ithaka institute

May 11, 2022

To the Town of Moreau:

My name is Kathleen Draper. I have been involved with the biochar industry for over a decade. I am the US Director for the Ithaka Institute for Carbon Intelligence, a non-profit, open-source organization focused on the use of biochar in climate farming and agroforestry, and other industrial uses as well as the Board Chair of the International Biochar Initiative. I frequently write and teach about a wide variety of biochar topics including the use of pyrolysis for sewage sludge. (https://www.biochar-journal.org/en/ct/81)

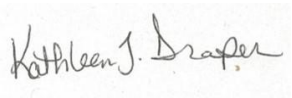
As a longtime advocate of using simple technology to solve complex problems, I am in support of the Saratoga Biochar Solutions project under review in your community. I am aware that Saratoga Biochar will pyrolyze biosolids from wastewater treatment plants to a biochar carbon fertilizer. This is an excellent outcome because the pyrolysis of biomass feedstocks removes carbon dioxide from the atmosphere and, where the biochar product is used as fertilizer or soil amendment, allows for the re-carbonization of agricultural soils.

The Saratoga Biochar project also offers a unique benefit in per- and polyfluoroalkyl substance (PFAS) mitigation. These "forever chemicals" bioaccumulate in animals and to a lesser extent plants and enter the human food chain, ultimately ending up in human sewage. Biosolids are currently and frequently applied to cropland as a fertilizer and although they are pre-treated to neutralize pathogens, their PFAS content (along with other potentially harmful compounds) are not removed.[1]

Saratoga Biochar offer great potential to safely reduce cropland contamination by PFAS and other biosolids undesirable contaminants, as pyrolysis operates at very high temperatures and destroys such compounds in the biosolids being pyrolyzed or separates them into a more vulnerable gaseous state where they are readily destroyed by much higher temperature thermal oxidation. Recent tests have found biosolids' PFAS content is destroyed during the pyrolysis process.[2] Moreover, biosolids that are applied to cropland are capable of being absorbed by plants, allowing their PFAS content to be accumulated in crops. Alternatively, biochar is inert and strongly resistant to microbial degradation for periods of up to thousands of years, meaning that any PFASs that survive the pyrolysis process will not find their way into the human food chain in the same manner as those from non-pyrolyzed biosolids do.[3]

The Saratoga Biochar Solutions project provides an important human health benefit in addition to its very pronounced climate benefits. Biosolids contain PFASs, and those PFASs will continue to enter the human food chain so long as they are applied to cropland. By instead destroying and otherwise mitigating the biosolids' PFAS content while converting the biosolids into a safer form of fossil-free fertilizer, the Saratoga Biochar Solutions project will greatly contribute to efforts to prevent the contamination of New York State's food supply by PFASs.

Sincerely,



Kathleen Draper
US Director, Ithaka Institute for Carbon Intelligence
Co-Author: "BURN: Using Fire to Cool the Earth" and "Terra Preta: How the World's Most Fertile Soil Can Help Reverse Climate Change and Reduce World Hunger"

1. Ghisi, R., T. Vamerali, and S. Manzetti (2019). “Accumulation of perfluorinated alkyl substances (PFAS) in agricultural plants: A review,” Environmental Research 169: 326-341, February.
2. Williams, T.O., et al. (2021). “Removal and transformation of PFAS from biosolids in a high temperature pyrolysis system – A bench scale evaluation.” WEF Residuals and Biosolids Conference 2021.
3. Rawat, J., J. Saxena, and P. Sanwel (2019). “Biochar: A sustainable approach for improving plant growth and soil properties,” in Biochar – An Imperative Amendment for Soil and the Environment. Available on the Web at: https://www.intechopen.com/chapters/65070 (accessed May 5, 2022).