



# River-Friendly Lawn and Yard Care



## Lawns: Evaluating an American Tradition

### I. Environmental impact of green lawns

- Keeping a green lawn cut, seeded, fertilized, insect and weed-free takes time and often requires using chemical products that are harmful to the environment.
- Lawn chemicals (fertilizers and pesticides), grass clippings and yard waste combine with sprinkler and rain water, and then run off into storm drains, most of which lead to lakes and rivers.
- Dirty runoff pollutes waterways, including Lake Michigan, where many people get their drinking water.
- Many suburban lawns have low permeability resulting from shallow root systems and bad, clay-like subsoil. The inability of these lawns to absorb stormwater, similar to the impermeability of pavement, results in polluted runoff and flooding.

### II. Environmental impact of lawn chemicals

- Fertilizer does to rivers what it does to lawns—it turns them green! Nutrients from fertilizers feed algae growth.
  - Algae blooms make boating, fishing and swimming unpleasant and negatively affect recreation and tourism.
  - Excessive algae growth harms aquatic life.
    - The breakdown of algae by bacteria depletes oxygen in our waters and can cause death of aquatic life.
    - Algae blooms impair visibility, making it difficult for aquatic life to find prey.
- Pesticides can be toxic and directly or indirectly harm aquatic life, bacteria and other organisms.
- Pesticides are found in all of our rivers and harm their natural ecology.

### III. Healthy alternatives for ecologically cognizant lawn care

- Augment infiltration of stormwater runoff with rain gardens, rain barrels and native plants.
- Plan lawn management wisely to reduce use of fertilizers and pesticides.



## Rain Gardens and Native Plants: Alternatives to Green Lawns

### I. What is a *rain garden*?

- A rain garden is a slightly depressed garden located where it can catch water from a roof, downspout, driveway or yard, thus promoting slow infiltration of water rather than polluted runoff.
- Rain gardens generally infiltrate 30% more water into the ground than conventional lawns.
- Typically, a rain garden is:
  - Planted with native perennial plants that can withstand both wet and dry conditions.
  - Dug 4-6 inches deep with a flat bottom.
  - In a low area that usually accumulates rainwater but is not permanently wet.
  - Located near the down slope of a building's downspout, or wherever the rain garden will catch water coming from a yard or building via gravity.
  - At least 10 feet from any foundation (to avoid basement drainage).
  - Either formal or informal in design depending on the desired look.

### II. Benefits of rain gardens

- Allow rainwater to soak in and replenish groundwater, helping protect and restore natural hydrology, thus maintaining natural river levels and flows throughout the year.
- Minimize runoff that causes increased water levels and flooding during strong rain events.
- Attractive addition to property and enhance the beauty of any city or communal space (libraries, schools, city halls, etc.).
- Create wildlife habitat.

### III. The value of using native plants, either in a rain garden or individually throughout a lawn

- Native plants provide a vegetative buffer that filters pollutants and prevents them from entering waterways.
- Deeper root systems absorb more storm water.
- Native plants are already adapted to their native habitat, so they require no fertilizer and few pesticides.
- After being established, they require no watering.
- After the first several years, native plants require little to no maintenance.



#### **Rain Barrels: An Environmentally Friendly Addition to any Lawn or Garden**

##### I. What are *rain barrels*?

- Rain barrels collect and store rainwater, which results in less stormwater runoff and more infiltration.
- Commonly, a plastic 50-gallon barrel or container of similar capacity is of adequate size.
- To order a rain barrel:
  - Every Drop Counts <<http://www.everydrop.org/rainbarrel.php>>
  - Keep Greater Milwaukee Beautiful (KGMB) 414-272-KGMB <<http://www.kgmb.org>>
  - Milwaukee Metropolitan Sewerage District (MMSD) <<http://www.mmsd.com>>
- If you don't purchase a rain barrel, try a bucket!

