

Eco-Landscaping Guide



This document has been created by the Solid Waste Agency of Northern Cook County (SWANCC). The Agency was formed in 1988 to provide a regional approach to the solid waste management needs of its twenty-three member communities, representing over 800,000 residents in northern Cook County. SWANCC provides a number of recycling programs, events and resources for its members. The *Eco-Landscaping Guide* provides residents with an alternative to commercial gardening products using chemicals.

For more information, visit swancc.org, call (847) 724-9205 or email info@swancc.org.

SWANCC
2700 Patriot Boulevard, Suite 110
Glenview, IL 60026

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Photo Credits by:
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Book Design by:
Cameron Ruen

Editing by:
Kathy Clark

Special Thanks to:
Diane Bolash, Arlington Heights Master Gardener
Steve Pincuspy, Midwest Ecological Landscape Association

Table of Contents

I Why Choose a Natural Lawn?

Develop a Plan

- 5** Determine Lawn Use
- 7** Turf Selection
- 9** Soil Biology Basics
- 11** Plant Selection

13 Lawn Care Calendar

Caring for Your Lawn

- 15** Cultivation
- 19** Compost
- 23** Pest Management

Additional Resources

- 27** Water Conservation Methods
- 29** General Resources
- 31** SWANCC Programs and Resources



Healthy From the Ground Up

Nurturing soil is the groundwork for a healthy yard.

Why Choose a Natural Lawn?

The Solid Waste Agency of Northern Cook County (SWANCC) provides the Eco-Landscaping Guide to assist home owners, municipalities and businesses with alternative lawn care techniques for maintaining outdoor green spaces.

The guide presents resources to encourage people to use alternatives to conventional lawn care methods and chemicals. The way one cares for an outdoor space is a choice that has effects far beyond property lines.

Yards are our outdoor homes and provide great spaces for playing and relaxing. Over the years, lawns have been managed in a reactive or conventional way of applying fertilizer and weed killer. Decision makers now have choices for cultivating and maintaining their property with organic or natural methods - a proactive approach to managing lawns and turf.

The benefits of a natural lawn care system include:

- Reduced exposure to chemicals for people, pets and plants
- Improved ecosystems for birds, insects and bugs
- Improved water quality and reduced storm water runoff
- Long-term savings compared to conventional methods

Conventional Lawn Care vs. Natural Lawn Care Methods

Conventional/Product Approach

Objective is to have a weed-free, green lawn

- Synthetic fertilizers
- Chemical pesticides
- Product approach for quick fix
- Treats symptoms, not problems
- Multiple applications based on time of year
- Generally low mowing heights

Natural/Systems Approach

Objective is to create and establish healthy soil

- Natural, organic products
- Product application is based on benefit to soil health
- Soil testing is the basis for all inputs
- Solves problems as opposed to symptoms
- Higher mowing heights

About Woody Plants:

- The roots of a single mature tree may extend 60 feet or more into your landscape or flower beds.
- Allow at least one-foot clearance between the exterior wall and mature plants for maintenance and to prevent damp, stagnant conditions that can be damaging.
- Shrubs and small trees near your home's foundation provide shade, windbreak, and additional insulation.
- Using a trimmer too close to the base of a tree may actually kill the tree over time. It's important to be mindful of trees and shrubs when caring for your lawn.
- Because perennial woody plants increase in size each year, they require additional space over time. The landscape design should provide adequate space for these plants to mature.
- Increasing the amount of tree cover in a community can mitigate the "urban heat island effect," the tendency of settled areas to absorb and retain heat that makes them 5-9 degrees hotter than surrounding landscapes.
- The US Forest Service reports that three optimal and well-placed landscape trees can reduce the annual costs of heating and cooling a well-insulated northern Illinois house by about 6.5%.
- Nitrogen in organic matter is not usable by plants. Bacteria and fungi first have to convert the nitrogen for plants.

What is a Pesticide?

Pesticides are made to eliminate or repel insects, plants and animals that are undesirable or that threaten human health. According to Beyond Pesticides, of 30 commonly used turf pesticides: 19 are linked to cancer, 13 to birth defects, 21 to reproductive effects, 15 to neurotoxicity, 26 to liver or kidney damage and 11 to endocrine (hormone) disruption. For case studies, resources and more information, visit Beyond Pesticides at beyondpesticides.org.

The American Medical Association (AMA) recommends limiting pesticide exposure and using the least toxic chemical pesticide or non-chemical alternative (AMA, Council on Scientific Affairs, 1997).

General environmental hazards linked to pesticides can include:

- Water contamination
- Air pollution
- Pollinator death and Bee Colony Collapse Disorder
- Wildlife deformities
- Ecological imbalance

General health hazards of pesticide exposure can include:

- Eye irritation
- Skin irritation and rashes
- Asthma and other respiratory problems
- Headache, fatigue, dizziness and lack of coordination
- Nausea, cramps and diarrhea
- Long-term illnesses and certain forms of cancer

Due to the potential harm that pesticides can cause, it is prudent to use alternative products whenever possible.

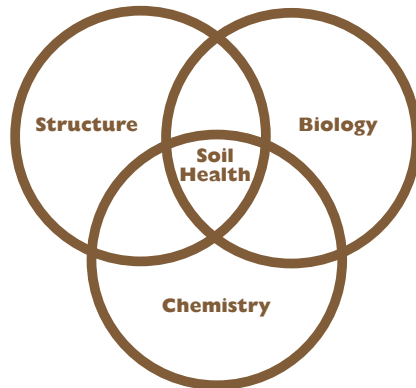
A growing number of companies provide environmentally-friendly lawn care products, but beware of "green washing" – companies whose names or products sound "green". Some companies claim their products are nontoxic or all natural when they are not. A company can say that they use natural products but still use pesticides with chemical ingredients, for example. This guide illustrates how to care for a lawn without the use of chemicals and focuses on the health of the soil below to create a living, breathing system that will be able to ultimately care for itself. You will learn what makes up healthy soil and how to maintain it using environmentally-friendly practices. See page 23 for more information.

The Interconnectivity of Soil Health

3 Factors for Optimal Soil Health

Three Factors

To reach optimal soil health, the structural, chemical and biological components of the soil need to be balanced. This provides an environment suitable for a thriving underground life.



Structure Structural

Structure refers to the physical characteristics of the soil and how it sticks together. Organic matter is the glue that holds the soil together, including fungi and bacteria. Soil pores allow air and moisture to reach plant roots.

Chemistry Chemical

The chemical nature of the soil refers to the nutrient content and the acidity or alkalinity (pH) of the soil, which impact the fertility or toxicity of the environment.

Biology Biological

The biological component includes insects, bacteria, fungi, worms, nematodes and other life underground that break down organic matter, provide nutrients to plants and aerate the soil.

In 1 Teaspoon of Soil

Soil Biology at a Glance

The following are found in one teaspoon of soil:

Decomposers

Bacteria: 100 million to 1 billion

Fungi: 6-9 foot fungal strands put end to end

Predators

Protozoa: Several thousand flagellates and amoeba

Nematodes: 10-20 bacterial feeders, a few fungal feeders

Arthropods: Up to 100

Aerators

Worms: 5 or more

Sources: Osborne Organics, osborneorganics.com; University of Minnesota Extension, extension.umn.edu; Safer Pest Control Project, sppweb.org.

About Soil:

• Learn about the soil food web at soilfoodweb.com.

• First test the pH of your soil. This will allow you to identify deficiencies and help plan for problems that may happen throughout the year.

