

Composting Facility Operator Training Accreditation Application

MNCC Biochar Initiatives in Minnesota Webinar

Attachment 1: Training Description

Objective/Purpose

This presentation will inform the composting community, and attendees in general, of the basics on what biochar is, what its known benefits are, and where gaps still exist in the research. Presentations and discussion will include biochar application practitioner experts as well as leading researchers in the behind biochar and classifying it for beneficial uses.

Agenda

Tuesday, March 28, 2023 – Virtual Webinar

- 10:00 am – welcome and introductions (Vetsch)
- 10:05 am – biochar basics and applicability to composting (Vetsch)
- 10:20 am – Minneapolis' biochar program (Doten)
- 10:30 am – NRRI biochar research (Ulrich/Barry)
- 10:40 am – USDA ARS biochar research (Spokas)
- 10:50 am – open panel discussion (Vetsch/Doten/Ulrich/Barry/Spokas)
- 11:20 am – closing and how to connect further on biochar and compost (Vetsch)
- 11:30 am - adjourn

Learning Outcomes

- Basics of what biochar is and how it can be made and used
- How biochar addition benefits composting
- Awareness of current research efforts on biochar production and properties
- Awareness of areas where biochar has not been fully researched
- Awareness of local programs to produce biochar
- Opportunity to ask questions of an expert panel of practitioners and researchers

Instructor Credentials

Moderator / Presenter:

Nicholas Vetsch, P.E., Stantec

Nick is a Professional Engineer who in his 7 years of experience has sought to maximize the recovery and beneficial use of discarded materials and reframe "waste" as a resource. He has conducted a variety of complex waste composition studies, provided waste diversion recommendations, and generated standard operating procedures for waste processing facilities. He has also contributed to solid waste master planning and waste management trend analysis writing. Nick is a member of the board of directors of Minnesota Composting Council where he contributes expertise in all forms of organic waste diversion including composting, biochar production, anaerobic digestion, and other waste management methods. Beyond organics, Nick has extensively researched thermal waste processing methodologies including incineration and

gasification and is well versed in maximizing the efficiency of these technologies through mixed waste processing and organic stabilization preprocessing.

Presenter:

James Doten, PG, CEP, City of Minneapolis

From his online profile on USEA.org: “Jim is a licensed Professional Geologist with 36 years of experience in the environmental field. In addition to his undergraduate degree in Geology, Jim has a Master of Business Administration and a Master of Science in Environmental Policy and Management. He has over 20 years of environmental consulting experience and has been at the Minneapolis Health Department for the past 12 years. Jim spent a year in Afghanistan with the Army National Guard as a Hydrologist on an Agri-Business Development Team. It was during this time that he first looked at biochar to improve soil health. Jim is currently the Carbon Sequestration Program Manager with the City of Minneapolis.”

Discussion Panel:

Bridget Ulrich, Ph.D., NRRI

From her online NRRI profile: “Dr. Ulrich grew up on the Iron Range in Virginia, MN, and her educational background includes degrees in chemical and bioengineering engineering, chemistry, and environmental engineering. Prior to joining NRRI she worked as a postdoctoral researcher at the Swiss Federal Institute for Aquatic Science and Technology (Eawag) in Zurich, Switzerland, as well as at the Colorado School of Mines.

Dr. Ulrich’s group combines interdisciplinary insights from environmental engineering, analytical chemistry, microbiology, and materials science to evaluate contaminant fate and transport in aquatic systems. She specializes in developing water treatment and remediation applications that utilize black carbon sorbents for organic contaminant removal; including past work evaluating biochar for the removal of pesticides from stormwater, as well as activated carbon for the removal of perfluoralkyl substances (PFAS) from groundwater. She also works closely with the Materials and Bioeconomy group to develop biochar materials for water treatment applications, with a specific interest in evaluating biochar performance for contaminant at the field scale.”

Brian Barry, Ph.D., NRRI

From his online NRRI profile: “Barry earned his PhD in Chemistry from the University of Iowa followed by a postdoctoral fellowship at Sandia National Labs in Albuquerque, New Mexico. He went on to take a Visiting Assistant Professor position at St. Mary's University (Nova Scotia, Canada) followed by an Assistant Professor of Chemistry position at the University of Wisconsin-Platteville.

His previous research experiences include a) solid-state synthetic routes to metastable polyphosphides (bulk and nano regimes) intended for electrode materials in next generation batteries, b) molecular catalyst design and preparation for small molecule activation, namely CO₂, and c) preparation of metal-free, electron-rich organic reductants.”

Kurt Spokas, USDA ARS

From his online UMN profile: “My major areas of research within the USDA-ARS are as follows: The impact of management practices (particularly herbicides, fungicides and biochar additions) on the cycling of carbon, nitrogen, and other greenhouse gases in agricultural systems. This includes the study of the transport and surface exchange of greenhouse gases (nitrous oxide, carbon dioxide, methane) and the impacts of seasonal cycling on their transport.

I am also examining ways that farming practices can improve water quality with a particular emphasis on the transport and fate of the new strobilurin fungicides in the soil system.”