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Water Wise Gardening

Efficient Watering

Efficient watering practices conserve water, maintain healthy landscapes and reduce maintenance costs. These practices also reduce the energy consumption needed to produce and deliver potable water. Thus, efficient watering is one way to reduce your carbon footprint. This protects our waterways, aquatic life and the ground water supplies essential for supporting the natural vegetation and wildlife that is necessary for a healthy environment. By designing a watering plan with your yard's unique environment in mind, you will create a pleasing, low maintenance and water wise landscape.

Most established lawns, trees, shrubs and perennials rarely need watering. If you do water, it is important to do so properly. Poor watering practices wastes water and may do serious damage. Overwatering pushes oxygen out of the soil, starving roots of oxygen, and creates conditions favorable to many plant diseases. Frequent light watering promotes shallow root systems susceptible to winter injury and summer heat stress. Excess water running off your property carries pollutants (such as fertilizer and soil) into our waterways.

Plant Selection

Plant selection is the key to water wise gardening. Choose plants that are drought tolerant. Select plants that are well adapted to your landscape, accounting for the proximity to a water source and to natural environmental conditions. Take a careful look at your yard and choose plants appropriate for each microenvironment (such as a dry slope, low moist area, stream bank, cool or dry shade, open sunny area). Place thirsty plants together, near a faucet or on a separate watering system than drought tolerant plants. Lawn requires more water than most other plants. Limit your lawn size to an area that provides a functional benefit (such as a play area). Use drought tolerant grass varieties. Some yards have sloping areas suitable for rain gardens or moist places that could be developed as ornamental bogs.

Mulching, Compost and Weed Management

Organic-based mulches, such as wood chips or grass clippings, cool summer soils, conserve moisture, provide air spaces, add nutrients and allow soils to gradually freeze and thaw, protecting roots in winter. Mulch also suppresses weeds that compete with desirable plants for water, nutrients and sunlight.

Lawns may benefit from the application of a thin layer ($^1/_8$ to ¼ inch) of compost applied in conjunction with an areation. Compost improves the ability of soil to absorb water, provides air spaces and slowly adds nutrients.

Shrubs, trees, and flower and vegetable gardens benefit from mulch approximately two inches deep. Fine textured mulches (compost, pine needles, mini-nuggets and shredded hardwood mulch) conserve moisture better than coarse textured ones. Mulch should be applied to as large an area as possible because roots of woody plants extend two to three times the canopy spread. Avoid mounding mulch against the trunk. Moistened newspaper under mulch helps to maintain moisture and suppress weeds and will decompose over time.

Lawns

Established Lawns

Established lawns need about one inch of water per week during the growing season. If your lawn receives one inch of rainfall every week in the summer, it will make it through the summer without much moisture stress. If you get less rain, you may make up the difference with sprinklers or an irrigation system. If you get $^{1}/_{2}$ inch of rain one week, apply only another $^{1}/_{2}$ inch. Use a rain gauge or container (such as a tuna fish/cat food or other container) to measure rainfall and supplemental water from sprinklers.

Lawn grasses are adapted to go dormant in summer in response to a lack of moisture. Research shows that these cool season grasses will survive with as little as $^{1}/_{10}$ inch of water over three-week period. Lawn grasses rebound when rains return.

You may allow your established lawn to go into a summer dormancy condition. Proper conditioning is important. As the summer stress period approaches, gradually reduce lawn watering to help the grasses adjust to drier conditions.

New and Renovated Lawns

Germinating seeds and young seedlings must have adequate moisture. Seedbeds need to be moist at all times until seeds sprout. Moisten only the surface. After seedlings emerge, gradually reduce watering to promote deep rooting. Once 60 percent of the ground is covered with grass, allow the soil surface to dry and begin to follow the active watering recommendations above. Keep in mind that lawn grasses do not develop full drought tolerance until they are approximately a year old.

Helpful Lawn Management Tips for Drought Tolerance

Use lawn grass mixes that are naturally drought tolerant (such as fescues) and are adapted to your site's conditions. Mow grass higher (mowed height at least three inches tall) to encourage larger root systems, leave grass clippings on the lawn, and do not apply nitrogen fertilizer in spring. Core aerate in late summer (late August/early September, once rain has resumed) so that air and moisture can move through your soil. Sharpen your mower blade to minimize water loss after mowing.

Trees and shrubs

Plant type and soil type are the most important factors in determining how much to water and how often.

Newly Planted

Newly planted trees and shrubs need supplemental watering during dry periods of spring, summer and fall for up to three to four years after planting. The type of soil influences how long it takes for plants to become established. Plants establish quickly in well-drained, rich soils with sufficient fertility, but generally take much longer in poor, dry soils.

Newly planted trees and shrubs should receive the equivalent of an inch of water weekly. In year one, unless it is very dry, water newly planted trees and shrubs once every three weeks in spring, once every week or two in summer and once every four weeks in fall. In year two, water once every four weeks in spring, once every three weeks in summer and once every five weeks in fall. In year three, water once every seven weeks in spring, once every five weeks in summer and once every eight weeks in fall.

