



How lawn care affects groundwater pollution

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Two undergraduate technicians from the University of Florida collect groundwater leachate samples below a residential lawn in Gainesville, FL. The photo shows one student measuring the volume of leachate collected and preparing to filter a sub-sample for

dissolved nutrients, while the other student maintains the pump and records data. Photo by Alexander J. Reisinger.

Fertilizing lawns is a common practice to keep residential landscapes green and healthy. However, the nutrients in fertilizers can seep into groundwater and contribute to pollution. This is especially concerning in places like north-central Florida, which has karst terrain, where the ground has many cracks and holes, allowing pollutants to seep quickly into the water supply.

To understand how different methods of lawn care affect nutrient leaching, researchers monitored various fertilizer treatments—synthetic, organic, compost-based, and no fertilizer—across residential lawns for a year and compared these lawns to natural areas. They found that all residential lawns leached significantly more nitrogen than natural areas, even those that received no fertilizer. Lawns treated with synthetic fertilizers released more than 80 times more nitrate than natural areas.

These findings highlight that while fertilizer use influences nutrient runoff, even unfertilized lawns can contribute to leaching. Implementing better lawn management strategies, such as using more organic fertilizers or compost-based products, could help protect water quality. Large-scale adoption of these practices could make a meaningful difference for protecting groundwater quality.

Dig deeper

Reisinger, A. J., Bean, E. Z., Clark, M., Levine, A. J., & Wilson, P. C. (2025). Fertilizer management approaches influence nutrient leaching from residential landscapes. *Journal of Environmental Quality*, 54, 289–302. <https://doi.org/10.1002/jeq2.20657>

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