



CRD Environmental Sustainability
A Homeowner's Guide
to Outdoor Water Use

Garden Design
Soils
Lawns
Irrigation
Plants
CRD programs
and more!



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Introduction

We can still enjoy the benefits of outdoor watering if we learn how to use water efficiently and wisely.

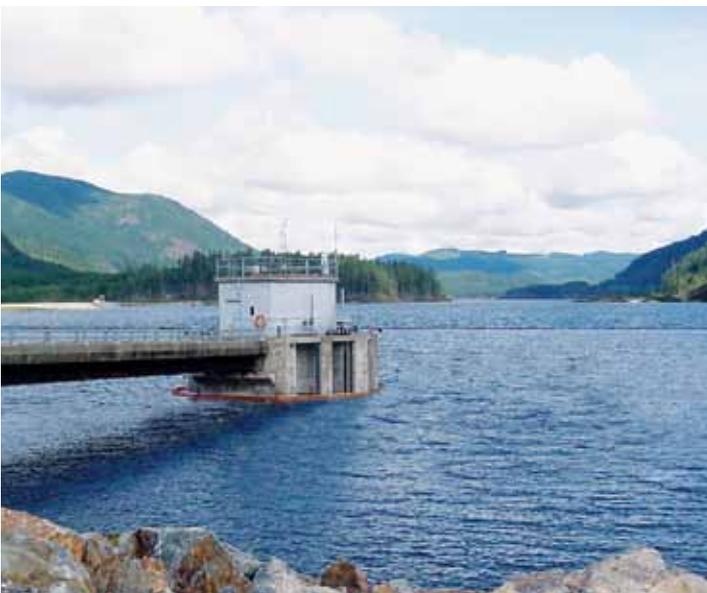
In Canada we turn on our faucets, and the water is always there — cool, clean and ready for our many uses. This availability makes us very fortunate, but it also makes us take our water for granted and develops wasteful habits both at home and at work. This is particularly evident during our outdoor water season. The purpose of this booklet is to provide residents of the Capital Region with information on water-wise techniques and practices.

We tend to think water is cheap and limitless because the Victoria area seems to have abundant rainfall. Well, Mother Nature tells us this just isn't so. All of our municipal water comes from reservoirs that have limited capacity and that rely on winter rains to fill them. So no matter how long and hard it rains, we can only capture a limited supply. Also, most of our rainfall occurs in the winter months. In the summer, when demand is highest, we barely get 203 mm (8 inches) on average in the watershed during May through September. So if we have a dry winter, our reservoir levels remain low, and there is little chance that summer rainfall will make up the difference.

The biggest drain on our water resources during the summer months is outdoor use, primarily lawn and garden watering. We increase our water use during this time period by about 64 per cent over winter use. We can still enjoy the benefits of outdoor watering if we learn how to use water efficiently and wisely.

This booklet, prepared by CRD Environmental Sustainability, offers information, tips and techniques for wise outdoor water use. These simple techniques will help you use water more efficiently and save

money. They will also help your garden flourish, as about 70 to 80 per cent of all plant problems are related to incorrect watering. Follow this guide, and you will cut down on your costs, maintenance time and effort and, most importantly, conserve our precious water resource.

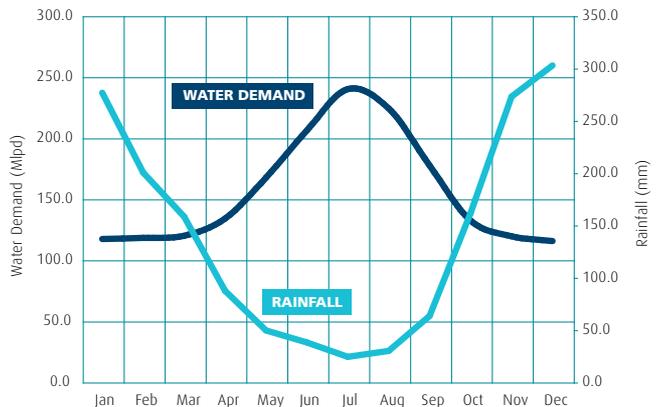


Sooke Lake Reservoir

The Wet Coast?

Living on Vancouver Island, we might be forgiven for thinking that water is cheap — it certainly seems to rain often enough. But we should remember that our summers can be extremely dry. Capturing, treating and distributing that winter rainfall is challenging and costly. Expanding this infrastructure would be expensive for all of us and take its toll on the environment.

We can defer such expansion if we use water wisely. Unfortunately, our region gets the bulk of its rainfall just when we don't need it — in winter. In summer our needs for water increase enormously, but our average rainfall in the Capital Regional District catchment area for the summer months of May through September is 203 mm (8 inches), compared to an average winter rainfall, October through April, of 1451 mm (57.1) inches.



The water numbers

Average summer daily per-capita demand 2000–2009

(May, June, July, August and September) (excl. 2001)

625 litres (140 gallons) per person per day

The number of people we supply water to **342,800** (2010 figures)

Average summer rainfall in our watershed

May – September **203 mm** (8 inches)

The maximum daily demand can reach **318,000,000 litres**

(about 71 million gallons)

Average year-round daily per-capita demand 2000–2009 (excl. 2001)

480 litres (106 gallons) per person per day (includes ICI and residential sector)

Reservoir capacity **102 billion litres** (23 billion gallons)

Average winter rainfall in our watershed October – April **1450 mm** (57.1 inches)

Where does it all go?

Essentially, we need just five litres or so of water per person per day to live. Less than 2 per cent of the water we use goes towards cooking and drinking. An additional 98 per cent, 280 litres of water, is used each day for washing ourselves, our dishes, our clothes, our vehicles, and for flushing toilets and watering the garden.* In total 280 litres per capita per day is consumed by residents in the CRD.

