, follow good manure testing, follow soil testing agronomic recommendations, and keep good records.”

The [4R recommendations](#) for putting the right source, at the right rate, in the right place at the right time are also crucial to remember.

“I know that the 4Rs are commonsense and elementary, but these are the types of things we are looking at and we have to get this under control,” Arnold said.

Phosphorus needs to be close to plant roots and in soils with good structure that can facilitate vigorous and productive plants. These types of soils can be developed through long-term no-till with cover crops and good drainage (from tile).

“There is a lot of difference in soil structure out there. Poor soil conditions allow for a lot of quick run-off,” said Joe Nester, with [Nester Ag Management](#) in northwest Ohio. “There have been some darts thrown at no-till and I don't necessarily buy that. There is also talk of a moratorium on tile and that would be the wrong way to go. Tile creates a much better environment to produce a crop that removes the nutrients that are there. Once water moves through it brings air into the soil and we have to make sure that tile doesn't get evaluated poorly here. It is a matter of risk verses benefit. This is extremely complex. You can't just take a chart and say, ‘Do this.’ The soil is a living thing and if you manage it that way you will be better off.”

The problem is such that changes will be coming to the way farms are managed in Ohio.

“Rate and timing of application will be regulated and blanket applications will not be allowed in the future,” Nester said. “You can say, ‘This can't happen,’ but it is happening and this is an opportunity for agriculture to do something.”

Indiana

Composting of Food Waste

Each year 10 million tons of food are wasted with much of it going into landfills. At least that is what used to happen to food waste, until recently. More and more food producers, transporters and retailers are starting to think waste reduction and recycling. Indiana is moving in that direction and the Indiana Department of Environmental Management (IDEM) is assisting by revising the land application regulations (327 IAC 6.1) to cover the composting of food waste and the marketing and distribution of the finished compost.

Within the last few years IDEM has issued five marketing and distribution permits, with more pending, to allow a third party to accept food waste for composting. IDEM staff are getting several calls per week to discuss the various aspects of food composting.

According to a U.S. EPA website, yard trimmings and food residuals together constitute 27 percent of the nation's waste stream. An estimated 57.5 percent of yard trimmings were recovered for composting or "grasscycled" in 2010, a dramatic increase from the 12 percent recovery rate in 1990. Accompanying this surge in yard waste recovery is a national composting industry that has grown from less than 1,000 facilities in 1988 to more than 2,280 in 2010 according to an October 2010 Biocycle State of Garbage report. Once dominated by public sector operations, the composting industry is increasingly entrepreneurial and private-sector driven, led by firms that add value to compost products through processing and marketing.

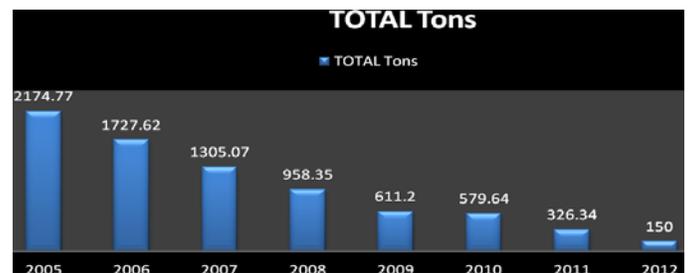
Those in Indiana who are already composting as well as those who are still in the planning stages range from the small individual operation to larger commercially operated facilities.

In central Indiana, there are two facilities operated by GreenCycle of Indiana that take food waste for composting. They are currently taking waste from Walmart Grocery Stores, Piazza Produce, Indianapolis Fruit Company and the JW Marriott Hotel (downtown Indianapolis).

A local TV station, WTHR Channel 13, reported on an average day, the JW Marriott Hotel's main kitchen throws out more than one half ton of food scraps. That includes things like strawberry tops, melon rinds and whatever leftovers they scrape from a customer's plate. Most of it goes straight to landfills, but during the Super Bowl, Indy's largest hotel committed to sending it off to be turned into compost.

