Natural Landscaping:

Safe and Non-Toxic Lawn Care

CITY OF BLOOMINGTON

www.bloomington.in.gov/environment

City of Bloomington Environmental Commission

Introduction: Maintaining an attractive lawn on your property can be done without the use of pesticides or synthetic fertilizers. This factsheet provides some basic tips on natural landscaping.

Corn Gluten Meal

- Is a natural source of nitrogen for your lawn and inhibits germinating weed seeds like crabgrass from developing normal root systems.
- Apply 12 to 20 lbs per 1000 ft^2 of lawn in early- to late-March.

Know Your Fertilizer

- Organic fertilizer is made from renewable, naturally occurring organic materials such as animal manure, worm casings, and composted plant material.
- Synthetic/Inorganic fertilizer is manufactured from various gases and mined mineral compounds. Nitrogen fertilizers are typically made from natural gas (CH_{4+}) and nitrogen gas (N_2) using the Haber-Bosch process, which is why chemical fertilizer prices go up when home fuel prices do.

Composting

- Conditions soil by adding much-needed organic content and by suppressing many turf pathogens.
- Apply in fall and spring, after aerating, by spreading a ¼ inch layer of compost over entire lawn.
- Liquid compost tea and vermin-compost (a.k.a. worm castings) can be used for treating disease and nutrient-rich soil amendment.
- Try making your own compost from food scraps and (non-weed seed containing) garden waste.

Biological Controls

- ***Beneficial Nematodes*** are microscopic, non-segmented worms that occur naturally in soil. A solution containing 10 million worms will treat approximately 2,500 ft^2 of lawn. Apply away from direct sunlight in cool weather every 3-6 weeks or until the pest infestation subsides. Target pests depend on which (of the primary three) nematode species is being used and include, but are not limited to, the soil-dwelling larval stage of beetles (white grubs), billbugs, borers, chaffers, fleas, flies, gnats, miners, moths, termites, and weevils as well as various worm pests. Water the target site before and after application.
- ***Praying Mantises*** are general predators that can be used in conjunction with other beneficial insects, which they may eat with exception of ladybugs. Place 3 egg cases (each will produce 100-200 baby mantids) per 5,000 square feet of lawn. Attach egg cases to twigs, leaves, fences, bushes or trees in early spring.
- ***Spined Soldier Bugs*** are predatory stink bugs that prey on one of Indiana's most common insect pests, grubs (the larvae of beetles or other insects). The application rate is 1 nymph/adult per lightly infested plant or 5-10 per heavily affected plant. These beneficial insects provide approximately 30 days of control after release.
- ***Ladybugs*** are voracious predators whose diet includes chinch bugs, another common insect pest in Indiana. 1,500 ladybugs cover approximately 1,000 square feet of lawn and may produce several generations under ideal conditions.
- ***Milky Spore Powder*** is safe to use near water and will not harm beneficial insects, animals or humans. Milky spore is a powdered form of the bacteria *Bacillus popilliae*, which infects and kills the larvae (grubs) of Japanese Beetles after being ingested. After a host insect dies and the grub's body decays, milky spore is released back into the soil and can infect a new host insect. It can take up to two years to see the full effects of an application, but a single application can control grubs for as long as 15 to 20 years. Milky spore is best applied to warm soil (65 °F and up) in early fall. Water milky spore powder into the soil after spreading.

Homemade Weed-Killer Recipe

- Works effectively (may require repeated treatments) on noxious weeds in juvenile stages including, but not limited to, *dandelions* and *poison ivy, oak,* and *sumac*.
- The acetic acid in vinegar is a non-selective plant killer, so apply vinegar-based recipes carefully to avoid harm to desirable vegetation.
- Homemade recipes vary quite a bit, but you can start with this combination:
  - **3 cups VINEGAR** *(white distilled with 5%, 10%, or 20% acetic acid)*
  - **½ cup SALT** *(allow salt to dissolve into vinegar before adding soap)*
  - **1 tbsp SOAP** *(liquid dish detergent without bleach is safe and effective)*

1. **Compaction** – If you are unable to stick a screwdriver easily into your soil, then it is too compacted and your lawn is an invitation for weeds. Fall is the best time to aerate your lawn, which helps air, water and fertilizer penetrate the soil. Once you have established a safe and non-toxic lawn, worms and birds will provide natural soil aeration!