• The Boston Natural Areas Network provides a list of the ten most important insects at bostonnatural.org.

• Spring is a crucial time to fertilize because it replenishes the food reserves your yard draws from while dormant in the winter and fuels grass' rapid growth phase.

• Seaweed is loaded with trace elements like iron, magnesium and zinc which support plant health and root development, and help fight off fungal diseases.

• Growing grasses and other plants in healthy, living soil will make the plants more drought-tolerant, disease-resistant and require less maintenance.

• Compact soil will most likely be anaerobic and acidic with a low level of microorganisms present and lack of diversity.

• Highly acidic or alkaline soil may lead to decreased plant growth.

• Pesticides impact the soil organisms which contribute to a healthy lawn.

• Soil erosion is a threat to biodiversity, leading to a loss of topsoil, organic matter, nutrients, water storage capacity and fertility.

• In nature, almost all organic material is processed on or very near the surface by numerous macro- and micro-organisms.



Right Size Your Yard

Your yard serves a variety of purposes. Grass may not be the answer for every area of your property.

Determine Lawn Use

Plan It Out

The following points outline some considerations when thinking about the amount and type of lawn care at your home.

Time Assessment

If you are a do-it-yourselfer, it is important to consider how much time you wish to devote to lawn care.

Traffic

In areas that have frequent high traffic, think about applications other than grass to accommodate your outdoor space, perhaps a gravel lot for a parking area or stones for a footpath. It is likely that grass in high traffic areas will suffer from severe compaction, leading to weed growth.

Soil Characteristics

When planning what to do with your lawn, it is best to know exactly what you are dealing with underneath the grass line in terms of chemical composition. This point is expanded upon in the Soil Biology section.

Irrigation and Drainage

Providing ample amounts of water to a landscape can be a cost-intensive task. To best use this resource, water deeply and infrequently in the morning. Less evaporation occurs by watering in the morning than in the heat of the day. A natural lawn that is properly aerated, has adequate soil depth and deep roots is able to store water for use when needed, which may result in reducing the frequency of watering the landscape.

In areas that cannot handle a large amount of water, lawns may easily flood or soil may erode. In cases of flooding, it may be necessary to install a drainage basin or ditch to divert water and prevent pooling on the surface.

Turf Alternatives

There may be areas of your yard that you do not use frequently. Consider transitioning those areas into low-maintenance areas of your yard such as ground cover, wildflowers or shrubs to add interest and to reduce mowing. Other alternatives to grass include mulched beds, pathways or a patio to enjoy the view. In the Water Conservation section, you will learn about strategies

that reduce the need for watering. It is worth the time to plan out your lawn so you are only growing and maintaining as much lawn as you really need. If there are areas available for substituting other options for grass, you may save yourself time, money and effort in keeping those areas maintained.

Some alternatives to grass include:

- Beehive
- Bioswale
- Bushes
- Edible Flower Garden
- Foot paths
- Ground Cover
- Ivy Vines
- Moss
- Meadow
- Mulched Beds
- Ornamental Grass
- Patio or Deck
- Parking
- Permanent Edging
- Permeable Pavers
- Rain Garden
- Tree Cover
- Vegetable Garden
- Wildflower Garden
- Xeriscape

Diversity

Diversity in nature is what allows for the ecosystem on a large scale to handle detrimental effects on a smaller scale. Landscapes that have a monoculture will suffer during stretches of time that are not conducive to the particular greenery. Diversity provides a sustainable environment less prone to one type of problem.

When determining what type of plant life to include in your landscape, selecting plants native to the region is an important choice. In addition to aesthetic qualities such as color, height, blooming season and variety, native plants have many advantages including the ability to withstand the elements. They are often drought resistant and fare better than foreign plant species to pests in the region.

Animal-Friendly

Anything that is added to your lawn is introduced to your pets as well. Because of their exploratory nature and penchant for mistaking products in pellet form for food, pets are especially vulnerable to chemicals and fertilizers. In addition to pets, there is the surrounding wildlife to consider such as squirrels, rabbits and birds. Pets can also be at risk from chemicals that are brought or used inside. These chemicals can be inhaled or absorbed through the skin.



Strategic Selection

Choose a type of grass seed that will work best with the conditions present on your property.

Turf Considerations

Grass Varieties

There are many varieties of grass seed available on the market. It is important to observe the specific conditions present in your landscape to determine the best type of grass or blend of grass to apply. Grass requires many hours of sun each day and not all lawns receive the needed sunlight. This is another instance where knowing the chemical composition from a soil test is helpful in determining a complementary grass for your lawn.

Some considerations when purchasing a grass best-suited for your lawn include:

- Climate conditions
- Deep roots vs. shallow roots
- Nutrient and water holding capacity
- Low-traffic vs. high-traffic areas
- Poor soils vs. healthy soils
- Access to a water source
- Shade tolerance
- Temperature tolerance
- Drought resistance
- Ability to fill in open space
- Required maintenance time
- Disease and insect resistance
- Soil drainage

The best time to plant grass seed is at the beginning of its growing cycle.

Cool Season Grasses

The upper half of the United States is in a cool-season grass climate. These grasses do best in temperatures of 50-80 degrees and can go into a dormant phase in the summer and winter in extreme temperatures. Cool season grasses begin their growing cycles in the fall and spring.

It is common for these grasses to be sold in a blend, which aids in increasing stress and disease resistance.

Transition-Area Grasses

Sandwiched in between cool-season grasses and warm-season grasses is a climate in which one or the other type of grass may not stand up well to the varying temperatures of the region. Consider planting native grasses which may be more resilient in transition-area climates.

Warm Season Grasses

Warm season grasses do well in the lower portion of the United States where it is relatively hot. These grasses do well in heat because of their low water needs, but do suffer with dry periods. These grasses are not generally blended. Warm season grasses begin their growing cycle only in the summer.

To maintain green turf throughout the year, some people in the South seed with rye grass in the fall, also known as winter overseeding.



Feed the Soil to Feed the Turf

When the soil underneath is properly maintained, the results will manifest in a beautiful blanket of green.

Soil Biology

A Look Underground

At the heart of lawn care in general is the health of the soil beneath the grass. There are many factors involved in creating healthy soil including proper nutrient levels, mowing, watering, fertilizing, diversifying, reseeding, weeding and plant selection.

The health of the soil is dependent upon the combination of these variables, all of which are important. When these needs are met, your lawn will take care of itself. Healthy soil will be at least six inches deep.

Organic Matter

Organic matter is defined as carbon-based materials that are living or dead. Examples include compost and decaying leaves and roots. Nutritionally healthy soil enables it to feed the above ground grass, plants and trees.

Soil Testing

Experts recommend conducting a soil test to know what the levels of nitrogen, potassium, phosphorus (NPK) and other minerals are in your soil. There are several different types of soil tests available for purchase.

Soil testing involves taking samples from various areas of your property to fully represent the soil. Dig three to six inches below the grass line to obtain the material for your sample. Remove any plant material, combine all samples and let air dry before being tested. (It is important to let the sample dry prior to sending it off because the chemistry of the sample could change from prolonged moisture.)

Do not take samples from areas of the property that look visibly different. In this case, the soils should be tested separately due to possible chemical differences.

Upon receipt of your soil test, you will be able to ascertain the current levels of pH, nutrients and minerals. This information will allow you to determine how to best create a balanced soil system. A soil test helps reduce the use of unnecessary fertilization, which can save money.