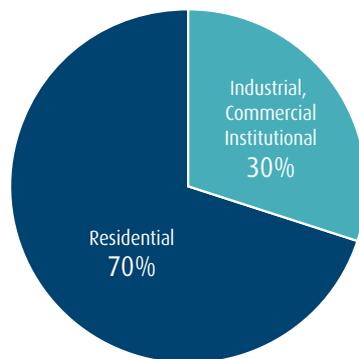
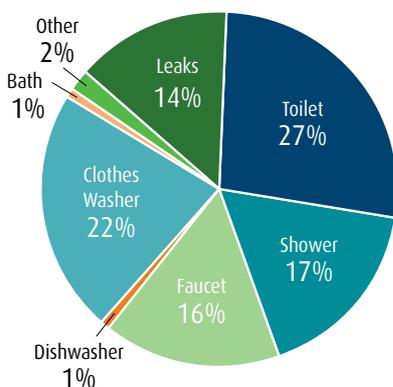
In summer we use most of our water outdoors. We enjoy a wonderful climate for growing vegetation. The Victoria area is famous for its gardens and avid gardeners. However, dry summers put a huge strain on our water supply; the daily demand doubles. More than half our water is used in yards and gardens. Unfortunately, about 65 per cent of this irrigation is wasted by inefficient watering practices. It seems such a shame that we go to the trouble of collecting and purifying all this water, just to let it run away.

In most cases, using water wisely will not cost you a cent — it will actually save you money, as well as precious time and effort. The Capital Regional District encourages householders to water their gardens responsibly and has a Water Conservation Bylaw in place to help us share this precious resource (see page 28).

*residential, per capita

How we use our water — by sector

Breakdown of indoor water use





Do I need a lawn?

Do I really need a lawn?

Are there other areas of the garden for children to play on or for you to walk around? If so, what size do I need? The bigger the lawn, the more effort and water you'll need to maintain it. Lawn care can use hundreds of hours of your time each year, cost several hundred dollars and a lot of water. A garden hose can deliver — and potentially waste — more than 600 litres (132 gallons) of water an hour.

What can I grow instead of grass?

Many attractive plants can cover a broad, flat area or rising or uneven ground where it's difficult to take a lawn mower. Some of these plantings can be walked on just like grass, or they can be attractive to look at, in green, gold and a variety of other colours. See the "Plants" section on page 11 for some examples of ground covers, all which require far less water and attention than turf.

Is my time well spent?

The average gardener spends up to 100 hours every year walking behind a noisy lawn mower. Isn't there something else you'd rather do with your time?

Could I replace some or all of my lawn with hardscaping?

Hardscaping — covering the ground with a hard, non-growing surface — is also a way to reduce lawn area. Types of hardscape include paving stones, interlocking bricks, permeable concrete, decking and stones. Note: allow rainwater to penetrate the soil under the hardscaping.

Tips

Irrigate close to the ground to reduce evaporation and losing water to wind.



Garden Design

Whether you've just moved into a brand new home or you've been living on your property for years, it's never too late to consider the design of your garden.

Ask yourself a few questions.

What do I need from my garden? Flowers? Produce? Recreational space? A playground for pets and children? Attract wildlife?

A formal, manicured garden can be nice to have, but it requires a lot of time, effort and expense. On the other hand, a natural planting of native and drought-resistant plants can offer colour and variety and be far less taxing on both your back and your budget.

What will I need from my garden in five years' time? And in ten years?

Will you have the same time and energy to work in your garden in the future? Or should you aim for decreasing maintenance as years go by?

What has my garden got to offer? Sunlight or shade? Wind or shelter? A view? Mature trees? Rocky outcrop?

Make the most of the natural features, and see where the sunlight comes and goes.

What is my growing medium? Shallow or deep soil? Moist or dry? Well-drained or heavy?

Certain plants need certain conditions — find out what their needs are before you plant.

Will nature provide all my garden's water, or will it need irrigation?

Nature might not always provide adequate water so irrigation may be required. The key is to have efficient irrigation, ideally suited to your garden's planting and soil conditions. Careful planning will help you save watering costs and effort.

How much can I give my garden in time, money and labour?

A high-maintenance garden that becomes neglected can reduce your property's value and look worse than a low-maintenance garden that's been left alone.

Should I use raised beds for flowers and vegetables?

Although they help to increase the soil temperature around plant roots, raised beds and berms also tend to dry out more quickly, and therefore need more water.

Planning the design

Be realistic with your answers, especially when addressing what your property will demand of you in terms of time, effort and water use. Remember that many beautiful trees, plants and shrubs thrive in this region without any help from anyone. See the “Plants” section for species that require little or no watering.

Analyze your soil to see what kind of plant life will grow in it or to find out how to adjust your soil’s composition to suit each plant’s needs. See the “Soil” section.



A sensible garden design can bring you water savings, lower maintenance, and can increase the value of your property. You'll also gain valuable leisure time you can use to enjoy your garden!

Once you've looked at your lot, sketch its outline and mark the various areas. Take note of the different soil types, existing features (such as large rocks, trees and buildings), sunny and shaded areas, and access to water. You can use this sketch to decide what to plant in your garden and where it will best thrive with the least water and maintenance.

Before planting, consider property orientation (facing north, south, east or west), shade, available moisture and the plant's water needs. Group thirsty plants together so you can water them more efficiently. If your plants need regular watering, how will you do this efficiently — by watering can, by hose, by an in-ground or micro/drip irrigation system?



Soil

Soil is a crucial part of your garden, and knowing what kind you have and how it works will save you time, money, water and heartache.

Soil testing

Testing your soil is as important for the success of your plantings, including your lawn, as anything you can do. Just as a blood test indicates your deficiencies, a soil test provides the information you need to grow a successful, healthy garden, one that needs less maintenance and less water.

A test will tell you the pH of your soil and the various nutrients it already contains or needs. By analyzing the composition of your soil, the test will indicate the soil's ability to retain moisture and help you decide how often to water your garden. Also measure the top soil depth. A deeper top soil means greater water retention and greater drought tolerance. Remember, overwatering can be just as harmful to plants as underwatering.

