WaterRight Gardens

think water act water

WaterRight Gardens Webtool

Field Guide

Have you ever wondered how much water your garden actually needs? Or how much water you need to apply following rainfall?

Welcome to the WaterRight Gardens Webtool. This tool will help you explore how much water your garden needs to remain healthy and the best time to apply this water. It will also help you understand what factors affect your garden and lawn watering needs, including plants, soil, wind, shade, rain and the season.

With this tool, you can develop specific watering advice for each of your lawns or garden beds, called Green Areas, remembering that the objective of waterwise gardening is to reduce the amount of water required to maintain a healthy landscape, and to maximise the use of rainfall. To use the WaterRight Webtool, follow these steps:

1. Print the Field Guide.
2. Go into your garden and complete the Field Sheets found at the back of this Guide.
3. Launch the Webtool and use your Field Sheets to answer the Webtool questions.
4. Print out your irrigation schedule and follow the recommendations.

You can use the Webtool without completing the Field Sheet – but the results may not be as accurate. A quick read of the Field Guide will help you complete the Webtool.

Over time, your garden's microclimate and water requirements will change. So it's worth revisiting the WaterRight Gardens Webtool from time to time to enter the changes and update your watering schedules.

The WaterRight Gardens Webtool also provides *Best practice guidelines for a water efficient garden* as well as a range of fact sheets to provide more detailed information about soil, plants, microclimate, mulch and much more.

Please note, this tool does not apply to:

- established trees or plants taller than 2 metres;
- new plantings that are being established;
- potted plants;
- vegetable gardens and annuals; and
- indoor plants.

Computer requirements:

- Windows Internet Explorer 6.0 or above, or Mozilla (Firefox) 2.0 or above;
- pop-ups, cookies and JavaScripts enabled; and
- a minimum screen resolution of 1280x1024.

GREEN AREAS

The WaterRight Gardens Webtool uses 'Green Areas' to distinguish sections of your garden and lawn that have different plant types, microclimates (differing amounts of sun, wind, shade) and watering requirements. The following information will help you divide your outdoor area into Green Areas, and help you collect the information to complete the WaterRight Gardens Webtool.

Divide up your outdoor area according to garden bed and microclimate. You will enter information for each of these Green Areas into the WaterRight Gardens Webtool.

Name your Green Areas. Choose a name that is easy to remember e.g. Alisa's back garden. If one of the

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garden beds is large, and you feel there is more than one microclimate (see Figure 1), name two gardens, e.g. Alisa's garden under the cherry blossom (1) and Alisa's garden in sun (2).

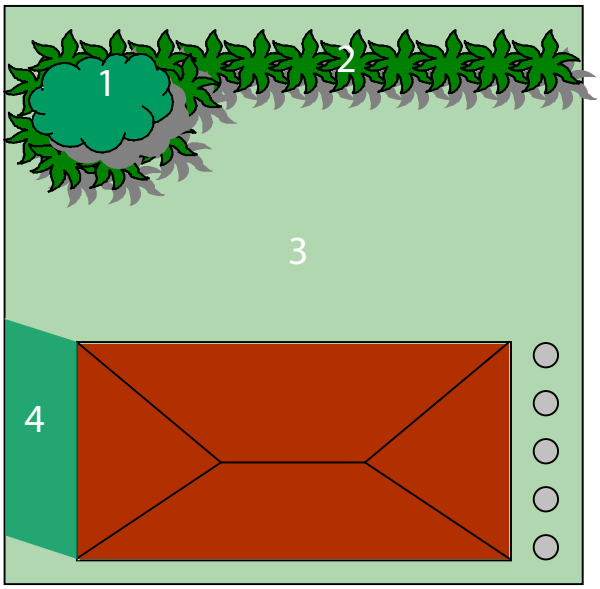

Figure 1. Example yard with 4 Green Areas

Figure 1 illustrates a property with four different Green Areas. Although areas 1 and 2 are in the same garden bed, area 1 will have a different microclimate to area 2, due to the shading from the tree. Similarly, areas 3 and 4 are both lawn. However area 4 receives shade from the house, and should be identified as a different Green Area.

To gather the required information for each of your Green Areas, take a copy of the Field Sheet (see the back of this Guide) for each area into the garden and fill our the details. You might like to start with the area you are most concerned about.

The following information will help you complete the Field Sheets.

PLANT TYPE

Identify the plants that make up each of your selected Green Areas. List the plant species that are most common, and write next to them how much area they occupy (e.g. Banksia 30%, Eremophila 20%, Dianella 20%, Myoporum 30%).