During a Resource Recycling Conference in September 2011, the JW Marriott conducted a pilot project to determine if separating the food waste was possible. This test was run to learn what would be required in preparation for the Super Bowl crowds and the management of larger quantities of food. The pilot was so successful and so well received, not only did the JW Marriot in conjunction with GreenCycle kick-off a food waste composting program during the week of the Super Bowl, but are now implementing food composting year round.

Piazza Produce has been working for a number of years to reduce the amount of waste they generate. Diverting their waste and sending it to GreenCycle for composting is one of the final steps in reaching their goal of zero waste. The following graph identifies the tons of waste disposed by Piazza Produce since 2005 and includes the projected amount for 2012:



Source: Indiana Water Environment Association Residuals and Biosolids Committee

There also has been interest from businesses wanting to compost their cafeteria waste. To help in this effort some have changed their food service-ware and utensils to products that are compostable while others are teaching employees how to separate their waste with the use of posters and specially colored containers.

In the fall of 2011, the Indianapolis Compost Coalition held a half day session for interested parties that included IDEM staff, food producers/distributors, and composters to discuss the pro and cons of composting food waste. This session was well attended and all was in agreement that we need to look for ways of making food waste composting easier and more economical. IDEM is helping in the economical area by allowing a facility to get a marketing and distribution permit (that also covers the composting) instead of requiring a Solid Waste Processing Permit at the cost of roughly \$12,000.

Indiana has a way to go but is making strides to overcome the hurdles of composting food waste.

Biosolids and Agriculture

2011 brought many surprises for those involved with biosolids and agriculture. As many of us have grown accustomed to the cycles and unpredictability of what “mother nature” throws our way in the mid-west, we have had a new element of change in the economics of agriculture.

Throughout the 1990’s to 2000’s we have seen the economics of row crop farming change drastically. The landscape of farming has continued to evolve into a much larger scaled, technologically advanced enterprise. The changes that farming has faced have affected nearly every aspect of what a farmer does to prepare the soil, fertilize the crop, plant the seed, nurture and inspect and finally harvest and market. Over the course of the last 20 years the business of farming has expanded to become a global market. The days of a farmer merely needing to track the grain price at the local elevator seem to be long gone. To competitively market the products in today’s agriculture there are so many influences that are totally out of the farmers’ control. Farmers find themselves not only monitoring the weather and local feed and food demands but also monitoring the world energy needs. Row crops like corn and soybeans in particular were historically used to feed the world but are now being demanded to produce fuel and energy also.

These new demands have created many new opportunities for farm products and with those new opportunities we have also seen excellent profit

margins. These margins have raised the bar in agriculture. Farmers have seen gross receipts more than quadruple per acre and as receipts have grown so have the input costs. On the expenses side of the equation and due to the rise in energy costs the equipment costs have risen nearly 30%, seed has nearly doubled, and almost every aspect of fertilizer and chemicals have followed suit. The unfortunate reality for farming is that we now have the cost of putting out a crop at such an escalated level that as the value of the crop cycles the realism of extreme unprofitability arises. These fears have forced farmers to the edge of their tractor seats to seize every opportunity in the spring to get the crop planted to ensure the best growing conditions possible.

So what does all this mean for biosolids? The primary nutrients found in biosolids are Nitrogen and Phosphorus. The costs of commercial Nitrogen and Phosphorus have taken advantage of what the markets will bear and have escalated to new highs. Logic would tell you this increase in commercial fertilizer values should also increase the value of biosolids. However, the feeling in the industry seems to be much different. The pressure on the farmers due to the requirements of the high powered genetics of the seed, require optimum conditions for optimum results. This pressure, which is ultimately heightened by the greater number of dollars that are at risk per acre, seems to be offsetting the increased value of biosolids. Farmers have become so concerned about planting earlier and earlier and the equipment that they use has become so large that the springtime application window has become very narrow. Couple the narrow window of application time with the wet spring seasons we have had in recent years and the result can be very stressful for beneficial reuse programs. The need to begin early in communicating with the farmer participants is ever so important. This communication can make all the difference in the world in the ability to maintain an efficient program and to create an allegiance between the farmer and the generator.

As we prepare for 2012 we can all pray for an early and long spring season with just the right amount of moisture to allow us all to get our work done.....Is that too much to ask???

