THE COMMONWEALTH OF MASSACHUSETTS

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Massachusetts Drought Management Task Force
Tips for Saving Water - Indoors and Outdoors

OUTDOOR WATER USE

Abide by local water use restrictions
Local water suppliers know the limits of their system and will enact voluntary or mandatory restrictions accordingly. Always follow the advice or restrictions provided by your local water supplier.

Stop watering your lawn during drought conditions
Most lawns can survive extended dry periods without watering – they will turn brown, but will revive once the rain returns.

If you water your lawn, water only as needed
Frequent light watering can actually weaken your lawn by encouraging shallow roots that are less tolerant of dry periods. Water your lawn only as needed, generally no more than once or twice a week. A good test is to walk across the lawn. If the grass springs back up, it does not need to be watered.

Timing is critical for lawn watering
The best time to water your lawn is early morning (4 to 6 AM). Avoid watering at mid-day to prevent high evaporation and sun-burned grass.

Use shut-off nozzles on hoses and automatic shut-off devices on irrigation systems.
Unattended hoses can use 10 gallons or more per minute. Use shut-off nozzles to save water. Also, if you have an in-ground irrigation system, use a rain shut-off device that prevents the system from operating during rainstorms.

Capture and reuse rainwater
Use cisterns or rain barrels to capture rainwater from downspouts for use in your yard. A lid, mesh fabric or several drops of baby oil on the surface will prevent mosquitoes from breeding.

Keep your blades sharp and high
Keep you mower blades sharp to prevent tearing of grass and raise your lawn mower's blade to 2 1/2". Longer grass provides shade for the roots and helps reduce water loss.

No Water
Or
No more than 1 Inch a week
Most lawns can survive extended dry periods without watering – they will turn brown, but will revive once the rain returns. If you want to water, give established lawns and shrubs a maximum of one inch of water per week. If there has been an inch of rain in the week, you don't need to water. Use an inexpensive rain gauge to measure rain and watering efforts.

Use plants that need less water
There are many varieties of low water use plants that can withstand dry summers and that actually thrive in drier soil.

Plan and design your garden for efficient outdoor watering
Be aware of the various shade and moistures zones in your yard and plan your gardens and plantings accordingly.

Mulch to keep roots cool and moist
Mulch can serve as a ground cover that reduces water evaporation from the soil while reducing the number of weeds that compete for soil moisture.

Lawns and Landscapes in Your Watershed

Have you ever wondered if the fertilizers, pesticides, and extra water you use for your yard are harmful to your family or your environment? Would you like an attractive yard without spending so much time and money? This guide offers tips and resources to help you design and care for your landscape, while protecting the health of your family and protecting water resources in your watershed.

How Does Lawncare Affect You and Your Environment?

Your property is part of a **watershed**, an area of land from which all the surface water and groundwater flows from higher elevations downhill to a common body of water. No matter how far you live from a body of water, your property is part of a watershed. Therefore, how you care for your yard can affect both water quality and water supply.

It's hard to imagine that a green, flourishing lawn could pose a threat to the environment. However, the fertilizers and pesticides you apply to your lawn are potential pollutants. If you improperly or excessively apply these chemicals, they can wash off your property and end up in ponds, bays, reservoirs, and other waters. Excess nitrogen and phosphorous, two key ingredients in fertilizer, may cause these waters to become overgrown with unsightly and foul-smelling algae and weeds. This overgrowth may result in fish kills, the pollution of shellfish beds and swimming beaches, and the lowering of waterfront property value. In addition, pesticides and nitrogen, which can dissolve in water, have the potential to contaminate groundwater – a source of drinking water.