Nurseries and garden centres offer kits for you to test the soil yourself, or they can steer you to a company that can provide a detailed soil analysis.

Make sure your test covers a wide range of your garden's soil. Take samples (at least 15 cm or six inches in depth) from different areas of your lot. This helps provide a more complete picture of the health or deficiency of your soil. Use a core sampler or a hand trowel to gather your samples, and record the location of each. You might be surprised at how different the soil is at various points. But this will help you decide where and what to plant.

What is soil?

Physically, soil is a mixture of sand, silt, clay and organic matter. Whole soil is a living ecosystem that includes a mixture of soil particles, air, water and possibly fungus, bacteria and various invertebrates, etc. Sandy soils have a high percentage of sand

Sand	particle sizes range from 2.0 to 0.05 mm.
Silt	particle sizes range from 0.05 to 0.002 mm.
Clay	particle sizes are smaller than 0.002 mm.

particles but not much capacity to retain moisture, and so they drain very freely. Clay soils, on the other hand, consist of extremely fine particles that have a large capacity to retain moisture and therefore drain very slowly. Silt soils fall somewhere between these two.

The ideal soil mixture for the average garden, called loam, consists of 50 per cent sand, 20 per cent silt, 10 per cent clay and 10 per cent organic matter. A loam soil seems crumbly in comparison to a clay soil that is very tight.

The best soils for lawns are 50–70 per cent sand, 10–25 per cent silt, 0–20 per cent clay, and 3–10 per cent organic matter.

Soil and water

Different soils hold different amounts of water. The sandier the soil, the more freely the water runs through — so a sandy garden requires more frequent watering. A soil rich in clay does not drain as freely and holds water near the surface.

The key to holding moisture in the soil and making it available to plant roots is the cavities provided by organic matter. Organic matter is plant and animal residues, microscopic soil organisms and living plant roots. Organic matter also includes humus, which is highly decomposed organic material. The capacity of humus to hold water and nutrients exceeds that of clay and even small amounts of it remarkably increase any soil's ability to sustain healthy plants. A mineral soil with no humus may absorb only 20% of its dry weight in water, while a soil rich in humus can absorb 300% to 500% of its dry weight in water. Good compost provides humus. A typical garden soil should have 10 per cent organic matter.

Organic soil supplies nutrients to your plants. Healthy soil should have a definite crumb structure, where various soil particles cling together to form crumbs. Organic matter helps the soil maintain various crumb sizes, providing a structure in which air, nutrients and water are available to growing plants.

The right mix

Too sandy? Add organic matter. Too silty?

Add a little sand. Too much clay?

Add sand and organic matter.

You can add organic matter to your soil by digging or rototilling in materials such as compost, leaf mold, manure, straw, composted sawdust, green manures (plants grown as a cover crop, e.g. fall rye), seaweed, seed hulls, and peat. You should thoroughly mix the organic matter with

your soil to a depth of 12 to 15 cm (five to six inches). If you add lots of uncomposted organic matter, it may tie up the nitrogen in your soil, so add extra nitrogen in fertilizer form. Plants are better able to withstand drought when there is plenty of organic matter like compost in the soil. Contact the Compost Education Centre at 250.386.9676 or visit www.compost.bc.ca for information and everything you would want to know about composting and organic gardening.

Many plants thrive in dry soil, so consider landscaping with these drought-tolerant species. These plants should be grouped together, as their water needs are similar.

Lawn soil

Try to improve your lawn's soil so that it retains moisture and needs watering less often. You can improve fertility by top dressing the lawn twice a year with finely screened compost or applying compost tea. Add sulphur if the soil is too alkaline — though coastal soils are almost uniformly acidic, so this may not be necessary.

Chemical fertilizers, herbicides (weed killers) and pesticides can be hazardous to your garden's overall health (some Canadian cities have actually banned their use in domestic properties). In the Capital Region, Esquimalt, Saanich and Victoria have banned the use of cosmetic pesticides on residential properties. Please check with your municipality regarding any pesticide restriction use. Chemical treatments often discourage attractive garden wildlife, such as butterflies and birds. Remember that by using herbicides and pesticides you are destroying parts of a fragile ecosystem. If you kill all the bugs, the birds won't come into your garden to eat them, and the natural pollination of your plants will suffer.

Whenever possible, use natural fertilizers and soil treatments — ask at your nursery

Kitchen Soil Test Recipe

This soil test takes two days.

1 quart jar with screw-top lid

1 cup soil (air-dried)

1 marker

1 teaspoon plain (low-sudsing) detergent

tap water (enough for 2/3 jar)

1 child to help you do this, if possible

1. Put all the ingredients into the jar, except the child. Ask your child to shake the jar hard for two minutes; then let them both sit for one minute. Mark the level that has settled to the bottom of your jar. This is the sand.
2. Let the jar sit for another two hours and mark the level again. This layer is the silt.
3. Leave the last layer to settle for two days. This layer is the clay.
4. Measure the individual levels and you can calculate the particle makeup of your soil. For example, if the total height of settled soil is 10 cm (about four inches) and the sand is two cm (about 3/4 inch), the silt three cm (about 1-3/4 inches) and the clay is five cm (about two inches), your soil is 20 per cent sand, 30 per cent silt and 50 per cent clay.

Tips

Keep your water in the soil. Don't let the sun and wind steal your moisture.

and garden centre for information. Natural fertilizers are not water-soluble and less likely to be leached out of your soil. For information about pesticide-free gardening visit www.crd.bc.ca/gardening.

If your lawn soil is too sandy or free-draining, it will require more frequent watering. Many nutrients and minerals (and expensive fertilizers) will be leached away before the grass can make use of them.

Watch for wash out!

