

FACTORY FARMS & FACTORY FARM GAS

FACTORY FARMS house thousands of cows, pigs and turkeys or millions of chickens. Millions of gallons of untreated waste are spread on thousands of acres. People across the political spectrum are resisting as tax subsidies spur factory farms to build "digesters" that process waste to make factory farm gases. These are not wastewater treatment plants.

MANURE DIGESTERS

process manure, urine and material hosed off barn floors, including cleaning fluids.



CO-DIGESTERS

process manure, cleaning fluids, industrial food waste, yard waste, sewage sludge, pharmaceutical waste and more.

BOTH PRODUCE **GASES** AND **DIGESTATE**

BIOGAS is used to create heat and electricity. Refined biogas, called biomethane, can be used interchangeably with natural gas. It can be delivered via pipelines or used for fuel in vehicles.



DIGESTATE, a by-product containing highly concentrated nutrients, such as phosphorus and nitrogen, is used as fertilizer.

Phosphorus in digestate can run off fields into rivers and lakes, causing toxic **blue-green algae**.

Nitrogen in digestate turns to nitrate in the soil and can leach into drinking water, risking pregnancies, causing "**blue baby**" **syndrome** in kids, and increasing risks for thyroid, breast, colorectal, and bladder cancer for adults.

Digesters are made to **maximize methane** production, incentivizing owners to increase herds.

GAS PAINS

Among other things digestate can contain **microplastics** from food packaging, which resist degradation and persist for centuries, accumulating in our soils and thus entering our food supply and ultimately our bodies.

Digestate can contain PFAS, otherwise known as "**forever chemicals**." Once spread onto farm fields, these toxins can enter groundwater, surface water, crops and ultimately our bodies.

Certified organic farmers cannot use digestate as fertilizer because it can contain **heavy metals**, pathogens, and may have unknown human health impacts.

The heat generated in digesters doesn't kill all **pathogens**, like H5N1 bird flu virus and norovirus, or bacteria, like E. coli and Salmonella.

TO LEARN MORE, VISIT
Sustain Rural Wisconsin Network,
www.sustainruralwisconsin.org

SOURCES

Burch, T. R., et al. 2022. "Fate and Seasonality of Antimicrobial Resistance Genes during Full-Scale Anaerobic Digestion of Cattle Manure across Seven Livestock Production Facilities." *Journal of Environmental Quality*, 51(3):352-63. <https://pubmed.ncbi.nlm.nih.gov/35388483/>.

Domingo, N. G. G., Balasubramanian, S., Thakrar, S.K., Clark, M., Adams, P., Marshall, J., et al. 2021. "Air Quality-Related Health Damages of Food." *Proceedings of the National Academy of Sciences*, 118(20):e2013637118. <https://www.pnas.org/doi/10.1073/pnas.2013637118>.

EPA, 2021. "Emerging Issues in Food Waste Management: Plastic Contamination." <https://www.epa.gov/system/files/documents/2021-08/emerging-issues-in-food-waste-management-plastic-contamination.pdf>.

Gordon, S. 2023. "What Manure Digesters Can And Can't Do." <https://wiscontext.org/what-manure-digesters-can-and-cant-do>.

Holly, M., et al. 2017. "Greenhouse Gas and Ammonia Emissions from Digested and Separated Dairy Manure During Storage and After Land Application," *Agriculture, Ecosystems & Environment*, 239:410-19. <https://www.sciencedirect.com/science/article/pii/S0167880917300701>.

Horta, C., and Carneiro, J.P. 2021. "Phosphorus Losses to Surface Runo Waters After Application of Digestate to a Soil Over Fertilised with Phosphorus." *Water, Air, & Soil Pollution*, 232(10):439. <https://link.springer.com/article/10.1007/s11270-021-05382-y>.

Penn State Extension. 2023a. <https://extension.psu.edu/fate-of-nutrients-and-pathogens-during-anaerobic-digestion-of-dairy-manure>.

Penn State Extension. 2023b. <https://extension.psu.edu/anaerobic-digestion-biogas-production-and-odor-reduction>.

Nag, R., et al. 2020. "Ranking Hazards Pertaining to Human Health Concerns From Land Application of Anaerobic Digestate." *Science of the Total Environment*, 710: 136297. <https://pubmed.ncbi.nlm.nih.gov/32050363/>.

National Organic Standards Board. 2017. Updated in 2023. <https://www.ams.usda.gov/sites/default/les/media/CSAnaerobicDigestateFinalRec.pdf>.

O'Connor, J., et al. 2022. "Physical, Chemical, and Microbial Contaminants in Food Waste Management for Soil Application: A Review." *Environmental Pollution*, 300: 118860. <https://doi.org/10.1016/j.envpol.2022.118860>.

Ward, M. H., et al. 2018. "Drinking Water Nitrate and Human Health: An Updated Review." *International Journal of Environmental Research and Public Health*, 15.7: 1557. <https://www.mdpi.com/1660-4601/15/7/1557>.

Wyer, K. E., et al. 2022. "Ammonia Emissions From Agriculture and Their Contribution to Be Particulate Matter: A Review of Implications for Human Health." *Journal of Environmental Management*, 323: 116285. <https://www.sciencedirect.com/science/article/pii/S0301479722018588>.

TO LEARN MORE, VISIT Sustain Rural Wisconsin Network, www.sustainruralwisconsin.org