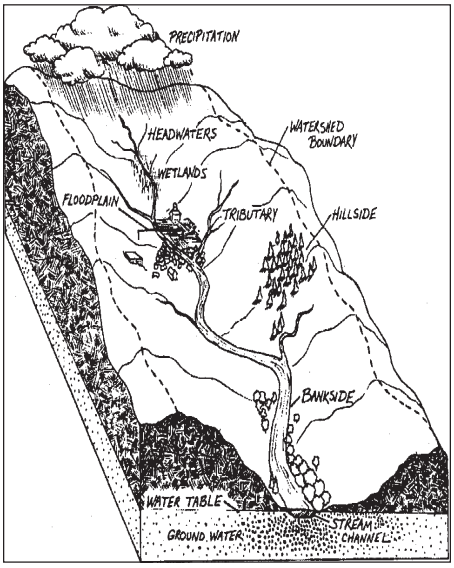
A publication of the MA Department of Environmental Protection, One Winter Street, Boston, MA 02108

Nonpoint Source Pollution

You may have heard of these water quality problems – they are the result of **nonpoint source pollution**. Nonpoint source pollution comes from our use of the land and is the leading cause of water quality problems in Massachusetts. This pollution occurs when rainwater, snowmelt, or irrigation runs over or filters into the land, picking up pollutants and depositing them into rivers, lakes, coastal waters, or groundwater. Pesticides and fertilizers that you apply to your lawn and soil washing off your lawn are all potential nonpoint source pollutants. These pollutants don't observe property lines; they go wherever the water takes them.

Fertilizers and pesticides are not the only problems with typical lawncare. Watering your lawn helps move pollutants downslope to water bodies and unnecessarily drains your drinking water supply and rivers and ponds during the drier summer months. These water impacts affect you and your environment. The summer is a critical period for fish; stream flow and lake levels are at their lowest and water temperatures are at their highest. Drought impacts are often intensified by the watering of lawns. During the 1995 drought, parts of the Ipswich River, which serves as a public water source among other uses, went completely dry, killing many fish. In recent years, many communities, such as Holliston and Braintree, have imposed outdoor water bans due to water shortages. Watering lawns unnecessarily contributes to this annual water supply problem.

It is possible to have a healthy, safe – and attractive – yard and to protect water quality and supply at the same time. Follow this guide for natural landscape care and you can help keep your property, family, and watershed healthy.



***Watershed**: an area of land from which all the surface water and groundwater flows from higher elevations downhill to a common body of water.*

Designing Your Landscape

Understanding the Natural Conditions of Your Property

By first determining the natural conditions of your property, you can choose plantings that are adapted to your soil, moisture levels, and amount of sunlight. This planning can reduce or eliminate the need for lime, fertilizers, and irrigation.

- Have your soil tested for nutrient content and acidity (pH) at the University of Massachusetts Soil Testing Laboratory for under $10. Call 413/545-2311 or visit www.umass.edu/plsoils/soiltest.htm for more information and find out what your yard actually needs.

- Determine which areas of your property tend to be dry or wet and which areas are sunny or shady. You may want to draw a simple map that describes the conditions on your property to help you plan your landscape and choose appropriate plantings.

Choosing Grasses and Other Plants

- Select plants according to your property's natural conditions and group plants with similar needs to minimize unnecessary watering and fertilization.

- Select a grass variety that is best suited to the conditions on your property and in New England. In most areas of Massachusetts, tall fescue is the most suitable grass. It is drought tolerant, resistant to disease and pests, and can often survive New England winters.

- For shady and less fertile areas, fine fescues such as red fescue are a good choice.

- Use a blend of grass seeds to make your lawn more tolerant of pests and resistant to disease.

Using Alternatives to Grass

Using alternatives to grass, such as ground cover and flowering plants, can reduce mowing time, save money, and make your property attractive and unique. Most of these suggested plants can be found at local lawn and garden stores.

- On steep slopes or in inaccessible areas, plant ground cover such as Foam Flower, Goldenstar, or Wild Ginger. All these plants are suited to the Massachusetts climate and need little or no added water. Trees and shrubbery with mulch underneath can provide shade, prevent evaporation, and control weeds.

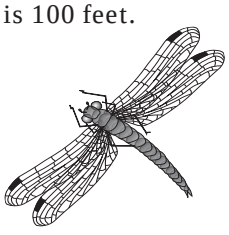
See page 4

Planting Natural Pollution Barriers

Vegetative strips planted in areas where water drains from your property, no matter how far from a body of water, can effectively intercept and filter many of the pollutants in runoff. If you live on the banks of a river or the shoreline of a lake or bay, a vegetative buffer is particularly important to prevent runoff from going directly into these waters. Protecting water bodies with vegetative buffer zones will help maintain water quality, recreational resources, wildlife habitat, and property value.

