Can Synthetic Fertilizers Be Part of My Pesticide-Free Yard?

I'm trying to go pesticide-free in my yard, but this is a pretty recent attempt and I've still got a lot of leftover fertilizer and pesticides from my "conventional" days. I know I'm going to get rid of the pesticides at an upcoming pesticide disposal event in my community. Should I also get rid of the urea-based nitrogen fertilizers, and only go for the natural or organic stuff now? What's the history with these chemicals—and how are they different than the more natural products?

Chuck, Princeton, New Jersey

Hi Chuck,

We're really happy to hear about your efforts to go pesticide-free in your yard. The use of synthetic fertilizers can be traced back to the early 1900s, when chemists Fritz Haber and Carl Bosch developed a process to fix nitrogen from the air into ammonia. This discovery ushered in a new era of petroleum-based industrial fertilizers and reshaped agricultural production throughout the world. The rapid adoption of these products in chemical-intensive farming quickly led to their regular use on turf grass, as producers started marketing these cheap chemicals to homeowners looking for a perfect lawn. But this has come with significant downsides, including risks to public health, soil degradation, and the pollution of local waterways. The production and use of these fertilizers also contribute to the ongoing climate crisis. The Haber-Bosch process requires significant amounts of energy. Once applied, synthetically fertilized soils are prone to release nitrogen oxides—potent greenhouse gases that have upwards of 300 times the heat trapping capacity of carbon dioxide. Additionally, the treated soil does not readily absorb or sequester carbon in the atmosphere—thereby eliminating an opportunity to slow climate change.

Synthetic fertilizers are plant available nutrients, meaning they are in a form that allows immediate uptake by the plants. The fast action of synthetic fertilizers can provide lawns with a quick "green up," but nutrients that do not reach plant roots continue to work their way through the soil and can eventually reach local waterways. This runoff causes nitrate and nitrite pollution that contaminates drinking water. And elevated nitrate concentrations in drinking water has been linked to methemoglobinemia (blue baby syndrome), birth defects, cancers, and thyroid problems, even at levels below EPA allowable limits.

Salt-based synthetic fertilizers are also simply bad for your lawn. High levels of nitrogen in these fertilizers cause microbes in the soil to go into a "feeding frenzy," and rapidly deplete organic matter, including natural soil nitrogen and carbon sources. This has the effect of degrading soil structure, which can increase the potential for erosion, and decrease water penetration.

For these reasons, we suggest weaning your lawn off of synthetic fertilizers as soon as it is practical. When we talk about natural organic fertilizers, our focus, rather than feeding plants, is to feed the soil. Microorganisms in the soil will slowly break down organic matter into nutrients that are available to plants. This steady provision of nutrients ensures that plants get the amount they need when they need it, making it much less likely to result in groundwater leaching and other forms of environmental contamination. And rather than contribute to climate change, natural fertilizers and organic practices can be part of the solution. By building up organic matter and microbial life, research finds that organic soils can store over 25% more carbon than synthetically fertilized soils.

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The more you can support the microbial life in your soil, the less need you'll have for any fertilizer use. Buying a truly natural fertilizer can be somewhat complicated, since the only labeling requirement on an "organic" fertilizer is that it contains carbon. For help getting started, visit Beyond Pesticides' website for a list of certified organic fertilizer or soil amendment companies that manufacture products compatible with organic landscape management (See *Products Compatible with Organic Land Management* at bp-dc.org/organiccompatible). Other techniques to reduce fertilizer use include leaving grass clippings on your lawn, and planting clover or microclover. In many areas of the country, this combination can provide nearly all the nitrogen your lawn needs for the year. We

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Beyond Pesticides welcomes your questions, comments, and concerns. Have something you'd like to share or ask us? We'd like to know! If we think something might be particularly useful for others, we will print your comments in this section. Mail will be edited for length and clarity, and we will not publish your contact information. There are many ways you can contact us: Send us an email at *info@beyondpesticides.org*, give us a call at 202-543-5450, or send questions and comments to: 701 E Street SE, Washington, DC 20003.

applaud your work to go pesticide-free in your yard. If you ever need additional guidance, visit Beyond Pesticides' Lawns and Landscapes program page for more information, *bp-dc.org/lawns*.

