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Re NRCS 808-CPS-1
Soil Carbon Amendment

The members of the USDA multistate research group W 4170 Beneficial Use of Residuals to Improve Soil Health and Protect Public, and Ecosystem Health (<https://www.nimss.org/projects/18624>) applaud NRCS for instituting a program to encourage farmers to use composts and biochar as tools to restore soil health and increase soil carbon reserves. However, we are concerned that municipal biosolids, applied to meet the nutrient demands of crops, are not only excluded from this program, but are singled out as not appropriate amendments for this goal.

The W 4170 group has been a critical source of research on the safety and benefits associated with land application of municipal biosolids and other residuals- based amendments for about five decades. The 50+ members of this group from 30 states conducted the seminal research and assisted EPA in the development of the regulations concerning biosolids end use. The initial work of the group focused on identifying appropriate limits for metals and toxic organics. We have also studied phytoavailability and environmental lability of nitrogen and phosphorus in these materials and helped to set guidance for agronomic use (e.g. Gilmour et al., 2003; O'Connor et al., 2004). Researchers within the group have also conducted seminal work on differences in phosphorus availability based on wastewater treatment process and on amendments to reduce environmentally available N and P in soils in alignment with NRCS 590; Nutrient Management. Use of biosolids has also been recognized by the American Association of Plant Food Control Officials (AAPFCO) as a source of slow -release nutrients.

More recently, members of the group have focused on the environmental and human health implications of pharmaceuticals and personal care products in biosolids including perfluorinated organic compounds (e.g. Lazcano et al., 2020; Pepper et al., 2021). Such research has and continues to demonstrate the safety of these materials when used as sources of nutrients for crops and organic matter for soil.

The benefits of land application of biosolids to soil health have been elucidated by the extensive research performed by members of our workgroup. We have published many peer-reviewed articles that quantify the increase in soil organic matter and carbon storage and associated improvements in soil properties following biosolids application. The improvement in soil health from biosolids use is being evaluated by several members of the W4170 in cooperation with the USDA. Outside of the group, long-term research in Europe has shown

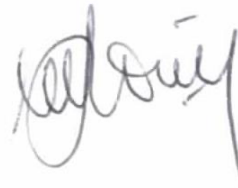
that use of exogenous organic matter (EOM) including municipal biosolids, is the most effective means to increase soil organic matter (Levavasseur et al., 2020; Poulton et al., 2017). Insufficient quantities of this material are the primary factor limiting recommendations for its full- scale use. Biosolids have also been recognized for its value as a fertilizer replacement for fossil-fuel derived fertilizers, offering essential crop nutrients and soil health benefits. These findings suggest that NRCS should be encouraging use of municipal biosolids, to the extent that they are available as a well- regulated and highly efficacious material to increase soil carbon storage and mitigate climate change.

On a regional level, researchers from our group worked with the NRCS to allow use of biosolids as a tool to accelerate soil stabilization for land enrolled in the Conservation Reserve Program. Extensive research on the use of biosolids in dryland cropping systems was critical to recognizing the value of biosolids for these soils (Sullivan et al., 2021). We have included a partial list of citations, co-authored by members of the group demonstrating increases in soil carbon storage following the use of municipal biosolids applied at agronomic rates. We would be happy to work with the NRCS to provide additional information and to revise the document to include use of biosolids for this critical goal.

On behalf of the W- 4170 Research Group



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