- Plant a combination of trees, shrubs, and ground cover in areas where water drains from your property. These plants will intercept and filter excess fertilizers or pesticides and eroded soil before they wash into the pond, lake, or bay. Recommended trees are Cottonwood, Black Willow, Silver Maple, and Red Maple. Recommended shrubs include Silky Dogwood, Winter Berry, Elder Berry, and High Bush Blueberry.

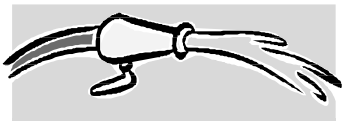
- Make your buffer zone as wide as possible. Don't be afraid of overdoing it. The recommended width for an effective vegetative buffer zone is 100 feet.



Caring for Your Landscape

Watering Your Landscape

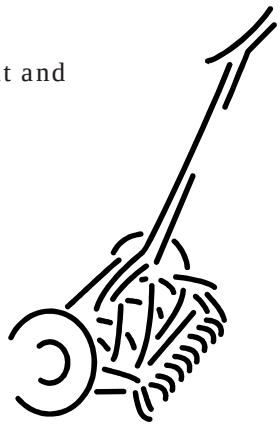
Most people do not realize that if they choose suitable grasses and other plants, watering in the Northeast is usually unnecessary. It is natural for your grass to turn yellowish during hot, dry spells. This is a normal state called dormancy, which a healthy lawn can withstand. Your grass will regain its vibrancy with the next rainfall. If you choose to water your lawn:



- Observe local outdoor water bans.
- Place sprinklers in areas where you won't be wastefully watering your sidewalk or driveway.
- Water in the early morning to prevent the growth of fungi and minimize evaporation.
- Water deeply and infrequently. Deeper watering encourages the roots of grass to grow long and healthy, allowing your lawn to survive drier periods and saving money on your water bill.
- Most lawns need less than one inch of water to saturate grass roots 4-6 inches in length. Place an empty coffee can in the watering area and measure the amount of water in the can to determine when you have watered enough.

Mowing Your Lawn

Proper mowing is one of the most important ways to maintain a healthy lawn.



- Mow only when the grass is dry to get a clean cut and minimize the spread of disease.
- Mow grass to a height of 2-3 inches. The longer the grass, the more water is retained and the longer the roots of your lawn will be, making it stronger and more tolerant. Keeping your grass longer also may allow it to outcompete weeds, reducing the need for herbicides.
- Mow frequently, cutting no more than a third of the height of the grass at a time. Cutting more grass than this at one time and mowing infrequently can damage your grass.

See page 4

Fertilizing Your Landscape

Grass clippings contain high amounts of nitrogen, a key ingredient in fertilizer. Use your grass clippings by leaving them on your lawn. It may be all the fertilizer you need, and it will save you time and money. Clippings are approximately 85 percent water, so they usually decompose within a week and will not smother your lawn. The easiest and most common way to spread clippings is called mulching; mulching mowers cut the grass into smaller pieces and then blow them back onto your lawn.

If your soil test and the plants you have chosen demand that you apply fertilizer in addition to your clippings:

- Use organic or slow-release fertilizers; these types are less likely to wash off your lawn than inorganic or fast-release fertilizers.
- Fertilize in the fall, but beware of weather patterns. Although some rainfall is helpful in distributing fertilizer, a heavy downpour will wash the fertilizer off your lawn and into nearby waters.
- Be careful not to apply more than the recommended amount of fertilizer. Too much fertilizer can burn the grass, damage the soil, and attract pests.

Caring for Your Landscape

Protecting Your Lawn and Landscape from Pests

Although pesticides appear to be a good solution for lawn and garden pests, there are drawbacks to pesticide use for you, your landscape, and the environment. Pesticides, by definition, are toxic substances which may pose risks to people, pets, and wildlife. Some chemicals in pesticides remain potent and rain may transport them from your lawn to areas where they may have harmful effects.

The best defense against pests is maintaining a healthy lawn naturally, using Integrated Pest Management (IPM). IPM promotes a variety of non-chemical (biological and mechanical) techniques for pest control and uses chemical controls selectively, only when necessary. There are many alternatives to pesticide use, such as beneficial insects like ladybugs and spiders, beneficial parasites like nematodes, and certain beneficial bacteria.

