Fact Sheet

May 12, 2020

# Biosolids and COVID-19

Biosolids are a product of the wastewater treatment process that are used as a soil amendment and nutrient source on farmland, turf grass, golf courses, and parkland throughout the world. Although there is some uncertainty about how the COVID-19 virus (SARS-CoV-2) is transmitted, **there is no evidence that COVID-19 can be spread through biosolids.**

**Biosolids are subjected to processes prescribed by the U.S. Environmental Protection Agency that are specifically designed to inactivate pathogens (disease-causing organisms)** including enteric viruses, which are the hardiest viruses. The process of producing biosolids takes from two weeks to over two years. Biosolids are treated to kill pathogens by methods such as being held at a temperature of 95˚ F for at least 15 days. Exceptional quality biosolids are further treated for periods ranging from weeks to years by processes such as heat-drying at above 176˚ F, composting at above 131˚ F, or air-drying in the sun.

**Because of its structure, the COVID-19 virus can be easily inactivated.** Although this virus is new, information about the coronavirus family helps us understand how to control it. Coronaviruses have a fragile "skin" that is easily damaged by heat and detergents, which is why washing with soap is so effective at inactivating them. Coronaviruses are unstable and do not survive well in the environment outside a living host such as the human body.

University of Arizona studies found that coronaviruses die off or become inactivated in wastewater within two to three days due to harsh conditions. **Coronaviruses cannot survive outside a living cell in water or wastewater for more than a few days, and it is unlikely that the COVID-19 virus would survive the long duration of the treatment process and still be active in biosolids.**

**Infectious COVID-19 virus is unlikely to be present in wastewater in the first place**, though remnants of the inactivated virus are detectable. Unlike viruses that thrive in the digestive system, the COVID-19 virus primarily infects the respiratory system. A recent study published as a Nature online article (Wölfel et al., Apr. 1, 2020) found high levels of the COVID-19 virus in coughing and sneezing droplets and in throat and lungs of hospitalized COVID-19 patients in China, but no infectious virus was found in stool or urine samples.

Because the COVID-19 virus does not survive in wastewater, the Occupational Safety and Health Administration and the U.S. Centers for Disease Control and Prevention do not recommend additional personal protective equipment for wastewater treatment plant workers or procedures for handling of biosolids to prevent COVID-19 infection.

This fact sheet will be updated periodically based on any new relevant information related to biosolids and COVID-19.

*Aboubakr, H.A., T. Sharafeldin, and S. Goyal. 2020. Stability of SARS-CoV2 and other coronaviruses in the environment and on common touch surfaces. DOI: 10.31219/osf.io/y2rth, available at: https://www.researchgate.net/publication/340890178*

*Mallapaty S. 2020. How sewage could reveal true scale of coronavirus outbreak. Nature 580, 176-177, available at: https://www.nature.com/articles/d41586-020-00973-x*