Take extra care when watering areas of garden that slope steeply. Topsoil can easily be washed down the hill, especially when you use a hose to water. Use a fine sprinkler or micro-irrigation system. A hard mulch will also help prevent hillside erosion. (See the "Mulch" section of this booklet.) Plants with extensive root systems, (such as *stephanandra*, *cistus* and *santolina*) will also help retain soil on sloping ground.







Plants

Choose drought-tolerant species or native plants, which are adapted to our dry summers.

A native plant is one that is indigenous, or occurs naturally in our region, as opposed to the many plants that have been introduced over the years by settlers, farmers and gardeners, old and new. Many native plants are decorative and attract wildlife such as hummingbirds, butterflies, beneficial insects, and bees that help pollinate your garden. See the list of plants on the next pages, or ask at your garden centre for recommendations. A drought-tolerant or drought-resistant plant can survive with very little, if any, artificial watering or irrigation once it is established. Natural rainfall is usually enough for these plants, if they're growing in the right habitat (i.e. one similar to their natural habitat), and they can usually survive weeks of dry weather.

Some plants do not need artificial irrigation to keep them green, and many plants turn a variety of colours when they complete their growing cycle. Make the most of the natural ambers, golds and other warm tones that foliage can bring to a garden in late summer and fall.

Check with your garden centre to see specimens and to confirm preferred soil types, height of growth, sun or shade preference, watering requirements and so on. Many of these plants require minimal water and need no fertilizers, pesticides or herbicides. Some of them attract wildlife such as butterflies, hummingbirds and bees that help pollinate your garden.

Avoid heavy, direct watering by hose, which can wash away soil, exposing the roots to pests and disease, and making shrubs and small trees more susceptible to blowdown.

Water plants early in the morning to avoid evaporation from the sun and wind, but be sure to abide by the Water Conservation Bylaw (see page 28). Watering in late evening lets droplets remain on leaves, which can promote plant diseases.

The following plants are drought-tolerant and grow well in our climate. Those marked with * are native to Vancouver Island.

Note: respect the environment, and do not take native plants from their natural habitat. Ask at your local nursery for native plants you can buy to plant at home.

Tips

About 70 to 80 per cent of all plant problems are directly related to incorrect watering.

Trees

Latin Name

Acer circinatum
 Akebia quinata
 Alnus rubra
 Arbutus menziesii
 Eucalyptus niphophila
 Ginkgo biloba
 Juniperus
 Quercus garryana
 Rhamnus purshiana
 Robinia pseudoacacia 'Frisia'

Common Name

Vine Maple*
 Fireleaf Akebia
 Red Alder*
 Madrone*
 Eucalyptus
 Maidenhair Tree
 Juniper
 Garry Oak*
 Cascara*
 Locust
 *indicates native plants

Prefers

partial shade
 sun-shade
 sun
 sun
 sun
 sun-shade
 sun
 shade
 sun



Shrubs

Latin Name

Amelanchiar alnifolia
 Arctostaphylos columbiana
 Ceanothus
 Choisya ternata
 Garrya elliptica
 Holodiscus discolor
 Mahonia aquifolium
 Oemlaria cerasiformis
 Philadelphus lewisii
 Pyracantha
 Ribes sanguineum
 Rosa nutkana
 Rosa rugosa
 Rosmarinus officinalis
 Santolina chamaecyparissus

Common Name

Saskatoon*
 Hairy Manzanita*
 California Lilac
 Mexican Orange
 Silk-Tassel Bush
 Oceanspray*
 Oregon Grape*
 Indian Plum*
 Mock Orange*
 Firethorn
 Red Flowering Currant*
 Nootka Rose*
 Rugosa Rose
 Rosemary
 Lavender Cotton
 *indicates native plants

Prefers

sun
 sun
 full sun
 sun-shade
 sun-shade
 sun-shade
 full sun
 sun-shade
 part shade
 sun-part shade
 sun-shade
 full sun
 sun
 sun
 sun
 sun

Visit a demonstration garden to see some of these plants for yourself. Find out how to group them for visual effect and how to save your watering effort. Swan Lake Christmas Hill Nature Sanctuary holds annual native plant sales in the Spring and Fall, with featured speakers and presentations.

Perennials and bulbs

Latin Name

Achillea millefolium
 Armeria maritima
 Camassia quamash
 Dicentra formosa
 Echinacea
 Euphorbia characias
 Helleborus argutifolius
 Iris
 Penstemon
 Phlomis
 Tellima grandiflora

Common Name

Common Yarrow*
 Common Thrift*
 Common Camas*
 Western Bleeding Heart*
 Purple Coneflower
 Spurge
 Corsican Hellebore
 Iris
 Penstemon*
 Phlomis
 Fringecup*

Prefers

sun
 sun
 sun
 shade
 sun
 sun
 shade-sun
 sun
 sun
 sun
 shade

*indicates native plants



Ground covers

Latin Name

Acanthus mollis
 Arctostaphylos uva-ursi
 Epimedium versicolor
 Euonymus fortunei
 Frageria chiloensis
 Mahonia nervosa
 Maianthemum dilatatum
 Oxalis oregana
 Pachysandra terminalis
 Sedum
 Thymus

Common Name

Bear's Britches
 Kinnikinnick*
 Barrenwort
 Winter Creeper
 Strawberry*
 Dull Oregon Grape*
 False Lily-of-the-Valley*
 Oregon oxalis*
 Japanese Spurge
 Broadleaf Stonecrop*
 Thyme

Prefers

sun-shade
 sun-shade
 shade
 sun-shade
 sun-shade
 shade
 shade
 shade
 shade
 sun
 sun

*indicates native plants

Some of these native and drought-resistant plants grow extremely well in our region and can invade the space of other plants in your garden. For example, certain ground covers can spread across other plants and eventually smother them.



Lawn Tips

- Longer, infrequent watering will help to develop deeper, healthier roots.
- Keep grass height at least 50 mm (two inches) or higher to help protect the soil moisture from rapid surface evaporation.
- Limit your lawn to usable areas for easier watering and greater efficiency.
- Ask at your garden centre for information on drought-resistant grasses that require little or no watering.