Grubs are the most common and difficult pest in Massachusetts. These beetle larvae feed on grass roots, killing large areas of turf in short periods of time and attracting animals such as skunks and moles that feed on grubs. One option in dealing with grubs is to plant a ground cover other than grass that will not perpetuate a grub problem. The most effective biological alternatives to pesticide use for grubs are two beneficial nematodes - *Heterorhabditis bacteriophora* and *Steinernema glaseri*. The use of these microscopic worm-like organisms is becoming more widespread and they can be found in many lawncare stores.

To specifically control Japanese beetle grubs (white grubs), introduce a disease that kills these pests, called milky spore disease. Milky spore disease (commercially named Doom, Grub Attack, or Grub Killer) spreads slowly through the soil, possibly taking a season to bring the grub level down to one that the turf can handle, but the disease will continue to kill grubs for years.

Massachusetts' most common lawn pest, the white grub

Graphic courtesy of MA Dept. of Agricultural Resources

To find out more about alternatives to pesticides, call the Massachusetts Department of Agricultural Resources at 617/626-1700, refer to the Department's booklet, *A Homeowner's Guide to Environmentally Sound Lawncare: Maintaining a Healthy Lawn the IPM Way (1997)*, or contact the agencies and organizations listed on page 5.

If you decide to use a pesticide, choose one that is selective for a specific pest. Many pesticides are non-selective and may kill desirable insects and plants. Whether you choose chemical pesticides or biological alternatives, carefully follow the product instructions.

Using Alternatives to Grass

Continued from page 2

- Trees such as Sugar Maples, Oaks, and Basswoods are well adapted to New England. Some examples of shrubbery that need little or no added water are Shad Bush and Sweet Pepper Bush.
- Using native flowering plants in a meadow-like design is a good alternative in areas where shrubs or ground cover are not suitable. Some examples of drought resistant flowers are Asters, Butterfly Weeds, and False Indigos.

Mowing Your Lawn

Continued from page 3

- Sharpen your mower blade to avoid damaging grass blades. Mower blades should be sharpened once a year and touched up after every 10 hours of mowing.
- Do not dispose of grass clippings in nearby waters. The clippings will break down and encourage the growth of algae which depletes the oxygen in water and impacts fish and other aquatic species. If you choose not to leave your clippings on your lawn, compost them.

Additional Resources

The following agencies and organizations can provide information on a variety of topics related to effective and environmentally responsible lawn and landscape care:

Massachusetts Department of Environmental Protection
One Winter Street
Boston, MA 02108
617/556-1154
Contact person: Sandy Rabb
www.state.ma.us/dep

Massachusetts Department of Agricultural Resources
Pesticide Bureau
251 Causeway Street, Suite 500
Boston, MA 02114
617/626-1700
www.massgrown.org/index.html

Soil Testing Laboratory
West Experiment Station
University of Massachusetts
Amherst, MA 01003-2082
413/545-2311
www.umass.edu/plsoils/soiltest

National Pesticide Telecommunications Network
800/858-7378
EPA-sponsored hotline
www.epa.gov

Massachusetts Audubon Society
Natural History Helpline:
781/259-2151
www.massaudubon.org

Massachusetts Horticultural Society
Garden line: 781/235-2116
Monday, Wednesday, Friday:
10am - 2pm
www.masshort.org

Master Gardener Association of Western Massachusetts
Berkshire Botanic Garden, Lenox
413/298-5355
Tuesday only: 9am-1pm, May 1-October 1
Smith Greenhouse, Amherst
413/585-2740
Saturday only: 9am-1pm, May 1-October 1

New England Wild Flower Society
180 Hemenway Road
Framingham, MA 01701-2699
508/877-7630
www.newfs.com

Tower Hill Botanic Garden, Worcester County Horticultural Society
11 French Drive, POB 598
Boylston, MA 01505-0598
508/869-6111, ext. 10
Wednesday only: 2-4pm
www.towerhillbg.org

Massachusetts Watershed Coalition
POB 577
Leominster, MA 01453
508/534-0379

Congress of Lakes and Ponds
135 Washington Street
Holliston, MA 01746
508/429-5085