If you need of advice on how to proceed, a good resource for questions is the local state extension office, such as **extension.illinois.edu** or **spcpweb.org**.

Turf Health

Turf health includes factors such as depth, drainage, texture, structure, pH and nutrients.

Depth refers to how deep into the soil roots can develop. An appropriate depth for healthy plants to grow is between six and twelve inches. Typically, newly constructed homes, or lawns that have been synthetically treated have low soil depth. This is usually the first challenge in creating a sustainable lawn.

Drainage refers to the space available for water and air to pass through the soil. Drainage is also critical for the health of the lawn. Without proper drainage, water can be trapped in the soil with no place to go and may cause harm to plants. In soil with too much drainage, water and nutrients are not able to be used by plants because they have nowhere to collect for later use. Organic matter increases the soil's ability to hold water.

Texture and structure can be confused. Texture refers to the physical characteristics of the soil and structure refers to how well the soil sticks together. Organic matter helps hold the soil together. Anything you add to the soil adds to the structure.

PH levels indicate whether your soil is acidic or alkaline on a scale of 0 -14, with ideal levels in the 6-7 range. A proper pH level is required for nutrients to be delivered to plants. These levels can change by adding lime or sulfur to the soil. A soil test will give you the proper information on what your soil needs.

Store bought fertilizers typically only indicate the nitrogen, potassium and phosphorus nutrients contained in the product. These are the main nutrients found in soil along with many others such as hydrogen, carbon, oxygen, calcium, magnesium, sulfur, boron, chlorine, copper, iron, manganese, molybdenum and zinc.



A Plant is a Plant is a Plant

Not so. There are countless varieties of plants, each with its own compatibility for nature's elements. Choosing native plants will assist in lower maintenance and greater survival rates in your yard.

Choose the Right Plants

Strategic Selection

Various plant life thrives in particular regions of the world because of the habitat and the conditions of the environment. Plants require differing amounts of sunlight, water, temperature and nutrition.

The same is true for grasses. In Illinois, the natural landscape is that of prairie grasses and plants. You can incorporate some of the native species into your yard to invite birds and beneficial insects into the space to naturally care for itself.

Diversification

By diversifying the plant life in your yard, you are basically hedging your bets that if something goes wrong during the growing season, there will be a better chance to have a minimal effect on the entire yard. Also, fewer pest problems occur when a variety of plants have been introduced.

Rotating plants each year may also help ward off invading pests and disease.

Native Species

For a low maintenance lawn, experts recommend using plants that are native to your region. They are a good choice because they are proven to withstand the elements in your backyard.

A list (right) of native species in Illinois can be found at standingupforillinois.org.

Pest Management

Pests and weeds can take over plants that are not suitable for certain applications. Plants not meant for a shady spot will not thrive and may not be able to fight off encroaching weeds.

Some types of plants attract beneficial insects and provide a natural defense against unwanted pests. The lacewing, for example, is attracted to the prairie sunflower, Queen Anne's lace, dill and fennel plants. The lacewing feeds on mites, small insects and insect eggs. Mother Earth News has a list of plants to attract beneficial insects. Find the list and other information at motherearthnews.com.

IL Regional Native Plant Species List

Plants for Full Sun

Big Bluestem, Butterfly Milkweed, Compass Plant, Culver's Root, False Dragonhead/Obedient Plant, Indiangrass, Ironweed, Leadplant, Little Bluestem, Marsh Milkweed, New England Aster, New Jersey Tea, Pale Purple Coneflower, Path Rush, Prairie Blazing Star, Prairie Coreopsis, Prairie Dropseed, Prairie Phlox, Prairie Smoke, Purple Lovegrass, Purple Prairie Clover, Rattlesnake Master, Showy Goldenrod, Shrubby Cinquefoil, Side-Oats Grama, Smooth Blue Aster, Spiderwort, Switch Grass, Wild Bergamot, Wild Quinine, Yellow Coneflower

Plants for Partial Shade

Alumroot, Blue Flag Iris, Bottlebrush Grass, Cardinal Flower, Foxglove Beardtongue, Great Blue Lobelia, Heartleaf Golden, Jacob's Ladder, Kalm's St. Johns Wort, Nodding Wild Onion, Purple-Sheathed Sedge, Shooting Star, Short's Aster, Sweet (Vanilla) Grass, Sweet Joe Pyeweed, Tall Bellflower, Wild Columbine, Wild Geranium

Plants for Shady Areas

Black Cohosh, Blood Root, Blue Phlox, Cinnamon Fern, Elm-leaved Goldenrod, False Solomons Seal, Great White Trillium, Jack-in-the-Pulpit, Lady Fern, Maidenhair Fern, Marginal Shield Fern, May Apple, Prairie Trillium, Side-Flowering Aster, Virgin's Bower, Virginia Bluebells, Virginia Waterleaf

Source: Governor Quinn website, standingupforillinois.org.



Timing is Everything

There is a time and place for everything, including when to schedule maintenance to best take care of your lawn.

Lawn Care Calendar

Strategic Actions Produce Results

Once you understand the way that soil works and how to maintain the turf, all you need to know is when to do it.

The following information is taken from the Safer Pest Control Project's Natural Lawn Care Calendar for Homeowners guide and can be sourced online at spcpweb.org.

March

- Sharpen mower blades
- Clean up winter debris – leaves, twigs, pine cones

April

- Mowing – remove only 1/3 of the leaf blade or less at a time
First mowing – grass height of 2 inches
Regular mowing – grass height of 2½ to 3½ inches (or taller)
- Apply corn gluten before the forsythia bloom (early weeks of April) to prevent weed seeds from germinating
- Hand pull or spot spray weeds with an organic herbicide
- Fill in bare spots with a 50/50 mix of compost and soil, and seed with grass
- Apply compost tea to entire lawn

May

- Test soil for pH and nutrients (see Safer Pest Control Project's "Soil Testing for Homeowners" factsheet)
- First fertilization - top dress with a compost/soil mix OR fertilize with a natural organic fertilizer (see Safer Pest Control Project's "Products for Your Natural Lawn" factsheet)
- Aerate - core aeration removes soil/grass plugs, reduces compaction
- Overseed entire lawn when soil temperature reaches 50 degrees using hardy grass types or mixtures
- Grub control - apply beneficial nematodes or milky spore (Japanese beetle grubs only)

June

- Begin irrigation as needed. Apply 1 to 1½ inches of water, once a week in the morning
- Recycle grass clippings on your lawn or in a compost bin
- Hand pull or spot spray weeds
- Apply compost tea to entire lawn
- Insect problems – tolerate some; use natural controls, organic insecticide or least-toxic pesticide options

July

- Fertilize (1st through the 15th)
- Look for signs of weed, disease or pest problems – address underlying soil or turf health issues

August

- Look for signs of weed, disease or pest problems – address underlying soil or turf health issues
- Continue irrigation or allow lawn to go dormant
- Overseed entire lawn (after the 15th)

September

- Limit irrigation
- Aerate as needed (grass should be actively growing)
- Fertilize (1st through the 15th)

October

- Late season fertilization – generally one week before final mowing of the year

November

- Mow until lawn goes dormant
Last mowing – grass height of 2 inches
- Apply compost tea to entire lawn

December

- Reduce lawn traffic - let it rest through February



Use the Right Tools for the Job

When you understand and work with nature to maintain your lawn, it will take on a life of its own.

Cultivation

Getting Your Hands Dirty

At some point, you have to stop learning and start doing. This is what the cultivation aspect of lawn care is all about.