Lawns

Your lawn is the area of your property where most of your water is wasted. By adopting a few good watering habits and giving up a few bad ones, you can drastically reduce this waste and save yourself time and money.

The grass

Cool season grasses are most suitable for our climate, and these have their best growth periods in the spring and fall. Summer and winter bring on dormancy in these grasses, which means they virtually stop growing and require less water and nutrients.

Many of the cool season lawns are varieties of the two major cool season grasses, fescues and perennial ryegrass.

Fescues and perennial ryegrasses are easily seeded and hardwearing, and have very good drought resistance. These grasses can remain green all year long in our climate and may go dormant during a hot summer.

Watering your lawn

Before watering your lawn in summer, please check to see which stage of the CRD Water Conservation Bylaw is in effect. See page 28 of this booklet or visit www.crd.bc.ca/water.

The amount of water your lawn needs depends upon the type of grass, the soil absorption rate and the weather or warmth of the air. Soils should be saturated occasionally but never waterlogged.

Grasses that form deep roots need less frequent watering and are more drought-resistant than those with shallow roots. By watering less frequently, but for longer periods, you encourage the grass to send its roots deeper into the soil.

Change your watering habits through the season. Nature usually supplies enough water in the spring, when new blades are forming and dissolved fertilizer needs to reach into the root system. In the heat of summer, many grass varieties become dormant and do not grow as much, so you can cut back watering. **A lawn needs a maximum of 25 mm (one inch) of water per week.** Again, nature will usually supply adequate water for your lawn during the fall.

Most water used by a plant enters at the root level, and the excess is given off by the leaves as vapour. Too much water in the ground causes the roots to become overloaded, and the lack of oxygen makes them start to deteriorate; in some grasses this causes iron deficiency.

When to water

A good way to see if your lawn needs water is to step on the grass. If the lawn springs back up when you move, it doesn't need water.

Water during the early morning hours before heat from the sun begins to evaporate the water, but avoid 7 am to 9 am when the daily demand for domestic water is at its peak. Avoid watering on sunny, windy days, as more moisture is lost to the atmosphere than penetrates the soil. Evening watering can lead to problems with plant diseases.

Keep an eye on the weather. Place a container outdoors to see how much rain you've had, and reduce your lawn watering accordingly. Adjust or reprogram your automated sprinkler system, or better yet, install a rain shutoff device so it will adjust itself.

How much water?

Lawns need a maximum of 25 mm (one inch) of water a week, including rain. By keeping your grass 50 to 65 mm (two to two and a half inches) high, you help the soil retain moisture and reduce evaporation from sunlight and wind.

Call the CRD for a free of charge watering gauge or use the peach can test to determine how long to run the sprinkler. Set up four empty peach cans (or similar containers at least 10 cm or four inches tall) on the lawn, and turn on your sprinkler system. After 15 minutes, pour the four cans into one and measure how much water is in it. For example, 6 mm (1/4 inch) of water in the can after 15 minutes means the

Tips

Lawns need only one inch of water per week, including rainfall.

Measure your watering

If average depth in cans after 15 minutes is

3 mm 1/8"	6 mm 1/4"	12 mm 1/2"	20 mm 3/4"	25mm 1"
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then sprinkle

once a week	120 min.	60 min.	30 min.	23 min.	15 min.
twice a week	60 min.	30 min.	15 min.	11 min.	8 min.

sprinkler must run for one hour to disperse 25 mm (one inch) of water. Adjust your sprinkling time accordingly.

Water the lawn early in the morning, but only on your designated day according to the CRD watering schedule. Before programming your automatic sprinkler system, please check to see which stage (1, 2 or 3) watering schedule is in effect, at www.crd.bc.ca/water. Note that if lawn watering is completely prohibited, your lawn will survive a dry summer!

Thatch

Thatch is the layer of dead and decaying grass stems, roots and debris that forms between the living blades of grass in your lawn. Thatch can often be caused by a lack of soil microorganisms. Compost tea or application of effective microorganisms can be used to reduce thatch when it is 1-3" thick. Over 3" may need mechanical assistance. A thin layer of thatch can be beneficial, preventing evaporation of water from the topsoil. Too much thatch can starve your lawn of water and oxygen and become a breeding ground for disease. Remove the thatch from your lawn at least once a year, using a rake, a thatching attachment on your mower or a thatching machine.

Aerating

By punching holes in lawn and topsoil to a depth of six to eight cm (2.5 to three inches) you improve water penetration and

reduce soil compaction. As the name suggests, aerating also lets air flow into the soil and provides the grass roots with oxygen. You can aerate simply by stabbing the lawn with a gardening fork or by renting a powered aerator. Manual aerators are also available, which you push like a mower or even strap onto your feet.

Nutrients

During spring and fall your lawn may need to be replenished with some nutrients to encourage the growth and general health of the grass. Overwatering a lawn, especially on sloping ground, can wash away nutrients before the grass has a chance to absorb it. The health of your lawn is largely dependent on the biological diversity of the soil. A well balanced soil that is properly watered should not need fertilizer; particularly when many chemical fertilizers can damage your garden's ecosystem. Top dressing your lawn with a thin layer of compost can enhance the biological diversity of the soil, greatly increasing its water holding capacity. Try to use natural fertilizers whenever possible. Ask your nursery or garden centre about natural fertilizer options.

Lawn alternatives

Perhaps your gardening desires have changed over the years, or you no longer need a big lawn for children and pets to run on. Consider replacing some areas of the lawn with low-growing ground covers, herbs, or a meadow.

Some herbs, such as thyme, are remarkably durable underfoot and give off an attractive scent when they're walked upon. A tasty advantage of this type of ground cover

is that it can extend your vegetable or herb garden: you can use its foliage in the kitchen.