Committee for Alternatives to Pesticides GreenCAP
Green Decade Coalition/Newton
474 Centre Street
Newton, Massachusetts 02158
617/965-1995
(a community organization)

Recommended Publications

The following documents contain additional information about lawn and landscape care in your watershed:

- "Fact Sheet #8: Functions of Riparian Areas for Pollution Prevention," MA Dept. of Fisheries, Wildlife, and Environmental Law Enforcement, Riverways Program, 1992. To obtain, call 617/626-1565.
- "Don't Trash Grass" and "Home Composting," MA Dept. of Environmental Protection, Division of Solid Waste Management, 1993. Available on the DEP web site: www.state.ma.us/dep.
- "A Homeowner's Guide to Environmentally Sound Lawncare: Maintaining a Healthy Lawn the IPM Way," MA Dept. of Agricultural Resources, Pesticide Bureau, 1997. To obtain, call 617/626-1700.
- "Water Well-Being," MA Dept. of Agricultural Resources and DEP, 2002. Available online at www.mass.gov/waterwellbeing.
- "More Than Just a Yard: Ecological Landscaping Tools for the MA Homeowner," Executive Office of Environmental Affairs, 2003. Available online at www.mass.gov/envir/mwrc/pdf/More_Than_Just_Yard.pdf.

Lawns and Landscapes in Your Watershed

How to improve water quality, preserve water supply, and save time and money on your yard

Inside:

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This information is available in alternate format upon request by contacting the ADA Coordinator at 617/ 574-6872.

MA Department of Environmental Protection
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Water Use and Conservation

Facts

The need to conserve water has become a major issue for many communities in Massachusetts. Water sources can become stressed due to withdrawals to meet needs such as irrigation and watering of lawns. In fact, nationally, lawn care accounts for 32 percent of outdoor water use.

Reducing the amount of water used for lawn and landscape maintenance is essential to protecting water supplies for current and future uses and for protecting natural resources. Efficient use of water can help prevent waste, lessen the effects of drought, and help minimize run-off and leaching. While each site will have different considerations such as soil type, grass species, weather, and sun exposure, some general practices can be used for developing an efficient watering approach.

1. Reduce lawn size

By reducing lawn size you can substantially reduce the amount of water used for landscape maintenance. Replace lawn area with native species of trees and shrubs. Consider alternatives to grass especially when you have steep slopes and shady areas.

2. Use drought resistant grass species

Mixtures of grass species are used to get the most effective and long-lasting seasonal coverage. Fine fescues have low water needs and high drought tolerance. Some cultivars of endophytic seeds tend to have a high tolerance for drought and nutrient deficiencies. Generally an insect resistant mixture of grasses that includes a high percentage of fine fescues will ensure a drought resistant lawn.

3. Choose native and drought tolerant species

Native species have adapted to the environmental conditions of New England and have evolved in such a way that they need fewer inputs such as water and chemicals.

4. Water only when necessary

In most years, Massachusetts has enough rainfall to naturally supply the water needs of most mature lawns without the need for watering. The two simple ways to tell if your lawn needs water are by the color and flexibility. If you walk on your lawn and leave a footprint or the color of your lawn turns blue/green the grass is not receiving enough water. Mature lawns that go brown in the summer are in a natural period of dormancy. They will green up when wetter cooler weather returns.

5. Water your lawn in the evening or early morning

If your lawn does not have a fungi problem, it is best to water between 4:00 pm and 8:00 pm. Watering can also take place early in the morning just prior to or just after sunrise. Watering early in the morning will allow your grass to dry quickly and lose less water from evaporation. This can reduce disease susceptibility by limiting moist conditions which encourage spore germination and the spread of fungal infection.

6. Water slowly and deeply

Watering slowly and deeply will allow the water to be absorbed. You should water four to six inches deep, which means about one inch of water on the surface. If using a sprinkler system, place a rain gauge or shallow cans on either side of the sprinkler and measure the water that it collects. This approach will help you to determine the amount of water you are using.

7. Collect rainwater for landscaping needs

Use cisterns or rain barrels to capture rainwater from downspouts to use for newly planted vegetation. Use a lid, mesh fabric or add several drops of baby oil to prevent mosquitoes from breeding.