Aeration

Plant life requires oxygen and room to grow for survival. By aerating your lawn 3-6 inches deep, you allow oxygen into the soil to break down organic matter and provide room for root growth and water storage. Soil compaction can stifle growth and lead to dead patches. Athletic fields are a good example of this due to their heavy foot traffic, which can lead to a high degree of compacted soil, not sustainable for turf grass.

Aerating in the fall is recommended because there will not be as much weed seed to compete with compared to the spring. After aeration is an appropriate time to add compost, fertilizer or grass seed.

After several years of a natural lawn care system, you will most likely be able to count on earth worms and microbes to aerate the lawn naturally for you.

Amendments

Soil amendments refer to any type of material added to the lawn. Examples would be compost, fertilizer, etc. There are many types of natural soil amendments, both plant-based and animal-based. These include alfalfa meal, corn gluten, cottonseed meal, seaweed products, soybean meal, wood ash and plant by-products. Blood meal, bonemeal, feather meal, fish products and manure are animal by-products that have nutrients that are beneficial for your lawn.

Dethatching

Thatch is dead grass material such as stems and roots that accumulate at the grass line. Dethatching allows water and soil amendments to reach the soil more easily. Over the winter months, thatch may become dense.

Minimal amounts of thatch are not bad. Thatch can protect the soil from heat and drought and can shade weeds, depriving them of sunlight to grow. When thatch is a half inch or more, it is time to dethatch your lawn.

Fertilizers

The main reason for confusion about fertilizers among consumers is the way traditional fertilizers work. Traditional fertilizers bypass nature's way of providing nutrients to the soil and living organisms underground. These synthetic products simply feed the grass and nothing else and quite often contain much more nitrogen than the lawn can use. Results are achieved very quickly due to the streamlined nature of the traditional fertilizers. This system does not take into account the environment in which grass grows.

Natural decomposition of grass clippings, leaves and other materials consistently feed the living organisms and soil. Over a long period of time, nutrients are continually released and absorbed by the organisms and transferred back to the grass plants to start the cycle again.

This can be described as the "soil food web". This term describes a complex food chain system that is woven in an interconnected way among plants, insects, worms and microscopic life instead of the top down approach you may think of for larger animals. In the soil, balance sustains a healthy food chain that can easily be made unstable. As the food web grows more complex, the productivity of the soil increases.

Natural organic fertilizers help restore organic matter to the soil which is broken down slowly. This allows grass and plants to use the nutrients when they need them, not only when they are applied. Fertilizers should be used for specific nutrient needs.

Irrigation

It is best to water in the morning. Watering in the middle of the day results in much of the water evaporating. Watering at night increases the risk of fungal problems arising.

For best results water infrequently but deeply. Deep watering aids in root growth, which can allow for absorbing more nutrients and storing more water for later use. Watering timers can be effective for proper irrigation.

During times of drought, you may opt to let your grass go dormant instead of watering to preserve resources and the

About Mowing:

- Gas lawn mowers contribute up to 10% of the nation's air pollution in the summer.
- According to the US Environmental Protection Agency, a gas-powered push mower emits as much hourly pollution as 11 cars, and a riding mower emits as much as 34 cars.
- Human-powered push (reel) mowers are quiet, so you can cut the lawn anytime without disturbing the neighbors or the wildlife.
- Use an electric mower or reel mower to cut down on backyard air pollution.
- Don't mow unless there is rain in the short-term forecast.

- Keep your mowing blades sharp to reduce the risk of turf disease.

About Grass:

- For a list of the best grasses for your area, check out seedland.com.
- Ground cover may be a better option than grass in some areas of your lawn that are not utilized often or that struggle with grass growth.
- Different types of grasses require varying amounts of water and nutrients, shade tolerance and type of climate. Research which grasses are most suitable for your area.
- Grass clippings do not cause thatch on your lawn.
- Overseeding helps to crowd out weed growth.
- Carefully spread salt in between patio bricks, then sprinkle with water to kill grass or weeds.

funds that go along with watering your lawn. Natural lawns require less water in general. Because natural fertilizers break down more slowly and release nutrients over time, the grass will receive continual nourishment and will not rely on an occasional water source to provide water for photosynthesis compared to a synthetically treated lawn. Healthy soil retains water longer.

Mowing

There are certain strategies for mowing that can improve the health of your lawn. The initial step is to make sure that your blades are sharp. Dull blades will yank the grass blades up instead of cutting through them. This is a special concern if you have recently seeded. Sharp blades can also decrease the risk of disease by tearing grass evenly.

Keep your lawn at least three inches high. Never cut off more than one third of your grass at a time. Cutting off more than this will result in brown grass underneath as the upper portions of the blade are where the photosynthesis happens. Also, longer grass can shade possible weeds underneath, preventing sun exposure. When water is less available, grass will also grow slower. Leave your grass a little longer during dry periods.

Leave grass clippings on the lawn to return the water and nitrogen to the soil. This is also known as nutrient cycling or grass cycling. It is not necessary to bag grass clippings and pay for removal with yardwaste since they are beneficial to the soil, may be used as mulch or able to be composted. It is recommended, however, to bag grass clippings if you see many weed seeds to prevent them from spreading.

To reduce compaction, mow in varying patterns each time you mow. Change it up from parallel, perpendicular and diagonal line patterns.

For the last mow of the season, keep the length of grass only a couple of inches high. This will result in less work in the spring to reinvigorate your lawn. Taller grass provides a haven for small animals that can damage your lawn and result in lots of extra work in the spring.

Overseeding

This practice is typically repeated in the spring after you have assessed the status of your lawn from the winter. Overseeding improves density and crowds out weeds. Be sure to aerate and dethatch the grass prior to overseeding. You may also want to spread finished compost. You will need to have good seed to soil contact for best results.

Make sure that you purchase grass seed that is appropriate for the climate in which you live. Factors include temperature, shade, fertilizer and water requirements.

Spread the seed evenly on your lawn. Check for any bare patches to make sure enough seed has been applied. Be sure to water the seeds generously after spreading. It is important that the seeds are constantly provided with moisture for the first two weeks after seeding to properly germinate.

Benefits of Greywater Recycling

Greywater is non-potable water previously used for washing that is still usable elsewhere. Also, see page 27.

Lower Fresh Water Use

Lower fresh water use

Greywater can replace fresh water in many instances, saving money and increasing the effective water supply in regions where irrigation is needed. Residential water use is almost evenly split between indoor and outdoor. All indoor water except toilet water can be recycled outdoors, achieving the same result with significantly less water diverted from nature.

Less Strain on Water Treatment

Less strain on septic tank or treatment plant

Greywater use greatly extends the useful life and capacity of septic systems. For municipal treatment systems, decreased wastewater flow means higher treatment effectiveness and lower costs.

Highly Effective Purification

Highly effective purification

Greywater is purified to a spectacularly high degree in the upper, most biologically active region of the soil. This protects the quality of natural surface and ground waters.

Less Energy and Chemicals

Less energy and chemical use

Less energy and fewer chemicals are used due to the reduced amount of both freshwater and wastewater that needs pumping and treatment. For those providing their own water or electricity, the advantage of a reduced burden on the infrastructure is felt directly. Also, treating your wastewater in the soil under your own fruit trees definitely encourages you to dump fewer toxic chemicals down the drain.

Groundwater Recharge

Groundwater recharge

Greywater application in excess of plant needs recharges groundwater.