Naturally shady and moist areas may be ideal for growing moss, which makes an attractive ground cover.

A dense planting of shrubs can also cover a piece of ground that might have been used for lawn. This will provide a low-maintenance area of garden, one requiring little attention and less water, but attracting a variety of birds and other wildlife.

Consider covering parts of your garden with hardscape — a surface suitable for walking on, made from either natural or synthetic materials, such as flat rocks, flagstones, permeable concrete, or compact gravel. This area of your property requires no watering. Porous hardscapes, such as gravel or paving stones that are not cemented in, allow rainfall to flow to the soil beneath them, recharging groundwater supplies, where it may reach various root systems. In some cases you can grow small plants, such as drought-resistant alpine or herbs, between cracks in a hardscape surface.

Before planting your lawn alternative, see the list of ground covers in the "Plants" section of this booklet.

Mowing Tips

- Keep mower blades sharp to avoid tearing the grass.
- Don't cut wet grass.
- Set mower height to leave 50 to 65 mm (two to two and a half inches).
- Leave grass clippings to decompose; they act as mini-mulch to reduce evaporation.



Grass Cycling

Grass cycling means leaving grass clippings on the lawn.

Grass clippings are 90 per cent water, so they decompose quickly, adding nutrients — including precious nitrogen — to your lawn. Grass cycling can save you hours of work spent collecting, bagging and disposing of grass cuttings. Effective grass cycling does not cause thatch buildup; thatch is the accumulation of dead roots and stems.

It's easy.

- You cut grass clippings into small pieces, so they fall easily down into the grass and decompose quickly.
- Cut no more than 25 mm (one inch) of grass each time you mow. Removing no more than one-third of the blade each mowing is best for the grass.
- During the peak growing period of spring, mow more frequently (every five to seven days). Grass cycling takes about half the time of bagging, so you'll still save time even though mowing is more frequent.
- Mow the lawn when it's dry, as dry grass scatters more easily than wet grass. Don't cut the lawn when it is wet.
- If the grass is too long or wet, bag the clippings to use as mulch. Or mow twice to get rid of clumps; set the mower high for the first cut, then lower it to remove another inch on the second mowing. Leave the lawn 50 to 65 mm high (two to two and half inches), so clippings filter down and are not visible.
- Remember: lawns only need a maximum of 25 mm (one inch) of water per week, including rainfall, for moderate growth.





Mulch

Mulch is any non-living material that forms a protective cover around the base of your plants.

Why use mulch?

Mulching is an easy way to save water in the garden. It helps keep moisture where the garden needs it — in the soil, not in the air. Apart from reducing evaporation by at least 10 per cent, mulch also brings many benefits.

Soil temperature

Mulch insulates and keeps the soil around plant roots cool in summer and warm in winter.

Soil conditioning

Mulch prevents soil compacting and surface crusting. Organic mulches add organic matter and nutrients to the soil as they decompose.

Soil aeration

Organic mulches enhance soil structure, allowing life-giving air to penetrate.



Mulch Types

Each of the various types of mulch has different properties, such as appearance, texture and rate of decay (most mulches are biodegradable). Avoid wood chip products that are treated or dyed.

Organic mulches

- Bark (chips or ground)
- Compost
- Grass clippings
- Cocoa bean shells
- Composted manure
- Mushroom compost
- Seedless straw or hay
- Seaweed
- Newspapers
- Leaves
- Fir or spruce needles

Inorganic mulches

- Pebbles
- Crushed rock
- Landscape fabric
- Cardboard*
- Felt paper*

*depending on the inks and glues, etc. used on them, cardboard and felt paper may be organic.

Weed suppression

Weed-free mulch 50 to 75 mm deep (two to three inches) helps prevent existing weed seeds from germinating. **Note: mulch may impede the propagation of self-seeding plants.**

Healthier plants

Mulched plants are less susceptible to disease and root pests than those without mulch.

Plant food

Organic mulches make nutrients such as potassium available to plants. Potassium affixed to the soil, as opposed to the mulch, is largely unavailable to plants.

Environmentally sound

Mulch reduces the need for chemicals in the form of herbicides, fertilizers and pesticides. It does not contaminate groundwater, and it's an excellent way to recycle and reuse yard waste.

Attractive

Mulch can improve and tidy the look of most landscapes. Its smart, uniform appearance can hide unsightly rock and debris that occur in your garden.



Recycling

Mulching your garden waste, leaves, wood chips and so on, is better than dumping it.

Not a nitrogen thief

Leaves, hay and straw that are not composted require nitrogen to break down, but well-composted materials require less nitrogen. Rarely are these materials to blame for a nitrogen shortage when used as mulch.

Use more mulch around shrubs and perennial borders. And use the best type of mulch for your landscape and plant needs.





Cars and Children

Other living and non-living things in your yard and garden can use more water than necessary.

- Wash your vehicles with a bucket of soapy water, then rinse quickly with a hose fitted with a spring-loaded shutoff nozzle. Wash your vehicle on the lawn and ensure you direct wash water to vegetated areas and not down the storm drain to prevent oil, gas and metals from entering our waterways and marine environments. Or take your vehicle to a commercial facility that recycles its water.
- Cover your swimming pool and hot tub to avoid evaporation (and to keep the heat in and debris out).
- Supervise children playing with hoses and sprinklers, and make sure they turn them off afterwards.
- If your children have been playing in the sprinkler, adjust your lawn-watering schedule and reprogram your automatic irrigation system to allow for the water they have used.
- Don't wash down your driveway and sidewalk with a hose. You can clean them just as quickly with a stiff broom.
- Try to collect and recycle water wherever you can. For instance, water otherwise wasted running your tap, while waiting for it to get hot or cold, and water used for washing vegetables can be saved in a container, then used for watering indoor and outdoor plants.
 - Drain pool and hot tub water into the sanitary sewer or slowly on to lawn or garden, not down driveways and into storm drains.





