Environmentally Friendly Lawn Care—Part II

Last month we discussed the environment turfgrasses evolved in to understand its cultural preferences. We also covered fertile soils as the foundation for healthy lawns. This month's topics are fertilizers and pest control. Next month we'll cover watering/mowing practices.

Unintended Migration

What we put on our lawns doesn't always stay there. Migration of chemicals from lawns into surface or groundwater is a major environmental issue – and not just in SE Michigan.

Let's start with pesticides. Studies report that common pesticides kill frogs or cause terrible mutations[1],[2],[3]. Amphibians are bellwether organisms, sensitive to environmental change and vulnerable to chemical misuse. Their decline warns of hidden dangers for all species in the environment.

What about fertilizers? Background levels of phosphorous—the second number in the NPK ratio on fertilizer bags—are often high in SE Michigan soils, so excess nutrient is washed away, as soils can't hold more. Phosphorous is also the limiting nutrient in waterways. Too much of it causes profuse algal bloom, which strips oxygen from water, killing fish and other aquatic life. To halt this, many lake communities have enacted laws banning fertilizers with phosphorous.

Excess nitrogen (the first NPK number) can also be a problem. It's water-soluble, so rain or sprinklers can move it into waterways via leaching or runoff. It isn't stored long in soil unless chemically modified to be "slow-release," or held in complex as natural/organic products are.

Multiplication Problems

If you over-fertilize, as many do-it-yourselfers and professionals do, then you're not only wasting money, but contributing to serious environmental problems.

Don't add nutrients your lawn doesn't need. Start with a professional soil test from MSU Extension. If the results show soils need amending, make sure you know the square-footage of the application area, then add product to achieve rates recommended by the test results. If you don't know how to calculate this, call your local Master Gardener hotline.

Neatness counts, so sweep excess product off driveways and sidewalks back into lawns or it will quickly wash down storm drains and into waterways.

Fertilizer Options

Fertilizers aren't "plant food," despite advertising claims. Rather, they're "nutritional supplements" like vitamins. Plants—at least green ones—make their own food from sunlight via photosynthesis.

There are many fertilizer options. Consult soil-test results to ensure

you're putting down what your lawn *needs* rather than what the manufacturer wants to sell you.

The easiest choice is compost, which provides nutrients for plants and soil organisms, improves soil texture and structure, and (in sufficient amounts) acts like mulch. Another option is humic shale (partially fossilized compost). This granular product improves soil texture, has higher levels of trace minerals, and is easy to store. Manures and sewage sludge are a possibility, although they can contribute to runoff, burn plants, and add weed-seeds, pathogens or heavy metals to soils. Other natural/organic products are available, but watch that phosphorous levels aren't too high for your municipality. Also remember NPK ratios are lower for these products, which work more slowly (albeit longer) than synthetics, so gone is that "instant green."

Fully synthetic fertilizers often have high NPK ratios. They need to be applied carefully to avoid runoff issues and burning plants. Select a product with the highest available water-insoluble nitrogen (WIN) value for longer coverage and to protect waterways. Check local ordinances regarding allowable phosphorous levels, as many products are not "lake safe." Avoid "weed & feed" formulations, which contain herbicides your lawn may not need.

Semi-synthetic products are newer, combining the benefits of organics with the ability to tailor NPK ratios. The same guidelines apply here as with conventional synthetics.

Since nitrogen can contribute to snow mold and its uptake in dormant plants (summer heat/winter cold) is minimal, make sure mid-summer and late-fall applications have lower levels of this nutrient.

What's Bugging You?

More than half of popular lawn pesticides contain ingredients classified by EPA or the World Health Organization as possible carcinogens, a third contain known or suspected endocrine disruptors, 25% contain reproductive toxins, and 40% are banned in other countries[4]. U.S. homeowners apply 90-million pounds of these products annually to yards where children and pets play—a 3x higher rate/acre than farmers use on agricultural crops[5]. EPA has found these chemicals track indoors and persist in carpeting and flooring for years. Then we wonder why we have skyrocketing rates of cancer and allergies, let alone hermaphroditic frogs. There are alternatives to covering every square-foot of lawn with poison, but it requires changes.

Natural/organics may appear more expensive on a cost/pound basis; better to compare annual applications costs, since fewer applications are usually required.

The first hurdle is changing your attitude about the level of "imperfection" you'll tolerate, and the second is changing that of your neighbors and town. It's also the basis of Integrated-Pest Management (IPM) practices pioneered in commercial agriculture.

With IPM, you don't use a shotgun when a rifle will do. You don't apply broadleaf herbicide when your target is crabgrass. Start by inspecting your yard for damage. Then identify which pest is doing harm. Next, establish a threshold of acceptable damage. Below that, you'll take no action. Above that threshold, use the most specific (and least harmful) approach to removing the pest. If that method fails, only then do you move to the next least-harmful method.

Another hurdle is our reliance on convenience—a single spray that kills every pest in nature with the push of a button. It's too easy to misuse such chemicals. Often, the least-harmful pest-control method requires spending time in nature digging out weeds, or picking off bugs and killing them.

The last hurdle is the largest and will take longest to change—learning to value diversity and the health of the environment enough not to behave this way. It will require us to break half-a-century of saturation advertising by the chemical industry. Is the stigma of having dandelions in our grass worth the cost and danger?

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Footnotes:

[1] Source: coloherp.org/cb-news/Vol-29/cbn0208/Mutations.php

[2] Source: organicconsumers.org/ge/roundup040605.cfm

[3] Source: news.bbc.co.uk/cbbcnews/hi/sci_tech/newsid_2117000/2117263.stm

[4] Source: organicconsumers.org/school/lawns041905.cfm

[5] Source: organicconsumers.org/school/lawns041905.cfm