Plant Growth

Plant growth

Greywater enables a landscape to flourish where water may not otherwise be available to support much plant growth.

Reclamation of Wasted Nutrients

Reclamation of otherwise wasted nutrients

Loss of nutrients through wastewater disposal in rivers or oceans is a subtle, but highly significant form of erosion. Reclaiming nutrients in greywater helps to maintain the fertility of the land.

Increased Awareness

Increased awareness of natural cycles

Greywater use yields the satisfaction of taking responsibility for the wise husbandry of an important resource.

Sources: Oasis Design, graywater.net.

About Gardening:

- Vertical gardening is a great choice for small spaces.
 - Smart Gardener helps consumers set up a garden plan based on your plants, layout and growing conditions at smartgardener.com.
 - Gardening centers and extension services are great sources for improving the health of your lawn.
 - Calcium-based ice melt is an alternative for lawns to traditional ice melt.
 - Additional information on landscaping for energy efficiency is available from the US Department of Energy at eere.energy.gov.
- ## About Water:
- Studies have shown that many lawns are watered twice as much as necessary, according to the National Wildlife Federation.
 - A rain gauge can easily measure how much rain your lawn gets each week.
 - Buy a lawn moisture meter to make sure you're not over-watering your lawn. You will conserve water and also cut down on the water bill.
 - Rain barrels often fit onto your gutter and come with a spout that can be attached to the common garden hose.
 - Water slowly — too fast and the water will be lost as runoff, often carrying fertilizer and pesticides with it into storm drains and ultimately into our rivers and waterways.
 - Watering in the evening may lead to fungal disease.
 - Be mindful not to waste water on sidewalks, driveways or streets.



The Rotten Truth

Food scraps make up a significant portion of our everyday waste. When composted, this waste becomes a valuable part of a healthy soil system, providing needed nutrients to feed plants and grass.

Compost

Black Gold for Your Outdoors

Compost is decomposed organic matter full of nutrients and microbes and improves soil structure. Finished compost is a beneficial soil amendment and should be an integral part of a natural lawn care system. In nature's life cycle, nothing is wasted. Everything serves a purpose. What was once alive, now feeds the earth and life on it. This is an important lesson that we can learn from nature.

Compostable Material

Almost all natural, organic material will compost, but not everything belongs in a compost pile. The following can be composted: grass clippings, leaves, fruit and vegetable waste, straw, wood, sawdust, pine needles, cornstalks, alfalfa hay, coffee grounds, brush and shrub trimmings, flowers, bread, wood ash and paper.

Generally speaking, meat, bones and fish should not be composted because they can attract rodents, raccoons and other pests and can cause odors in your compost pile. Dog and cat manure should also not be composted, as it contains harmful pathogens that are not always killed by the heat within the compost pile.

Compost Tea

This is compost in a liquid form. You can apply one quart of compost tea per 1,000 square feet per month during the growing season.

Compost tea can be made by placing finished compost in a breathable bag into a bucket of water. This will allow nutrients from the compost to seep into the water. Compost tea can be made simply by letting the bag sit in the bucket of water and mixing often or by adding oxygen to the batch with a motor for around 36 hours. Aeration speeds the growth of microorganisms in the compost tea, which are beneficial to your lawn. With a siphon system, you are able to use the compost tea with your sprinklers.

Compost tea provides many of the same benefits as compost, but is able to feed the soil much faster in liquid form.

Humus

Humus refers to organic matter that cannot be broken down further. Compost that has finished decomposing is called humus. It is highly rich in nutrients and feeds microorganisms in the soil. It is also able to hold a large amount of moisture, allowing soil to withstand droughts.

Outdoor Composting

If you are interested in developing an on site composting program, first check with your local community or county waste and recycling coordinator to identify any restrictions on outdoor composting. A properly constructed compost pile is needed to minimize nuisances (such as odors) and achieve a quality finished compost.

You will need space, a bin, oxygen, water, leaves, grass and organics. Commercial bins are typically square or cone-shaped. Some are open and some have lids. Each type of bin has advantages and disadvantages, so choosing the type that is best for your space and complies with local requirements is important.

Making an outdoor composting bin yourself is inexpensive and relatively easy. You can construct your own outdoor composting bin from scrap material or from materials purchased from a local hardware or home improvement store:

- Use an old metal or plastic garbage can. Puncture numerous holes throughout the can to provide air flow and oxygenation and allow excess moisture to drain. The can may be placed in a discrete corner of your yard. Raising it off the ground will provide added ventilation.
- Old snow fencing can be used to enclose the sides of a bin.
- Spare wood can be used to build a crate-like structure.
- Wire mesh or chicken wire can be used to enclose the bin.

When selecting a location for your bin, choose a site that is level, well-drained and easily accessible. By placing the bin over bare ground rather than concrete, worms and other beneficial organisms can more easily make their way into the pile. It is a good idea to remove any grass or plants under the bin and turn the soil to a depth of 6 - 8 inches.

- Composting your leaves, grass clippings, garden waste and food scraps reduces the amount of garbage a person generates.
- Composting mimics nature's recycling plan.
- By turning the compost regularly to incorporate air, you should make compost in 3-6 months.
- A healthy compost pile is like a lasagna – a layer of greens buried by a layer of browns. This ensures that decomposition will proceed at a timely rate, avoiding odor or pests.
- Meat and fish scraps, cheese and dairy products, fats and grease, and animal feces don't compost well and will almost certainly attract awful smells and bad pest infestations.
- Keep seed-bearing weeds and diseased plants out of the compost heap so you don't reintroduce the seeds back into your soil.
- For questions on what can be placed in the compost pile, visit recyclenow.com.
- Newspaper or plain white paper from the computer is excellent for composting - just remember to shred it first to speed up the process.
- According to the EPA, only 2.8 percent of food waste was composted in 2010.
- The US Composting Council (USCC) launched its *Consumer Compost Use Program* for the three most common homeowner uses: trees and shrubs, flower and vegetable gardens and the lawn. Find this information at compostingcouncil.org.

When gathering materials to compost, keep in mind that a good mix of carbon and nitrogen nutrients are needed. An ideal mix is approximately 2 parts of carbon (brown matter, such as leaves or brush) to one part nitrogen (green matter, such as food scraps or coffee grounds). A proper moisture content is necessary as well; the material should feel damp, but should not drop much water when squeezed by hand.

Pile yard trimmings, leaves and selected food scraps into the compost bin. The smaller the pieces, the faster the material will be composted. It is best to cover food scraps with leaves or other brown material to deter pests. Keep the pile moist like a wrung out sponge, but not soggy. You may have to water the pile occasionally if you find that it is dry. Turn the pile every 10 to 14 days to circulate the air, which is needed to perpetuate the decomposition process.

Finished compost can take anywhere from two months to one year. Compost is generally done when it becomes dark, crumbly material that is uniform in texture and has a pleasant earthy smell. The time frame varies depending on the combination of materials added, temperature and moisture content of the pile.

You may need to sift out unfinished materials that have not broken down completely. It is common to have some recognizable pieces of leaves or twigs remaining.

Finished compost is a good soil amendment and fertilizer for:

- House plants
- Flower and vegetable gardens
- New planting areas
- Existing trees and bushes
- Lawn top-dressing

It is best to add a small amount of compost to the top of the soil for house plants or vegetable gardens. Too much compost can damage plants.

Top Dressing

Top dressing with compost will provide much needed nutrients to the lawn. Spread mature compost, also known as humus, over the grass so you can see the grass tips poking through. A proper thickness would be up to a quarter inch thick.