##### II. Benefits of rain barrels

- Can be set to save water for later use or slowly release it into the ground.
- Reduce the need for irrigation by directing rain barrel water to gardens or ornamental plants.
- Natural rainwater is much better for plants than city water because it is not chlorinated and only mildly acidic.
- Help lower water costs.
- Reduce polluted stormwater runoff by keeping runoff on property rather than enabling it to carry pollutants into storm drains, rivers and lakes.
- Reduce stress on sewers that can cause raw sewage overflows.
- Help prevent flooding after a strong rain event.
- Reduce erosion, sedimentation and pollution by reducing amount of water rushing off property.

#### **Reducing the Impact of Green Lawns: Planning for Ecologically Friendly Lawn Care**



##### I. Lawn or turf grass vs. native plants

- Lawn or turf grass is not as good as native plants at infiltrating water and filtering pollutants.
- However, turf grass is better than exposed dirt. Lawns, depending on subsoil, do provide an important function in stabilizing top soil and filtering some pollutants.
- Many people need or want to maintain their turf grass, as it is a traditional yard arrangement and provides a recreational area.
- Planning for ecologically friendly lawn care can reduce polluted stormwater runoff and also save money.

##### II. Soil testing: don't underestimate its importance

- What is a soil test?
  - A quick and inexpensive tool to manage the mineral nutrition of growing plants by checking the levels of essential soil nutrients.
  - Soil sample is sent to a lab for analysis.
- Why is soil testing important?
  - Indicates soil pH and the level of nutrients available for plant growth.
  - Tells if more nutrients are needed and how much lime and fertilizer, if any, to add.
  - Tells what kind of plant will thrive in given soil with the least amount of effort.
  - By reducing the use of lawn chemicals, prevents polluted stormwater runoff.
  - Saves money.

- When and how often should soil be tested?
  - Test soil well before the growing season, in either early spring (after frost is out of the soil) or fall before the freeze.
  - Avoid sampling soon after fertilization.
  - Sample at least once every three years.
- How to take soil samples
  - University of Wisconsin-Madison Soil and Plant Analysis Lab has instructions at <http://uwlabs.soils.wisc.edu/madison/>
  - Take samples from different areas of your lawn, and then mix them together.
  - If you have multiple areas, you need multiple samples.
  - Dig at least 4 inches deep in established turf and at least 6 inches deep in gardens and lawns that aren't yet established.
  - Place composite sample in a clean bag, fill out soil information sheet and send to lab.
  - It usually takes two weeks for the lab to analyze the sample.

### III. Fertilizing

- Minimize the use of fertilizer as much as possible, as it can run off into storm drains, rivers and lakes, causing water pollution.
- Use compost, mulch or grass clippings to fertilize.
- Use a phosphorous-free fertilizer if possible, as phosphorous is linked to algae blooms.

### IV. Watering

- Generally, lawn watering is discouraged. Most lawns die back during dry periods, but easily rebound in times of rain.
- Water in the early morning or evening to minimize evaporation.
- Apply one inch of water per week, taking into account grade, shade, weather and rainfall.
- To avoid over-watering, measure the amount of irrigated water applied to the lawn by putting out a can or receptacle, or sinking a tuna can into the ground.
- Install rain barrels on down spouts to collect healthy rainwater for watering lawns and gardens.
- Water plants deeply but less frequently to create healthier and stronger landscapes.
- Group plants with the same watering needs together to concentrate the area needing watering.
- Avoid installing ornamental water fountains that spray water into the air. Trickling or cascading fountains lose less water to evaporation.
- While fertilizers promote plant growth, they also increase water consumption. Apply the minimum amount of fertilizer needed.