2. **Mowing Height** – Bad mowing practices cause many lawn problems. Mowing lower than 2 inches kills the root system of grass by preventing photosynthesis, and also invites sunlight in for weeds to sprout. Mowing with a dull blade makes the turf susceptible to disease. Lawns should be mowed at a height of 2 inches for the first and last cuts of the season only. Otherwise, maintain grass at 3 inches or higher to allow grass to grow deep, drought-resistant roots. For healthy grass, do not mow off more than a third of the height of your grass on any one day.

3. **Watering and Poor Drainage** – Drought conditions, excessive watering or poor drainage due to soil type are all invitations for weeds. Watering needs are very site specific, but a deep watering of about 1 inch once a week in the early morning is generally best. Once you have established a deep root system from mowing high, grass will need less water. Check with a local nursery for help with identifying your soil type and more specific recommendations.

4. **Grass Seed and Seeding** – Grass varieties differ enormously in their quality, resistance to certain pests, tolerance to climatic conditions, growth habits, and appearance. Some weeds are the result of using poor quality grass seed. Over-seed with the proper grass seed for your region to promote a dense turf that out-competes weeds. Go online (www.american-lawns.com) to learn about the best grass variety for your region and site-specific conditions.

5. **Thatch Buildup** – Thatch is a dense layer of grass stems and roots on the surface of the soil. Thatch buildup is a symptom of shallow watering and chemical fertilizer usage. When thatch layers become a ½ inch tall or more, roots will grow up within thatch instead of soil, making grass susceptible to insects, disease, and weather stress. If your lawn feels spongy, you may have thatch buildup. Thatch is reduced by aeration, power raking or topdressing with organic matter. In healthy lawns, earthworms and microorganisms living in the soil will break down the thatch.

6. **Soil Testing** – A soil test is the best way to determine your soil's pH and specific nutrient needs. Soil samples are currently accepted locally at the White River Co-Op and Bloomingfoods East Garden Center, where they will be sent to the nearest lab for testing. In addition to nutrients and pH analysis, ask for an organic content analysis and organic care recommendations. Organic content in a lawn's soil should be around 5% or higher.

   Low pH means acidic conditions and high pH indicates alkaline conditions. If pH is too high, grass cannot properly absorb nutrients. Ideal soil pH should range between 6.5 and 7.0 or slightly acidic. Generally, lime is added to raise pH and sulfur is added to lower pH, but adding compost can naturally correct your soil pH.

   Fertilizing in early fall ensures good growth and root development for your grass. Nitrogen, the most abundant nutrient in lawn fertilizers, promotes color and growth. Look for organic, slow-release fertilizers at your local nursery or online (at www.saferbrand.com, for example) that are certified by the Organic Materials Review Institute (OMRI). You can also leave grass clippings on your lawn. They are rich in nitrogen and can improve the health of your grass and soil. However, adding too much nitrogen or quick-release synthetic fertilizer can backfire, weakening grass and promoting disease and thatch buildup.

References:

- Biocontrol Network "Pest Problem Guide" – http://www.biconet.com/index.html
- American-Lawns.com "Lawncare by State" – http://www.american-lawns.com/states/in.html
- National Coalition for Pesticide-Free Lawns "Read Your Weeds," Fact Sheet – www.pesticidefreelawns.org
- *The Organic Lawn Care Manual*, Paul Tukey, Storey Publishing, 2007.
- *Corn Gluten Meal - A Natural Lawn Care Herbicide*, Caroline Cox, Journal of Pesticide Reform, Winter 2005, Vol. 25, No. 4.