Yard tips

- Check your hose regularly for leaks, and store it on a reel to prevent kinking and damage. During frosty weather, store it indoors.
- Repair or replace your hose trigger nozzle if it leaks. It should shut off completely when you let go of the trigger. Turn off water at the source when using a trigger nozzle, to avoid pressure buildup and damage to your hose.
- Use a watering can instead of a bucket, as it's more accurate and won't wash away topsoil.
- Watch out for drips — keep your outdoor taps in good shape. A dripping tap can waste up to 35,000 litres (7,700 gallons) of water a year.



Collecting and Recycling Water

The average house roof in our region can collect 272 litres of rain (60 gallons) on each nine square metres (about 100 square feet) of roof, for every 25 mm (one inch) of rain.

That's hundreds of litres of free water you can use in your garden every year. For a very small investment of time and materials you can collect this water, instead of letting it flow straight through perimeter drains to sewers. Rainwater is better for plants and gardens, as it contains no chlorine.

Use a rain barrel

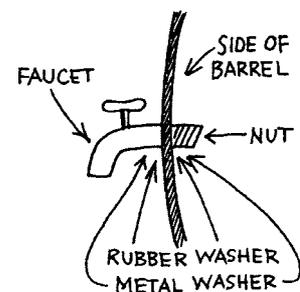
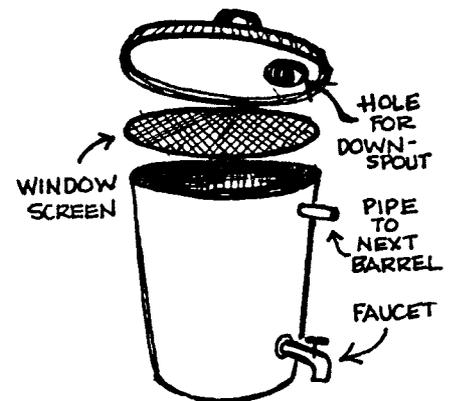
Our region gets an average of 203 mm (8 inches) of rainfall during the summer months (May through September), and with a little effort you can capture some of this to use in the garden during dry spells. There are many types of commercial water barrels and a device to let you easily divert rainfall from your downspout to the barrel. Ask at your hardware store or garden centre.

With a little ingenuity you can even make your own collection system from used or recycled materials. But be careful: water is heavy. One cubic metre of water weighs 1000 kg (2200 pounds) at 4°C, when water is at its natural maximum density. Make sure that your rain barrel is strong enough and that it's securely supported. Connect barrels for greater storage capacity.

Also make sure it has a secure lid, to prevent children gaining access; this also will discourage breeding mosquitoes, prevent contamination and keep out wildlife. A piece of window screen placed across the top of the rain barrel and under the lid will also catch debris and help discourage mosquitoes. We recommend not using collected water on food plants depending on roof types - asphalt may leach hydrocarbons or metals.

Using rain barrels throughout the winter can help reduce the volume of water entering our stormwater system, just remember to drain the barrel between rainfall events.

Position your barrel high enough so that you can place a tall bucket or watering can beneath the tap.



Some rain barrel tips

When it rains, the dirt, leaves and needles that have accumulated on your roof wash down your gutters. All this debris plugs the pipes and hoses of your system. However, clean-out devices on the market let you divert water flow without breaking the downspout. You can also put an elbow in the pipe and secure it with a nail; this can be disconnected easily to let debris run elsewhere.

To prevent flooding and overflow, use a downspout diverter kit to direct water back into perimeter drains when the barrel is full. Check with your municipality about disconnecting downspouts as some do not allow it.

Remember to prepare your rain barrel and its plumbing for winter frosts.



Tips

To purchase rain barrels check www.crd.bc.ca/water/conservation/outdoorwateruse/recycling



Irrigation

If rainfall doesn't give your garden all the water it needs, you must supply the rest. This is called irrigation.

Irrigation can be as simple as using a watering can. Or it can be a sophisticated system of pipework, valves, controllers and timers that waters your garden automatically at regular intervals.

Whichever system you use, make sure that the water goes where it's needed — to the plants — not onto driveways, paths and other hard, non-growing areas.

Keep an eye on your irrigation system to make sure it does not deliver more water than your garden really needs.

Don't forget it's running!

If your system requires you to turn on a water supply, set a kitchen timer to remind you to turn off the water.

Watering systems

Drip and micro-irrigation

Drip and micro-irrigation systems use low-water-volume irrigation components (under 91 litres or 20 gallons per hour), at low pressure (under 172 kilopascals or 25 psi) to deliver a precise amount of water to the root zone of plants.

The "B.C. Trickle" manual published by the B.C. Ministry of Agriculture and Food resource management branch (1999), describes micro and drip equipment as spray emitter systems (micro sprays), as point-source emitters or as linear-type systems.

These systems can be tailored effectively to individual plant and garden needs.

Micro-irrigation provides water at a very low volume, sometimes drip by drip, reducing problems with runoff and puddling, and preventing evaporation. It's used effectively on rocky and steep areas where a heavy volume of water would run off, taking with it valuable topsoil and shallow-rooted plants. It can also supply orchards, efficiently delivering water to the root system beneath each tree's drip line. CRD offers free workshops to assist homeowners install and maintain these irrigation systems.

Tips

A properly designed and operated irrigation system can reduce water use by 20 per cent or more each year.

Timers

You can easily attach timers to hoses and outdoor faucets. Hardware stores and garden centres sell them in the \$15 to \$170 range — ask for one that you can operate easily, and that suits your budget and watering needs. They help prevent overwatering and make it easy to water at the best time, usually early morning.

Water gauge

A water gauge determines how much supplementary water the garden may need. **Call the CRD for a free of charge watering gauge.** Remember: lawns need only a maximum of 25 mm (one inch) of water per week, including rainfall. Adjust sprinkler systems according to the weather and check regularly for leaks.