Illinois

MWRD Cheers National Win

UIC study of area waterways use receives award

A University of Illinois at Chicago (UIC) study focusing on the health risks associated with recreating on the Chicago Area Waterway System (CAWS) has received the grand prize for university research from the American Academy of Environmental Engineers.

The Metropolitan Water Reclamation District of Greater Chicago (MWRD) sponsored the three-year epidemiology study. Dr. Samuel Dorevitch, associate professor of environmental & occupational health sciences at UIC School of Public Health, designed the study using the United States Environmental Protection Agency National Epidemiological and Environmental Assessment of Recreational Water (NEEAR) study as a model.

“Few wastewater treatment agencies make research a priority in the way that the MWRD does,” said Dr. Dorevitch. “It’s been challenging and interesting to work on a health study of this scale that addresses a local environmental policy decision. Now that the work is done, it’s rewarding to see the findings published so that others in the community of water quality researchers can learn from the work we’ve done.”

The CHEERS study is the first in the United States to address the health risks to individuals who engaged in incidental contact water recreational activities such as boating, fishing and rowing. The health information of the recreating member was compared with water quality tests for indicators and pathogens during the same time at the CAWS, Lake Michigan and other rivers and inland lake locations.

The CAWS includes the Cal-Sag Channel, the North and South Branches of the Chicago River, the Main Stem of the Chicago River and the North Shore Channel. The system was designed to connect Lake Michigan to the Illinois River, and just as it was planned, the system is used for transportation, commerce and to convey stormwater away from Lake Michigan, the source of the Chicago area’s drinking water. In the meantime, recreation is also a popular use of the system.

Wastewater treatment plants release treated wastewater into the CAWS, and the CHEERS research study was conducted to better understand the benefits that might be realized if the MWRD resumed disinfection of wastewater effluents at its North Side and Calumet water reclamation plants and to determine appropriate water quality criteria to protect secondary contact recreation.

“The MWRD is well known for developing the science on issues through productive collaboration, and this study adds to a rich body of work,” said David St. Pierre, MWRD executive director. “We are thrilled that the MWRD and UIC received this prestigious recognition.”

MWRD Monitoring and Research Director Dr. Thomas Granato directed the study parameters. “We assembled a world class team of dedicated researchers with a novel approach to assessing public health impacts of surface water quality,” said Dr. Granato. “The team at UIC worked many long days and weekends to complete this study and their work product is world class.”

Dr. Geeta Rijal, MWRD Supervising Environmental Microbiologist, was directly involved in the study. “The CHEERS was a tremendous research effort, and the study was driven by the quest for the great unknown about the current health risks to people recreating on the CAWS,” said Dr. Rijal. “CHEERS produced the best public health microbiology science for secondary contact water.”

The study surveyed over 11,000 participants at CHEERS recruiting stations strategically located near boat launches and other high profile locations where water recreation takes place along the CAWS; waterbodies included Lake Michigan, the Des Plaines, DuPage and Fox Rivers, inland lakes and lagoons, Busse Lake, Tampier Lake and the Skokie Lagoons. Water bacteria, viruses, and germs were tested.

Study participants were contacted three times over three weeks to check on their health status. If a participant developed an ailment, they were asked to provide further information for testing.

The study found that secondary contact recreation on the CAWS is not any riskier than on other nearby

rivers or lakes. This will be further improved when disinfection is implemented.

The award will be presented on April 26, 2012 at the National Press Club in Washington, D.C.

Alliance for the Great Lakes Urges Chicago to Step Up Sewage Treatment

Source: Alliance for the Great Lakes



A new report authored by the Alliance for the Great Lakes in collaboration with several leading environmental groups warns that Chicago must join other major U.S. cities and disinfect its wastewater, or else the city will continue threatening public health by releasing bacteria and other disease-carrying agents into the Chicago River.

"Protecting Public Health, Caring for Chicago's Waters: An Agenda for Action," notes that Chicago's sewage treatment district is one of just a handful among the nation's major cities, and the only one in the Great Lakes region, that doesn't disinfect wastewater, a final treatment step that kills viruses, bacteria and pathogens that threaten public health.