Mid-August to October is the most critical time to prepare plants to tolerate winter stress. Plants must enter fall and winter with sufficient moisture in their systems.

Established Plants

Established plants require little, if any, supplemental watering. If plantings are wilted in the cooler conditions of early morning or evening, they are in need of water. Water deeply, slowly so that moisture will percolate into the soil to encourage roots to grow deeper and laterally. Tree roots grow away from the trunk at least as far as the tree is tall and in most cases much farther. Place an open-end hose or soaker hose at and beyond the drip line.

Timing Watering

The best time to water is between 4:00 a.m. and 8:00 a.m. Evaporation is low so more water is adsorbed by the soil. Leaves dry quickly once the sun rises, minimizing conditions conducive to plant diseases. Avoid watering in the afternoon or evening and on cloudy or windy days.

How to Water

Let rainfall be the main water source for your landscape. Give supplemental watering priority to newly planted trees and shrubs (installed within the past four months).

Water the roots, not the leaves. Apply water slowly, deeply and infrequently. Apply at a rate that all the water is soaked up by the soil (the infiltration rate). Water should not puddle on level areas or run off slopes. You may need to divide watering into two sessions in order to avoid exceeding infiltration. Deep watering (soil moist to six or eight inches) helps plant root systems grow strong, deep and long.

Supplemental Irrigation Methods

Hand-held hoses are not adequate for most watering situations, except to apply water to plants that show signs of wilt in the cooler hours of the day. Soaker hoses are inexpensive, porous hoses that ooze water. This soaks into the soil without wetting foliage. Soakers should be covered with mulch to increase their efficiency. Drip irrigation uses 50 percent less water than conventional sprinkler irrigation and applies this water slowly and directly to root systems.

Sprinklers that attach to hoses are appropriate for lawns. Place oscillating sprinklers higher than plants. Keep the water pattern even by moving sprinklers often and overlapping about $^{1}/_{2}$ of each pattern.

If your have an in-ground irrigation system or plan to install one, also include a timer and water saving technology, such as a rain sensor, soil moisture sensor or evapotranspiration controllers. A rain sensor, for example, detects when rain is falling and turns the irrigation system off as necessary. Rain sensors are inexpensive and usually repay their cost in water savings in a couple of years.

Drip irrigation supplies are available in plumbing departments and soaker hoses are found with garden hoses in the gardening departments of hardware stores and home improvement centers. Programmable timers for outdoor faucets are found with hoses.

Maintain your faucets and irrigation equipment. Tighten faucets or replace gaskets to stop leaks. Make sure your sprinklers and irrigation systems do not water sidewalks, street or driveway. In-ground systems should be regularly audited by professionals who inspect for leaks and other problems. Irrigation specialists can also recommend new water-saving equipment.

Rain barrels allow you to harvest rainwater from your house or other building. Rain barrels save money, water and energy as well as reduce erosion and stormwater runoff. Ready made rain barrels are available from online garden companies or local garden centers. You may also construct your own rain barrel (Contact Cornell Cooperative Extension of Rockland for information).

When to Plant

Fall planting allows for root development without competition for water by overly thirsty foliage. Lawn establishment and renovation should be done in the early fall (Labor Day to the end of September). Most trees and shrubs establish well in during September to mid-October (plant broad-leaved evergreens, such as azalea and rhododendron in early spring). Energy is stored in root systems that continue to grow as long as soil temperatures are above 40 degrees. Mulch protects the roots of newly planted trees and shrubs through the winter.

Limit Fertilization

Fertilizer promotes rapid growth. Fast growth consumes lots of water. Careful fertilizer use based on proper timing and application rates produces plants that are better able to tolerate drought, pests and diseases than those that are over-fertilized. These plants require less mowing or pruning and may live longer.

Drought

Drought calls for responsible water conservation and observation of all official water restrictions.

Prepared by Elaine Brown, Cornell Cooperative Extension of Rockland County

Resources:

Cornell University Cooperative Extension 2009 Home Gardening—Lawn Care Library—Watering. http://www.gardening.cornell.ed/homegardening/scene7866.html

Druse, Ken, ed. 2000 Sunset Northeastern Landscaping Book. Menlo Park, CA: Sunset Books Inc.
Georgia Environmental Protection Division 2009 Conserve Water Georgia: Tips for Saving Water Outdoors. http://www.conservewatergeorgia.net/documents/indiv_outdoorTips.html

Good, George L and Richard Weir, III 2005 The Cornell Guide for Planting and Maintaining Trees and Shrubs. Information Bulletin 24. Ithaca, NY: Cornell University Press.

Rossi, Frank 2005 Lawn Care without Pesticides. Information Bulletin 24B. Cornell University Cooperative Extension

University of Minnesota Extension 2009 Watering Practices. http://www.sustland.umn.edu/maint/watering.html and Mulching and Watering. http://www.sustland.umn.edu/maint/mulching.html Sustainable Urban Landscape Information Series.

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