Watering early in the morning reduces evaporation loss, but avoid 7 am to 9 am watering as this is the peak period of water use. Some areas experience low water pressure because of this peak demand.

Controllers

There are two basic types of controller, electromechanical and electronic, both requiring some degree of care and maintenance. Make sure your controller is serviced regularly and is working properly.

Always leave watering instructions with a neighbour if you are going to be away from home for more than a couple of days. A malfunctioning irrigation system can flood your garden and ruin your landscaping (not to mention your home if water gets in there too).

A controller system needs to be started up in the spring, with the controller adjusted for the changing rainfall months, then winterized to avoid freezing and blockage. CRD offers free irrigation controller workshops to assist homeowners operate and schedule their controller for optimal water savings.

Zones

Arrange your irrigation system so that your lawn areas are in separate zones to other parts of your garden. This will allow for watering of non-lawn areas when the watering bylaw is in effect, i.e. it may be permissible to water your shrubs but not your grass.



Tips

Drip and micro-irrigation systems are not affected by the Water Conservation Bylaw.

CRD Programs

Workshops

The CRD is committed to public education.

- Native Plant Gardening
- Efficient Irrigation
- Irrigation Controller

Questions?

Call 250.474.9684



Water Conservation Bylaw

Watering schedule is usually in effect from May 1 until September 30.

About 90 per cent of CRD residents support the Water Conservation Bylaw. The three stages of the Water Conservation Bylaw depend on the status of our water supply and reservoir level. The watering schedule is in accordance with Schedule A, Bylaw No. 3061.

For more information, contact the CRD at 250.474.9684 or visit www.crd.bc.ca/water.



Native plant growers

The following centres specialize in propagating native plants that thrive in our climate.

Fraser's Thimble Farms, Salt Spring Island 250.537.5788

Russell Nursery, North Saanich 250.656.0384

Natural Resource Native Plant Nursery, Duncan 250.748.0684

Streamside Native Plants, Courtenay 250.338.7509

Woodgate Native Plant Services, Duncan 250.748.2558

Yellow Point Propagation, Ladysmith 250.245.4635

Demonstration Gardens

Visit the Springridge Commons Demonstration Garden in Fernwood (at the corner of Chambers and Gladstone), the Swan Lake Christmas Hill Nature Sanctuary (McKenzie and Pat Bay Highway), Oak Bay Native Plant Garden (Beach Drive), the Royal BC Museum, and Glendale Gardens (Quayle Road in Saanich). See how beautiful and easy a drought-tolerant or native plant garden can be.



Swan Lake
Christmas Hill
Nature Sanctuary
native plant
garden





Further Reading

Here are some recommended books to help you learn more about using water outdoors.

- Campbell, Stu. *The Mulch Book: A Complete Guide for Gardeners (revised)*. Pownal, Vermont: Storey Publications, 1991.
- Daniels, Stevie. *The Wild Lawn Handbook: Alternatives to the Traditional Front Lawn*. MacMillan, New York, 1995.
- Ellefson, Stephens, Welsh and Maxwell. *Xeriscape Gardening*. MacMillan Canada.
- Ferguson, Nicola. *Right Plant, Right Place*. Pan Books, 1986.
- Flowerdew, Bob. *Complete Book of Companion Gardening*. Kyle Cathie, 2001.
- Flowerdew, Bob. *Organic Bible, Successful Gardening the Natural Way*. Kyle Cathie, 2001.
- Gardening Victoria*. ed. Ewing, John and Jill Stewart Bowen. Garden Isle Publishing, 1995.
- Gardening Victoria: Tips and Techniques from the Victoria Horticultural Society*. ed. Ewing, John and Jill Stewart Bowen. Victoria, British Columbia: Garden Isle Publishing, 1995.
- Gardening, A Common Sense Guide*. ed. Better Homes & Gardens. Whitecap Books, 2001.
- Herriot, Carolyn. *Seven Steps to Waterwise Gardening*. 1993.
- Johnson, Lorraine. *Grow Wild! Native Plant Gardening in Canada and Northern United States*. Random House, 1998.
- Joyce, David. *Foliage, Dramatic and Subtle Leaves*. Quadrille, 2001.
- Lyons, C.P. and B. Merilees. *Trees, Shrubs and Flowers to Know in BC and Washington*. 1995
- Merilees, Bob. *The New Gardening for Wildlife, A Guide for Nature Lovers*. Whitecap Books, 2000.
- Naturescape BC: Caring for Wildlife at Home*. Naturescape Kit , Telephone 250.387.9853.
- Pettinger, April and Brenda Constanco. *Native Plants in the Coastal Garden; A Guide for Gardeners in BC and the Pacific Northwest*, 2nd Edition. Whitecap Books, 2003.
- Pojar, Jim and Andy MacKinnon. *Plants of Coastal British Columbia*. Lone Pine Publishing, 1994.
- Rodale, Robert, and others. *The Organic Way to Mulching: Using Natural Ground Coverings for Soil Improvement*. Emmanus, Pa.: Rodale Press Inc., 1977.
- Solomon, Steve. *Water-Wise Vegetables*. Sasquatch Books, 1993.
- Stout, Ruth, and Richard Clemence. *The Ruth Stout No Work Garden Book*. Emmaus, Pa.: Rodale Press, 1971.
- Sunset Waterwise Gardening*. Sunset Publishing Corp. 1991.
- Sunset Western Garden Book*. Sunset Publishing Corp. 1995.
- Taylor's Guide to Water-Saving Gardening*. Houghton Mifflin Company, 1990.



Get in Touch

Contact the CRD to find out more about how to save water in and around your home.

We offer programs and workshops to help you learn about water conservation.

This booklet was produced by
Capital Regional District Environmental Sustainability.

For more information, contact the CRD at
625 Fisgard Street, Victoria, BC V8W 2S6
Phone 250.474.9684
www.crd.bc.ca/water

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Making a difference...together

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