### V. Mowing

- Keep mower blades sharp. Sharpen blades 2-3 times each season to save energy.
- Mow frequently. Removing more than one-third of the leaf blade shocks the lawn and stops root growth. It also produces long grass clippings that cannot easily filter down to the soil surface where they decay.
- Mow high. 2.5-3 inches provide more leaf area to shade the soil and helps grass produce more food reserves and a deeper root system. Weeds thrive in bare, sunny soil but suffer under tall, dense turf. Near the end of the mowing season, however, cut the grass shorter to 2 inches. Long grass increases the chance of winter injury and snow mold.
- Leave grass clippings on the lawn where they will decompose and help the lawn grow. Clippings can provide between 20-50% of the nitrogen needed by a lawn.
- Avoid mowing in the heat of the day, as grass will lose moisture.

### VI. Raking

- Mow leaves and let their clippings decompose on the lawn.
- Use leaf clippings as mulch to cover plants for winter or as a compost to fertilize.
- Place plant beds under trees to hide fallen leaves. The decomposing leaves will help the plants grow.

### VII. Collecting yard waste

- Use branches and trimmings as firewood, plant stakes or vegetable or vine supports.
- Compost kitchen waste.
- Mulch leaves.

## VII. Applying herbicides and insecticides

- Plant a naturally diverse, native plant garden to reduce pest problems. Native plants require little to no pesticides.
- Know plant type and identify its disease to prevent ineffective herbicide or insecticide application.
- Try not to use chemicals. If you must, use them in moderation and according to manufacturer directions.
- Apply in dry weather, as rainfall washes them off into storm drains, rivers and lakes.
- Use alternative biological controls such as herbicidal/insecticidal soaps and corn gluten meal.
- Pull weeds by hand.
- Weed lawns and gardens regularly. Weeds compete with other plants for nutrients, light and water.
- Keep chemicals away from storm drains, rivers, streams and lakes.

### **In Conclusion: Managing Yards in an Ecologically Friendly Way**

- Research ecologically advantageous alternatives: rain gardens, rain barrels and native plants.
- Preserve existing vegetation as much as possible, especially on waterfront property.
- Minimize paved areas to avoid polluted runoff.
- Regularly test soil to grow appropriate plants and avoid unnecessary fertilizer and pesticide use.
- Minimize use of fertilizers. Use yard waste, leaves, mulch and compost to fertilize instead.
- Avoid herbicides and insecticides. Try natural products such as corn gluten meal.

“When it comes to lawns, less is often more...  
more spare time, more plant variety and more money saved.”

### **Additional Resources**

Friends of Milwaukee's Rivers. <<http://www.mkeriverkeeper.org>>

Wisconsin DNR-Rain Gardens. “Rain Gardens Infiltrating Wisconsin!”  
<<http://www.dnr.state.wi.us/org/water/wm/nps/rg/index.htm>>

UW-Extension ERC Natural Resources Education Publications. “Home and Garden Clean Water Practices.” <<http://clean-water.uwex.edu/pubs/home.htm>>

United States Department of Agriculture, Natural Resources Conservation Service. “Backyard Conservation” <<http://www.nrcs.usda.gov/feature/backyard>>

Healthy Communities Project. <<http://www.healthycommunitiesproject.org>>

Lesslawn.com. <<http://www.lesslawn.com>>

Greater Madison Healthy Lawn Team, Inc. <<http://www.healthylawnteam.org/home.htm>>

Bayer, David. University of Wisconsin Extension. “Lawn Care Facts.”  
<<http://www.uwex.edu/CES/cty/Outagamie/hort/documents/LawnCareTips.pdf>>

Larson, Barb. University of Wisconsin Extension. “Wisconsin Lawn Care Calendar.”  
<<http://wihort.uwex.edu/gardenfacts/XHT1147.pdf>>

University of Wisconsin-Madison. “Soil & Plant Analysis Lab.”  
<<http://uwlab.soils.wisc.edu/madison/>>

#### Rain Barrel Resources:

- Every Drop Counts. <<http://www.everydrop.org/rainbarrel.php>>
- Keep Greater Milwaukee Beautiful. <<http://www.kgmb.org>>
- Milwaukee Metropolitan Sewerage District. <<http://www.mmsd.com>>