A helpful hint is to use a lawn roller to achieve good seed to soil contact and to even out any patches that you may have after top dressing.

It should be noted that applying a top dressing of compost to your lawn will not result in immediate greening of your grass. The nutrition in compost is broken down over time. This is beneficial to your lawn because an application of top dressing will provide your lawn with the nutrients it needs for a longer period of time.

Worm Composting

Composting with worms, also known as vermicomposting, is similar to outdoor composting except executed with worms in a bin. Another difference is that the compost does not heat up to decompose, as the worms would not be able to survive in such high temperatures.

Vermicomposting breaks down food waste through composting by using red wiggler worms. Their scientific name is *Eisenia Fetida*, which is not the same type of worm as earthworms or nightcrawlers which live underground. Red wigglers eat lots of fruit and vegetables.

This method is beneficial for small spaces. It is necessary to place your worm composting bin in a place it will not freeze or overheat. Worm composting can continue into the winter months easily by placing the bin in a pantry, laundry room, basement or heated garage or porch. A worm bin can be made out of plastic or wood and must be at least 10 inches deep. It will need holes in the bottom, sides and top for ventilation. The top will need to fit tightly, so worms do not crawl out.

Worm bedding can be made from shredded newspaper moistened with water. Do not wet to the point of dripping.

Worms can digest about a quart of food scraps per square foot per week. You will need to bury the food scraps under the bedding to prevent fruit flies. Always keep fresh bedding over the worms and food. Plastic bins may need more bedding to absorb excess moisture.

About three months after you set up the bin, some of the soil will be ready to harvest. This compost may be added to plants or garden soil. Harvesting the worm compost bin about once per year is recommended.

If you have a bin that drains liquid at the bottom, you can also use the “worm tea” in your house plants, garden beds or on the lawn. Dilute the tea with one part tea to four parts water before use.

- Compost needs oxygen to break down the materials you add to the pile.
 - Rinse egg shells before adding them to your compost pile to prevent salmonella poisoning.
 - Adding brown material such as leaves to the top of a compost pile helps keep the fly population down in the summer months.
 - A series of backyard compost piles works best to easily switch out compost that is ready to be harvested.
 - Keep a lidded container in your kitchen for convenience and empty a few times a week.
 - Compost bins should be small enough to aerate properly, but also large enough to maintain internal heat. Minimum dimensions should be 3 ft by 3 ft by 3 ft.
 - The smaller the organic pieces you place in your compost, the less surface area it will have and the faster it will decompose.
 - Plants that have been treated with pesticides and/or herbicides should be avoided.
- About Vermicomposting**
- Red wiggler worms can eat half or as much as their body weight every day.
 - Shredded newspaper can reduce moisture in worm bins that are too wet.
 - The microbes and fungi that are present in a worm composting system are the ones that are working to break down the organic scraps into finished compost.
 - A worm bin with multiple tiers makes harvesting compost much easier.

Compost Troubleshooting Tips



Generally, simply turning the pile can take care of most issues that arise during composting. The way your compost bin smells or acts can indicate various problems.

Rotten-egg odor means your bin is too wet – make sure to turn the pile and add browns.

An ammonia odor means there is too much green, nitrogen-rich material. Slow decomposition means there is a lack of air, moisture, or an improper balance of green and brown.

A low pile temperature (decomposition naturally produces heat) indicates that the pile is too small, there is insufficient moisture, poor aeration, a lack of nitrogen, or that the weather is cold – a problem remedied by insulating with straw or increasing pile size.

A high pile temperature means the pile is too large, or is not being aerated enough.

Pests arrive when there are inappropriate materials in the pile, greens are not fully covered by browns, or the bin isn't rodent-resistant.

Source: Green Depot blog.greendepot.com



Get at the Root of the Problem

Critters can be a nuisance, but some insects and microbes are an important part of developing a healthy lawn care system. These small bugs aerate soil, pollinate flowers, eat pesky insects and fight pathogens.

Pest Management

Protecting the Fruits of Your Labor

After all the work that you have put into preparing your lawn for success, it is disheartening to see weeds appear or bugs eating at your beautiful plants. Don't dismay though. To some degree, this is just part of nature that we can learn to embrace.

After prolonged use of synthetic chemicals, the soil under your lawn can become barren of life, the same life that is necessary to naturally aerate the soil, to naturally break down organic matter and to naturally feed the soil. With synthetically treated lawns, only when you choose to apply fertilizer will nutrients be brought into the soil. One of the main problems in this scenario is that the soil is not able to capture more nutrients than it can absorb at that moment. The rest will be washed away until you apply more at a later date.

A sustainable lawn is one that can care for itself. Within a few years of switching to a natural lawn, you will see the difference.

Beneficial Insects

Identify the problem before you spray, squash or stomp! The USEPA states that only about 5 - 15 percent of the bugs in your yard are pests. When insects feed they chew, suck or bore. The damage that you see will help determine what insect you are dealing with and help to target an appropriate treatment. "Good bugs", like the ground beetle and the ladybug, help control pests, while bees aid in pollination. Professional landscapers sometimes bring in beneficial insects to assist in an overpopulation of a pest; this is called Integrated Pest Management. For example, ladybugs and green lacewings eat aphids, predaceous mites feed on pest mites, rove beetles eat the eggs and larvae of insect pests. These beneficial insects can be ordered and released to control problem pests.

Additionally, birds eat insect pests. Provide shelter for them to ward off harmful insects and enjoy their beauty.

Diversity and Complementary Plant Life

Providing diversity in your landscape is a critical component in creating a healthy environment. A variety of species protects your landscape from disease and pest infestation. If you have only a few species, and a problem occurs, it will be difficult

to eradicate and you will be left with a damaged landscape. Although symmetry and consistency can be pleasing to the eye in terms of design, nature is not designed to successfully protect itself without diversity.

In addition, vegetation can attract beneficial insects as well as pests. It is important to know more about the plants on your property and what type of insects they attract.

Educate Your Neighbors

Reducing exposure to pesticides does not end in your home, but continues in the larger community. Schools, apartment complexes, parks and other recreational areas are just a few places where pesticides are used. For example, while community officials are generally given the task of education, you can also help your friends and neighbors understand how to reduce the chance of mosquito bites through the elimination of breeding sites and the proper use of repellents. Try to organize a forum at your local community center, school or place of worship to discuss the use of pesticides in your community.

It may be beneficial to research the following:

- Who is responsible for pest control, what local ordinances, if any, govern pesticide use and how well are they implemented?
- Collect details, including the insects, rodents and weeds that are identified as problems, chemicals being used and their toxic effects, and pest control costs.
- Educate yourself on alternatives through research on the internet or at the local library.

Once you have all this information, involve your neighbors and the community groups in your area to advocate for alternative pest control techniques.

For more information on how to organize in your community, visit beyondpesticides.org/how-to.

- Between 30 and 40 million acres of land in the US are devoted to turf grass, and Americans collectively spend big bucks - about \$40 billion annually - on seed, sod and chemicals.
- You can make your own non-chemical weed killers using clove oil, vinegar and lemon juice.
- Before synthetic weed killers for the lawn were created in the late 1940s, most American lawns contained white clover. Since the weed killer eliminated clover, it was later assumed to be a weed.
- If you have excess plantain, you almost certainly have heavily compacted clay soil.
- An excess of dandelions shows your soil probably needs more calcium and less magnesium.
- 18% of municipal solid waste is composed of yard waste.
- According to the US National Wildlife Federation, the average suburban lawn received 10 times as much chemical pesticide per acre as farmland.
- Making a chart showing where various types of weeds have infested your lawn is useful in planning care strategies for the next season.
- When removing weeds manually, be sure to capture the root to prevent the weed from re-emerging.
- Weeds appear as conditions allow. Stimulating plant growth will naturally eradicate weeds.
- Controlling weeds is critical, because once established, they rob desirable plants of water and other nutrients.