"We need a new vision, one that treats water as vital for recreation and life itself," said Dale Bryson, chairman of the Alliance for the Great Lakes. "Getting MWRD to disinfect its waste is the first step toward moving ahead with the new vision for Chicago's waterways."

The report states that MWRD could catch up with other cities for as little as \$8.52 per person per year, by employing a technology that disinfects wastewater using ultraviolet light. Other available strategies include ozone and chlorination/de-chlorination treatments.

The Sierra Club, Natural Resources Defense Council, Friends of the Chicago River, Prairie Rivers Network, and the Environmental Law & Policy Center

collaborated with the Alliance on the report, which follows another recent Alliance report on the Chicago River system. That study found a rise in paddling, fishing, birding and other forms of public recreation along the Chicago River, all activities that would be protected by river improvements and the investment dollars they bring to local economies.

More than 100 years ago the Chicago River was reversed to flow away from Lake Michigan and protect public drinking water supplies. During heavy rainstorms, however, MWRD is forced to occasionally reverse the river's flow – prompting swimming bans and beach closings along the Lake Michigan shoreline. Protecting Lake Michigan's health is vital not only for recreational users, but because it is a source of drinking water for 10 million people, and is part of the larger Great Lakes system that provides drinking water to as many as 40 million.

The report found that Memphis, Tenn., St. Louis, and Kansas City, Mo., are the only major U.S. city treatment districts, other than Chicago, that do not disinfect their wastewater. However, those cities are expected to disinfect in the near future.

A full copy of the report and accompanying fact sheet is available online at

<http://www.greatlakes.org/news/pdf/disinfection.pdf>.

Elsewhere

King County Launches Biosolids Brand

King County recently announced the launch of Loop, its new biosolids brand, at the Northwest Flower & Garden Show at the Washington State Convention Center, Feb. 8-12, 2012.

King County engaged in this project primarily to provide a set of tools to tell the story of their product, cultivate community support and understanding, correct misinformation about biosolids, and to set the stage for future business opportunities.

"Establishing a brand for our biosolids product gives us a great platform to communicate the benefits of the program and product to our customers and the people of this region," said King County Wastewater Treatment Division Director Pam Elardo.



King County's Biosolids Program unveiled their new brand, *Loop*, at the Northwest Flower & Garden Show

Produced by the King County's regional wastewater treatment plants for nearly 40 years, Loop is a natural soil amendment and endlessly renewable resource that restores carbon and nutrients to the land for the good of plants, people and Puget Sound.

People were invited to stop by King County's booth at the show to meet soil experts and King County staff, who shared plant care tips as well as free samples of GroCo compost made with Loop.

Show goers were excited by the chance to receive free compost samples, temporary tattoos, and the attractive new brochures detailing Loop and GroCo made with Loop.

The reception of Loop at this year's Flower & Garden show exceeded all expectations. Approximately 3400 samples of GroCo were handed out this year, which is a record. In contrast, last year King County handed out approximately 1700 samples.

In conjunction with the debut at the NW Flower & Garden show, King County also launched a new website specifically to communicate the benefits and uses of their product, Loop. www.LOOPforyoursoil.com

King County's Wastewater Treatment Division protects public health, the environment and the economy by serving 17 cities, including Seattle and Bellevue, 17 local sewer districts and more than 1.5 million residents in King, Snohomish and Pierce counties. Formerly called Metro, the regional clean-water agency now operated by King County has been preventing water pollution for nearly 50 years.

Member and Subscriber Spotlights are prepared by

the NBMA Information & Education Committee in partnership with NBMA member and subscriber companies.



King County Loop website

Calendar of Events

MBT Meetings

Thursday, May 17, 2012 10:00 a.m.

Location: West Bay Co. WWTP, Bay City Michigan

Thursday, July 19, 2012 10:00 a.m.

Location: MSU Ag Expo, East Lansing

Thursday, September 20, 2012 10:00 a.m.

Location: Johnson Wildlife Center, Cadillac

Other Events

July 17-19, 2012

MSU Ag Expo, Michigan State University

MBT Display and Demonstration Plot

