

PFAS Compounds Flow to Farms and Gardens via Wastewater Systems (+ Trucks)

Limited Control by Most States or US EPA

by Amy D Kyle, PhD MPH – with the Sierra Club PFAS Team Grassroots Network

Dangerous PFAS Compounds Go Down the Drain to Wastewater Systems - from homes, businesses, industries



PFAS from domestic, industrial, commercial, government sources and facilities go down the drain ----->>> wastewater systems



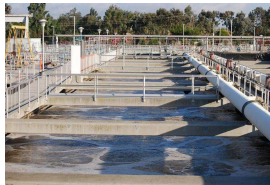
* drains * toilets * dishwashers * storm water in some areas * factories * stores * chemical plants * public facilities * laundry * garbage disposals * warehouses * firefighting sites * airports * semiconductor manufacturing * spills at sites * metal plating fume suppressants * papermaking plants * coatings and paints * landfills *

PFAS are NOT DECREASED or DESTROYED -- During Wastewater Treatment

- PFAS end up in the liquid and sludge residues.
- These sludges are dried out then often mixed with other material to create "biosolids."
- Biosolids are then trucked to farms to be spread on the land, as a fertilizer.
 - Other land application uses can include mine restoration, forest lands, recreation areas, ecological restoration.
- Biosolids are also mixed into garden products marketed as turf builders, fertilizers, top soil, compost, and such.
 - These products are often used in home gardens
- From 40 to 60% of the sludge from wastewater plants is applied to lands, moving substantial quantities of PFAS.
- Almost the same percentage is sent to solid waste facilities, which often fail to contain the PFAS and allow it to escape in leachate.



Wastewater treatment has several stages and requires large facilities



The stages of wastewater treatment are known as "primary," "secondary," and in many cases, "tertiary."

Acknowledgements and Disclaimer

This analysis was conducted with the volunteer PFAS Team of the National Toxics Team of the Sierra Club Grassroots Network and is a work in progress. Thanks to team members and colleagues contributed to this discussion.

The views presented in this poster are those of the author and do not represent any institution. Contact: Amy D Kyle at amyk50005@gmail.com

More information including references is at our web site:

<https://www.sierraclub.org/grassroots-network/pfas>

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PFAS in Biosolids Threaten Farm Products and Farmers

Farmers apply sludge/biosolids as a source of nutrients

They are not notified of PFAS.

PFAS from biosolids are persistent

PFAS may accumulate in soil or water on farms and in farm products

Farms have closed due to PFAS contamination -- milk, meat, or plant products -- in Maine, Texas, Michigan.

Very limited compensation to farmers for their losses.

No protection for consumers.

PFAS Biosolids are in Products Marketed to Gardeners

Biosolids from wastewater treatment plants are mixed into gardening products --

Fertilizers, compost, turf builders, soil amendments

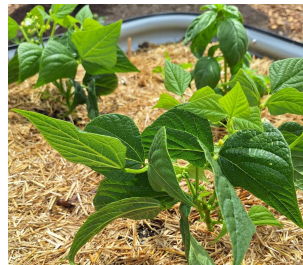
Testing by the Sierra Club and Ecology Center in 2021 found PFAS in all tested garden products.

See report at <http://sc-org/pfas-sludge>

They recommended that gardeners avoid garden products with sludge, residuals, or wastewater products in it, and this remains good advice.

There are no standards or limits from US EPA for PFAS in garden products.

Products may be marked as "highest quality" even if contaminated. Quality labeling is about microbes not PFAS.



Biosolids await application to farmlands. Photo credit: Virginia Extension.

Actions Now

Acknowledge that wastewater provides a pathway for dispersal of PFAS to farms and gardens, in addition to direct emissions or discharges

Learn more

- Expand monitoring of PFAS in wastewater and make data public.
- Improve methods to capture all PFAS in wastewater not just a few.

Pretreatment

Take decisive actions to keep PFAS out of wastewater so it never gets to treatment plants -- through permitting and other means

States can add conditions to wastewater permits to preclude release of PFAS into wastewater systems, and some have done so. This should be expanded.

EPA can develop and enforce permit conditions nationally.

Ban use of sludge biosolids in garden products.

Control use of sludge biosolids on farmlands

Regulate any uses of sludge biosolids on lands to control releases.

What You Can Do Today:

Ask your state what they are doing to control PFAS in biosolids from wastewater treatment plans and keep it from farms and gardens.

We Invite You to Join Us

In the PFAS SubTeam of the Sierra Club Grassroots Network --

We are working to better understand PFAS in biosolids -- science, policy actions, impacts on farms, farmers, farmworkers, as well as gardens and gardeners, monitoring and testing results, and improving methods.

We are building tools and resources for local and state Sierra Club chapters and groups, and volunteers interested in these issues.

Web site with key information, news, eye on EPA, action opportunities.

- key points in plain, supported by explainers and citations to authoritative scientific, other sources.
- factsheets and communications tools

Monthly Newsletter -- short and succinct -- coming soon

Will you join us? Sign up for the newsletter. Check out the web site. Send us your feedback. Tell us what you need.

<https://www.sierraclub.org/grassroots-network/pfas>

Meanwhile, Limited Actions So Far by EPA

1993: EPA adopted rules to limit certain ten metals and microbes in biosolids (503 rule)

- Metals to be removed before entering wastewater stream to treatment plant: "pretreatment"
- Nothing since -- no limits on PFAS in biosolids nor wastewater

Pretreatment: EPA has advised states that they can require removal of PFAS from industrial wastewater using permitting authorities

Some states have done this. Few restrictions in federal wastewater permits

2022 EPA PFAS roadmap:

- promises risk assessment in 2024 for two legacy PFAS (PFOS and PFOA) in biosolids

Project to prioritize all contaminants in biosolids reviewed by Science Advisory Board in 2023

- Using diverse, poorly documented, old models that may not work as promised
- No analysis at the scale of the landscape (rather than person)
- EPA has had "dialogues" with organizations for states and agriculture -- general approaches
- Prospects for any action entirely uncertain.