8. Water on sloped areas with care

When watering on sloped areas do not apply water faster than it is being absorbed. Water regularly until you begin to see run off. Stop the watering until it is absorbed into the ground and then continue until you have watered four to six inches deep.

Maintain sprinkler systems and irrigation equipment. Make sure that the sprinkler system is appropriate for your landscape and watering needs. Install matched precipitation sprinkler heads which apply water according to area specific needs. Make sure that the irrigation system has a rain shutoff device. Locate irrigation heads at least eight inches from paved areas and watch where water is going! You should not be watering the sidewalk, street, or the neighbor's yard.

9. Additional Suggestions

Check your equipment. Fix leaky hoses or faucets. Install a shut off device on hoses to prevent water loss from unattended hoses. Hoses without a nozzle can spout 10 gallons or more per minute. Do not leave faucets or hoses on when they are not in use.

Use mulch: Organic mulch lowers the temperature of the soil, which in turns reduces water evaporation. However, you must be careful not to apply too much (the soil does require some heat). Plastic films do the same (clear), while also preventing unwanted weeds around plants.

KITCHEN

Prepare food efficiently
Speed cleaning food by using a vegetable brush. Spray water in short bursts. Faucet aerators cut consumption.

Defrost sensibly
Plan ahead to defrost foods overnight in the refrigerator. Don't use running water. Use the microwave or put wrapped food in a bowl of cold water.

Reduce dishwashing
Use rubber spatula to scrape dishes clean to limit pre-rinse. Let really dirty pans or dishes soak to speed washing. Most newer dishwashers don't require pre-rinsing. Limit dishwasher use to full loads.

Reuse clean household water
Collect all the water that is wasted while waiting for the hot water to reach your faucet or showerhead. Use this to water your houseplants or outdoor planters. Do the same with water that is used to boil eggs or steam vegetables.

Garbage disposal alternatives
Avoid using your garbage disposal. Compost leftovers fruits and vegetables.

BATHROOM

Fix leaking faucets and toilets
Research has shown that an average of 8% (or more) of all home water use is wasted through leaks. Test for a leaking toilet by lifting the lid off the toilet tank and putting a few drops of food coloring into the bowl. Wait a few minutes, then look in the bowl. If the food coloring has made its way there, you have a leak.

SIMPLE TEST FOR YOUR SHOWER
Hold a bucket underneath your showerhead for 20 seconds. If more than one gallon accumulates, you need a water efficient showerhead.

Install a low-flow toilet
Low-flow toilets need only 1.6 gallons per flush, saving thousands of gallons per year. Unlike earlier models, low flow toilets available today receive high marks from consumers for overall performance.

Avoid using the toilet as a wastebasket
Every flush you eliminate can save between two and seven gallons of water.

Brush teeth efficiently
Don't let the water run while you brush your teeth or shave. Turn the faucet on briefly to rinse. An electric razor saves water.

Conserve water in the tub
Take showers instead of a bath and save 30 gallons. Filling the bathtub uses about 50 gallons of water. Try filling it just half way.

Shorten your shower by one minute
Cut back on your shower time and you will rack up big savings in water and energy. If you really want to try and save water, limit your shower time to five minutes or less. Also, install a water-saving showerhead that uses two-and-a-half gallons per minute.

LAUNDRY

Wash only full loads of laundry
You'll not only save water, but energy as well.

Consider purchasing a new water- and energy- efficient clothes washer
Look for the Energy Star labeled products and save more water in one year than a person drinks in a lifetime. These units create less wear and tear on clothes, clean better, and use less detergent. Some electric utilities offer rebates for qualified models.

WATER CONSERVATION ON THE WEB

MWRA - http://www.mwra.com/04water/html/watsav.htm
Danvers - www.danvers-ma.org/midpond.htm
Concord, MA - www.concordnet.org/dpw/index.html
AWWA - www.waterwiser.org/
EPA's EnergyStar Program - www.energystar.gov/
New York City - www.ci.nyc.ny.us/html/dep/html/hcisw.html
North Andover - www.northandoverwaterdept.com/Water%20Conservation.htm
DEP Model Water Use Restriction Bylaw/Ordinance -http://www.mass.gov/dep/water/drinking/protect.htm#restrictbl