



Safety of Biosolids for Farmers

Biosolids are a source of valuable nutrients and organic matter for soil health and crop growth. Farm use reduces disposal in landfills and consequent reduced capacity and greenhouse gas emissions. Furthermore, with chemical fertilizer prices rising to unprecedented levels, the nutrients in biosolids are in high demand. Biosolids are manufactured at municipal Water Resource Recovery Facilities (WRRFs) otherwise known as sewage treatment plants, and these community facilities provide important ecosystem services when biosolids are used on farmlands.

With news from Maine and other places about some farmers facing economic hardships from PFAS contaminated soils, farmers everywhere may be questioning whether PFAS pose a risk from their use of biosolids. The per- and polyfluoroalkyl substances (PFAS) are a group of chemicals used to make fluoropolymer coatings and products that resist heat, oil, stains, grease, and water. Fluoropolymer coatings can be in a variety of products. These include clothing, furniture, adhesives, food packaging, heat-resistant non-stick cooking surfaces, and the insulation of electrical wire. You can learn more about PFAS and MABA's position and recommendations by visiting the [MABA PFAS page](#).

National surveys of biosolids reveal most biosolids contain PFAS at very low levels. These small amounts of PFAS are unlikely to pose risks to farmers, their crops, or the environment. In fact, researchers at the University of Arizona have found that PFAS contained in typical municipal biosolids are not a significant source of exposure to farmers or the American public.¹

PFAS are a large class of chemicals that have been in wide use for many decades. They come from businesses and homes like yours and mine. PFAS are contained in many household products and materials, including carpets, clothing, cosmetics, paper products, food packaging, and cookware. They do not degrade in the environment, and they seem to be everywhere that chemists look. PFAS are even found in household dust. Studies have shown that household dust contains higher concentrations of PFAS than today's typical biosolids.

Years ago, certain industrial manufacturers used large quantities of PFAS. Tanneries, metal platers and paper mills were big users of PFAS chemicals. Another source of PFAS is "AFFF," or aqueous firefighting foam, which is commonly used at airports and fire training facilities. In the case of hotspots identified at farms in Maine, a WRRF received a high percentage of its wastewater from a manufacturer of coated paper plates, resulting in very high levels of PFAS in biosolids distributed over many years to nearby farmers who relied on its nutrients and carbon. The levels of PFAS in these biosolids were extraordinary and would be referred to as industrial sources (not municipal) and not typical of biosolids from most WRRFs.

Since the Maine incident, across the nation, government officials, agricultural researchers and public wastewater agencies have engaged in significant investigations and research into the occurrence of PFAS in biosolids and at land application sites. Early evidence shows that typical biosolids, with no large industrial PFAS inputs, are unlikely to have a significant impact on ground and surface waters or on crops, even with repeated applications. The states of Michigan and California have led the way in protocols to study PFAS in biosolids, identifying concentrations of PFAS indicative of industrial inputs, and levels that require source trackdown and reduction initiatives. New York State DEC launched in Fall 2023 a major survey of biosolids for PFAS.

Comprehensive PFAS environmental surveys have also shown that PFAS occurs in virtually all geographical regions, even the most remote locations. PFAS is measured in air, soil and water, even at very low concentrations, indicating sources are numerous and widespread. Between 2011 and 2015 two of the most common PFAS, PFOA and PFOS, were phased out by manufacturers. As a result, PFAS concentrations in the environment and in human blood were significantly reduced. More good news is that the US EPA and state governments are starting to ban the use of PFAS in certain products such as food wrappers and cosmetics.

As environmental and public health professionals, the wastewater system managers in your community have joined in national and state efforts to track down sources of PFAS and to control industrial discharges of PFAS to publicly owned sewers. They are staying apprised of testing procedures, risk assessments and treatment options that are under development. They will be providing ongoing updates to the communities they serve, including the farmers who are customers for their biosolids. We are all in this together as a matter of concern.

For more information on PFAS and biosolids, farmers can visit the websites of the Mid Atlantic Biosolids Association (mabiosolids.org/biosolids-faqs-and-facts); the NorthEast Biosolids and Residuals Association (nebiosolids.org/pfas-biosolids); and the Water Environment Federation (<https://www.wef.org/pfas>).

¹ Help Save Land Application of Biosolids - <https://west.arizona.edu/news/help-save-land-application-biosolids>

The Mid-Atlantic Biosolids Association (MABA), founded in 1997, is a non-profit organization devoted to ensuring that biosolids are recognized everywhere as a valuable community resource through the communication of the benefits of biosolids resources within the wastewater community and the communities we serve.