Mulching

Laying down a bed of mulch will further protect the soil. It helps retain moisture by reducing evaporation, reducing erosion, providing nutrients and warding off weed growth. Mulch helps keep soil warmer in the winter and cooler in the summer.

Mulching is popular around trees. Mulching helps mirror what happens in a natural environment. In a forest, a tree receives nutrients from leaves and other organic matter in the forest. In a landscaped area, the soil tends to provide a fraction of the nutrients that are provided in a forest environment.

There are many types of mulch including wood chips, pine needles and cocoa hulls. Be sure to only apply two to four inches of mulch. Excess mulch can cause rotting of the tree due to built up moisture, homes for rodents to burrow or become compacted and prevent water and nutrients from reaching the soil.

Overseeding

Applying new grass seed is a tactic used to outcompete weed growth. The thicker and denser the grass, the harder it is for weeds to thrive.

Weeding

If you see a few weeds popping up, do not be alarmed. You will want to identify what the weed specifically is to determine if the weeds are indicating specific soil needs. This information may include issues such as compaction of the soil, pH imbalance, drainage issues, etc.

There are two kinds of weed eradicators. Pre-emergent controls inhibit weed seeds from germinating. Post-emergent controls eliminate weeds on contact. Only use products that are needed in pest management. Where weeds are sparse, you can pull them by hand.

Corn gluten is a pre-emergent weed controller. It prevents weeds from surviving by drying out the seeds. It also contains nitrogen which will be converted and nourish the grass. There is a waiting period after overseeding before corn gluten can be used, as it will dry out the grass seed just as dries out the seeds from weeds. Corn gluten is a good way to keep annual weeds away.

In instances where weeds are sparse, natural products such as vinegar or rock salt can be used to eradicate weeds as a post-emergent product. There are also several organic forms of weed control products available commercially.

If you see weed seeds, use a bagger when mowing to prevent seeds from spreading. Do not place weeds into your compost pile, as seeds can be transported into new areas.

Mosquitoes and Your Health

Standing water is breeding ground

Eliminate breeding sites

Hundreds of mosquitoes can breed in as small an area as a bottle cap of water. Get rid of old tires and maintain gutters and ditches to prevent standing water. Empty water from backyard temporary pools, toys, buckets, birdbaths and clean up unnecessary debris.

Protect yourself from pesticides

Protect yourself

If your community officials spray pesticides, there are steps you can take to minimize exposure.

- Close windows
- Turn off the air intake on window unit air conditioners
- Take toys and patio furniture inside
- Remove shoes before entering homes to avoid tracking in residues
- Do not let children play near or behind truck-mounted applicators or enter an area that has just been sprayed.

Avoid mosquito bites

Personal steps to avoid biting mosquitoes

- Wear protective clothing, like long sleeves and pants in light colors, if going outside when mosquitoes are most active, usually in the early morning and evening.
- Ensure that window and door screenings are properly maintained.
- Be cautious of using mosquito repellents containing the chemical DEET.
- Use botanical skin repellent alternatives containing citronella, lemon and oil of eucalyptus, geraniol and other essential oils.

For more tips, visit beyondpesticides.org/mosquito.

Sources: Beyond Pesticides, beyondpesticides.org.

- Spot-treat individual weeds with household vinegar rather than applying a broadcast treatment of an herbicide over the entire lawn. Mix 5 parts white vinegar, 2 parts water, 1 part dish soap, and apply with a hand pump sprayer.

- Boiling water is another organic weed killer. Essentially, the weeds are cooked when boiling water is poured on their roots.

- Earthworms are important for soil health. Lawn chemicals can impact them.

- Most living pathogens take a relatively long time to spread throughout an area, so if a large percentage of plants becomes diseased virtually overnight, a pathogen is probably not involved.

- Dead leaves at the top of the tree are usually the result of environmental or mechanical root stress. Twisted or curled leaves may indicate viral infection, insect feeding, or exposure to herbicides.

- Uniform damage that occurs once and does not spread, especially if it's occurring across a multitude of kinds of plants, is usually caused by a non-living issue such as poor drainage or salt damage.

- Put a couple of tablespoons of cornmeal in a jar and lay it on its side. Slugs will eat the cornmeal and die.

- Place small bowls of beer where slugs are active, they are attracted to yeast and barley and will drown.

- The best method for weed control in the garden is to keep undesirable plants from sprouting in the first place.



Every Drop Counts

Water is a valuable commodity for the health of soil, grass and plants, not to mention worms, birds, bees, children and pets. Treat it with the life giving respect that it deserves.

Water Conservation

Life Giving Water

Without water there would not be life. As such, we need to make sure that we are using this resource respectfully and responsibly. When consuming water for outside use, only use what you need and be mindful of water runoff. When runoff occurs, the wasted water enters into the stormwater system and is then treated and processed. Healthy lawns do a better job of holding on to water than traditional lawns. This is beneficial to you because you will not have to water as frequently.

Collecting rain showers conserves the amount of water we use from our municipalities for watering plants, lawns and gardens or washing the car. It also reduces water pollution, stormwater runoff and soil erosion. According to the Environmental Protection Agency (EPA), outdoor watering consumes up to 40 percent of tap water use during summer months. This amount can be significantly reduced by using rainwater instead.

As rain falls it picks up dirt, sediment, pesticides or other contaminants and then carries them to various water systems. Lawns, trees, shrubs, and other plants naturally reduce water runoff by absorbing it for growth.

Bioswales

Bioswales are commonly used around parking lots to filter water or gasoline and other pollutants and reduce runoff after a rain shower. These vegetative ditches slow down the runoff from entering the sewer system. They are also useful for areas that have flooding. The thicker the grasses and native plants, the better the bioswale can filter out pollutants.

Grass Cycling

Grass cycling is simply the act of leaving the grass clippings on the lawn instead of bagging them. The clippings contain mostly water and nitrogen that can be brought back into the soil.

Greywater

Greywater is non-potable water previously used for washing that is still usable in another way. You may be able to transfer water from your washing machine, dishwasher or shower to an outdoor area to use in your lawn or planter bed, for example. A greywater system does need to be engineered for success, taking into account how many gallons of water the household

uses, assessing how much water the targeted soil can accept and what type of greywater pollution prevention system would work best at your home. Check with your municipality for restrictions and information on the application process. For examples of greywater irrigation systems, visit greywateraction.org.

Rain Barrels

Rain barrels come in a range of different sizes, shapes, and designs. They are placed at the corners of buildings under downspouts so that overflow from the rain barrels may be dispersed onto surrounding green space. About a half inch of rain from an average roof will fill a rain barrel. The water is tapped from a spigot near the bottom of the barrel and, when elevated, will create more water pressure than sitting directly on the ground. Manually collecting rainwater runoff with a container is another method of reducing runoff. Using rain barrels can improve local water quality and lessen the stress on water treatment facilities to meet residential demand for potable water. Locally, the Metropolitan Water Reclamation District hosts rain barrel sales. Information can be found at mwrdd.org or your local home improvement store or garden center.