A Toxic Business Model

I am curious if there is any new information regarding the increasing prevalence of residential mosquito spray companies (e.g., Mosquito Authority, Mosquito Hunters, Mosquito Joe, etc.), and the possible effect of the pesticides on pollinators? My neighbors are having their property fogged every three weeks! I have tried talking to them, and providing them with information and alternatives, but they are not interested in considering anything other than fogging every three weeks. Are there local laws that can address this?

Rebecca, Indianapolis, Indiana

Hi Rebecca,

We're very sorry to hear about your neighbor's spraying. In addition to human health effects, the pesticides used for mosquito control do pose a significant threat to pollinator populations. More often than not, mosquito spray companies base their business model on the use of synthetic pyrethroid insecticides. Research finds that these chemicals can disorient pollinators, making it difficult for them to find their way back to their hive. They can also weaken hives by reducing bee movement and decreasing social interaction. Even as part of a community-wide vector control program, these pesticides should only be considered in the event of a public health emergency that presents an imminent threat to public health, and then only as a very last resort after alternatives have been tried.

We empathize with your situation with your neighbors—it is a story we hear all too often at Beyond Pesticides. Many, but not all, of these companies will offer a "natural" or "least-toxic" option upon request. Usually, this means they will spray a garlic oil or other repellent around the property.

You can also work to encourage other neighbors to practice safe community mosquito prevention. The more folks you can have regularly dumping standing water, or using mosquito larvacide dunks in areas that do not drain, the fewer mosquitoes in the neighborhood. This will decrease the perceived need to spray, especially if other neighbors are seeing encouraging results and spreading the good news throughout the community. We have seen success with volunteer efforts door-knocking campaigns, or using the Nextdoor network to ask folks to take a "pledge" to stop using toxic pesticides on their property. If you do that, we encourage you to form a group and give yourselves a name, so that it takes pressure off of you as an individual advocate and brings the neighborhood and community together in these collective efforts. Unfortunately, in most states, local towns and communities are preempted (prohibited by state law) from passing laws that stop pesticide use on private property, and local laws do not tend to restrict mosquito spraying. Therefore, spray companies must be reined in at the state level, where they use their significant resources to fight legislation that would curtail use in favor of nontoxic and preventive practices.

You can purchase our mosquito doorknob hangers to jump-start your outreach efforts to neighbors. Go to *shop.beyondpesticides.org*. This is a great way to raise awareness in the neighborhood of the hazards of pesticides and the availability of alternatives. As with any organizing effort, the best predictor of success is persistence, so we hope you will continue to work at it and contact Beyond Pesticides with any further questions.

FROM THE WEB

Beyond Pesticides' Daily News Blog features a post each weekday on the health and environmental hazards of pesticides, pesticide regulation and policy, pesticide alternatives, and cutting-edge science, www.beyondpesticides.org/dailynewsblog. Want to get in on the conversation? "Like" us on Facebook, www.facebook.com/beyondpesticides, or send us a "tweet" on Twitter, @bpncamp!

Excerpt from Beyond Pesticides Daily News Blog (5/3/2019): *State Court Upholds the Right of Local Governments in Maryland to Restrict Pesticides on All Lawns in Their Jurisdiction*. A Maryland Court of Special Appeals ruled that Montgomery County, Maryland has the right to restrict pesticides, under a 2015 landmark law, on all lawns and landscaped property in its jurisdiction more stringently than the state. The chemical lawn care industry has appealed.
Laurie E. comments: Yes! Finally, common sense prevails to help protect our children and their vulnerable developing nervous and endocrine systems.
MargaretAnne H. comments: Very important decision—allows local governments to make decisions about pesticides and not be preempted by state. Yeah for Maryland. We need this in Pennsylvania.

Excerpt from Beyond Pesticides Daily News Blog (3/4/2019): *Take Action—Saving America's Pollinators Act Reintroduced in Congress*. Last week, U.S. Representative Earl Blumenauer (D-OR) reintroduced the *Saving America's Pollinators Act* (H.R.1337) to cancel specific bee-toxic pesticides and establish a review and cancellation process for all pesticides that are potentially harmful to pollinators.
Carol T. comments: We've destroyed the soil's fertility with chemicals, requiring more chemicals and more water. We have greatly harmed our own health, and now we are killing the pollinators. The magnitude of this should frighten us all. By protecting the pollinators, we will begin to heal the soil, and healthier soil requires less inputs, which will result in healthier people. So, please protect the pollinators.