Rain Gardens

Rain gardens are landscaped areas designed to soak up rainwater from your roof, driveway and/or lawn. Native plants soak up rainwater runoff and filter and slowly release it into the ground. A rain garden typically can retain 30% more rainwater than a conventional patch of lawn. By reducing the volume and velocity of stormwater runoff, rain gardens help reduce soil erosion, filter fine particulates and capture fertilizer and excess nutrients that can pollute rivers and lakes. They are typically found in low areas of the lawn where water tends to gravitate. The size of the rain garden should be proportional to the amount of water that is accumulated.

Xeriscaping

Xeriscaping is a landscaping method that makes routine irrigation unnecessary by using drought-resistant and low-water plants, as well as soil amendments such as compost and mulches to reduce evaporation.

By substituting a lawn that is resource intensive with a native xeriscape, most of the natural lawn takes care of itself.



Learn the Lay of the Land

A natural lawn care management system takes some initial education, but after learning a few key points, your knowledge and turf will flourish.

General Resources

Resources

Beyond Pesticides
beyondpesticides.org

Center for Children's Health and the Environment, Mt. Sinai School of Medicine
childenvironment.org

Environmental Working Group "Shopper's Guide to Pesticides in Produce"
ewg.org

Chicago Botanic Gardens
chicagobotanic.org

Chicago Metropolitan Agency for Planning
cmap.illinois.gov

EPA Great Lakes Restoration Initiative
epa.gov

Illinois Landscape Contractors Association
ilca.net

Illinois Organic Growers Association
illinoisorganicgrowers.org

International Society of Arboriculture
isa-arber.com

Maryland Pesticide Network
mdpestnet.org

Midwest Ecological Landscaping Association
melaweb.org

Midwest Permaculture
midwestpermaculture.com

Morton Arboretum
mortonarb.org

National Gardening Association
garden.org

National Turfgrass Evaluation Program
ntep.org

Natural Sustainable Agriculture Information Service
attra.org

Organic Materials Review
omri.org

Pesticide Action Network North America
panna.org

Physicians for Social Responsibility
psr.org

Safe Lawns
safelawns.org

Safer Pest Control Project
spcpweb.org

Sea Grant-Great Lakes Network
miseagrant.umich.edu/greatlakes

Trees Are Good
treesaregood.com

University of Illinois Extension Office
extension.illinois.edu

US Composting Council
compostingcouncil.org

Books and Media

A Chemical Reaction (Documentary)
chemicalreactionmovie.com

Dirt! The Movie
dirtthemovie.org

The Illinois Lawn Guide: Attaining and Maintaining the Lawn You Want
By Melinda Myers

Making the Organic Lawn Care Transition
By Paul Tukey
safelawns.org

The Organic Gardener's Handbook of Natural Insect and Disease Control
By Barbara W. Ellis and Marshall Brady

The Organic Lawn Care Manual
By Paul Tukey
safelawns.org

Teaming With Microbes: A Gardener's Guide to the Soil Food Web
By Jeff Lowenfels

Weeds and Why They Grow
By Jay McCaman



Reduce Reuse Recycle

SWANCC offers programs, events and resources to its residents in an effort to promote waste reduction and recycling practices within the region. Visit swancc.org for details and additional resources.

About SWANCC

The Solid Waste Agency of Northern Cook County (SWANCC) is an intergovernmental agency representing over 800,000 residents in northern Cook County, Illinois. SWANCC strives to provide its residents with environmentally-friendly lifestyle options including recycling and disposal programs as well as a variety of resources.

SWANCC Member Communities

Arlington Heights • Barrington • Buffalo Grove • Elk Grove Village • Evanston • Glencoe • Glenview • Hoffman Estates
Inverness • Kenilworth • Lincolnwood • Morton Grove • Mount Prospect • Niles • Palatine • Park Ridge • Prospect Heights • Rolling Meadows • Skokie • South Barrington • Wheeling • Wilmette • Winnetka

SWANCC Programs and Resources

The following information can be found at swancc.org.

Battery Recycling

Residentially-generated alkaline and rechargeable batteries are accepted at member drop-off locations.

Closing the Loop Brochure

A recycled products resource guide that points you in the right direction when searching for topics regarding recycling, fundraising and educational programs.

Compact Fluorescent Light (CFL) Bulb Disposal

Residentially-generated spent CFLs from SWANCC member community residents' households are accepted at drop-off locations throughout the SWANCC region.

Document Destruction Events

One-day document destruction events for residentially-generated paper, such as medical forms, bank statements, personal files, retired tax forms, etc.

Eco-Friendly Fashion Show

An educational presentation featuring wearable articles made from recycled materials and environmentally-friendly fibers. This production heightens awareness about waste reduction practices and the importance of buying products that have less of a burden on our Earth's natural resources.

Eco-Cleaning Guide

SWANCC promotes non-toxic alternatives to commercial cleaning products in its online *Eco-Cleaning Guide*.

Eco-Friendly Marketplace

SWANCC promotes earth-friendly and recycled-content products in its web-based *Eco-Friendly Marketplace*.

Electronic Recycling

SWANCC provides environmentally-safe recycling of computers and electronics with weekly drop-off locations as well as one-day collection events.

Green Pages: Reuse and Recycling Directory

A useful resource featuring outlets for recycling appliances, batteries, construction debris, electronics, metals, motor oil and many other items. The manual also lists reuse opportunities for books, clothing, office equipment, toys and other materials.

Holiday Light Recycling

SWANCC provides an option for holiday lights to be recycled at many drop-off locations in the region.

Prescription Drug/Sharps Disposal

Residentially-generated pharmaceuticals and sharps from SWANCC member community residents' households are accepted at drop-off locations throughout the SWANCC region.

Presentations

SWANCC staff gives presentations about solid waste technologies, waste reduction tips and what individuals can do to reduce their carbon footprints. Information is adjusted for age-appropriateness from Pre-K to adult.

Recycling Etc. Community Newsletter

Recycling Etc. is a residential community newsletter with upcoming events, environmental information, tips and programs.

Roll-off Rentals

Spring cleanup and home remodeling projects can make more waste than regular garbage services will take. Residents can order 10 cubic yard roll-off boxes by calling (847) 724-9205 x 9.


SWANCC Resource Materials

Videos, curriculum guides, books and teaching tools are available for loan to SWANCC-area educators, community groups, libraries and park districts.

Waste Reduction Solutions Brochure

The guide highlights how to gain support for a recycling program, reviews waste reduction options, how to assist in evaluating the existing waste system and shows how to design and implement a waste reduction system program.

Healthy Lawns Start at the Root

A close-up photograph showing the roots of grass plants growing in dark, rich soil. The roots are light-colored and extend downwards from the base of the green grass blades. The soil is moist and contains some organic matter.

You want your lawn to be green and healthy. A healthy lawn begins with understanding the basic principles of creating healthy soil.

Lawn chemicals kill targeted insects as well as the necessary living microbes that are vital to a productive turf. Beneficial insects and microbes aerate soil, pollinate flowers, eat pesky insects and fight pathogens and contribute to a healthy ecosystem.

In the *Eco-Landscaping Guide*, you will find environmentally-friendly solutions for your outdoor space. The crux of this guide is to teach the importance of feeding the soil a healthy diet to create a luscious turf to enjoy with your family, friends and pets.

Be cautious and limit the use of chemicals in your home, both inside and out.

Visit SWANCC on the web at swancc.org.