If you are unsure which plants you have use the Canberra Plant Selector tool available from www.thinkwater.act.gov.au to look up information about a selection of plants commonly found in Canberra gardens.

If you are unable to find your plants in the Plant Selector, you can group them by their water-use by the rating scheme described below.

One drop - Low water-use plants that generally won't need water in addition to average rainfall.

Two drops - Medium water-use plants that will only need water in addition to average rainfall after extended periods of hot, dry weather.

Three drops - High water use plants that will reguarly need water in addition to average rainfall for Canberra.

Four drops - Very high water-use plants that will need to be watered very regularly in addition to average rainfall for Canberra. They will generally need a well-protected, moist microclimate to survive.

You can also ask your local nursery for assistance with plant identification.

Record your observations for each Green Area on your Field Sheet.

GROUND COVER

Ground cover, either as mulch or groundcover plants, is important to garden health and condition in Canberra, because it protects the soil from drying out and insulates plant roots. For each Green Area, record how much of your soil is covered – fully covered (100%); partially covered (50%); or no ground coverage (i.e. mulch only / bare soil).

THE LOOK OF YOUR LAWN

To discover how much water your lawn areas need to remain healthy, choose from the following options to describe how you would like each area to look in summer:

- **Don't mind/ rainfed:** your lawn relies on natural rainfall, with a very occasional watering from you.
- **Average- green and sparse:** your lawn looks green, but in some sections is sparse or bare. Most lawns in Canberra tend to look like this.
- **Lush green:** your lawn looks flawless. You spend a lot of time mowing and maintaining your grass.

If you selected 'Don't mind', then you won't have to answer any of the questions on shade or wind for your lawn areas. Record how you would like each of your lawn areas to look on your Field Sheets.

TREE COMPETITION

'Tree competition' can occur when large, well established trees are in the vicinity of a lawn area. This could be up to 15 m away, depending on the type and size of the tree. Trees have an impact on lawns because they compete with turf grass for water and nutrients.

One way to identify whether this is occurring on your lawn is to look for an area which is beginning to thin or bare, for no apparent reason (i.e. no foot traffic). Carefully insert a shovel into this area to a depth no greater than 30 cm, and raise this section of soil to the surface. Closely observe the soil profile, and see if you can see any tree roots. If there are signs of tree roots, it is likely these are tree feeder roots and this could be why your lawn is thinning.

Trees also intercept rainfall, so consider if a substantial tree canopy is over your lawn. Select 'Yes' if you observe tree roots in your lawn, or if your lawn is under heavy tree canopy. Record your observations.

SOIL

The properties of soil directly affect the availability of water and nutrients for your plants. These include the structure and depth of the soil.

Canberra soils are often compacted and shallow. Both these factors affect how much water the soil can hold, and how much is available for use by plants. Refer to the Soil Fact Sheet for further information on soil properties, and how they impact your garden watering requirement.

To complete the soil component of the Webtool, make an assessment that best represents the condition of the soil in each of your garden beds and lawn areas. In some cases, you might want to make more than one soil assessment to ensure you understand your soil characteristics. In many cases you may have different layers of soil within the first 30 cm of depth. You will be assessing your soil structure and depth for the most common soil layer, which is preferably immediately below the surface organic matter.

Soil structure and depth

Soil structure refers to how compacted your soil is and can be determined by assessing how easily a large (25 cm) screwdriver or similar implement can be pushed into the top layers of the soil. The depth that the screwdriver can penetrate before it reaches the hard subsoil layer is the soil depth for your garden bed or lawn. Push the screwdriver into the soil, using a moderate and even pressure. If the screwdriver penetrates easily or with moderate resistance your soil structure is average to good. This means that the soil is relatively free draining and ideal for plant growth. If there is considerable resistance, requiring you to force the screwdriver into the soil, then the soil is compacted, or poorly structured. At this point, note how deeply the screwdriver has penetrated before it becomes too difficult to keep pushing it in. This means that a subsoil layer has been reached. Remove the screwdriver and measure the depth it has penetrated with a ruler or tape measure, and select the most appropriate depth (in mm) from the table on the Field Sheet. This is the depth of your soil.

Table 1 illustrates what different textured soils look like when you are digging in the garden. Use this as a guide to identify the structure of your soil. Figure 3 shows a typical soil profile. The depth you are trying to measure includes the O, A_1 and A_2 horizons.

Record your soil assessments for each Green Area and lawn on your Field Sheets. Note that the soil depth under your lawn might vary. Pay particular attention to this area. If you find different soil depths, use the smallest one as an input to the Webtool to ensure sufficient watering.

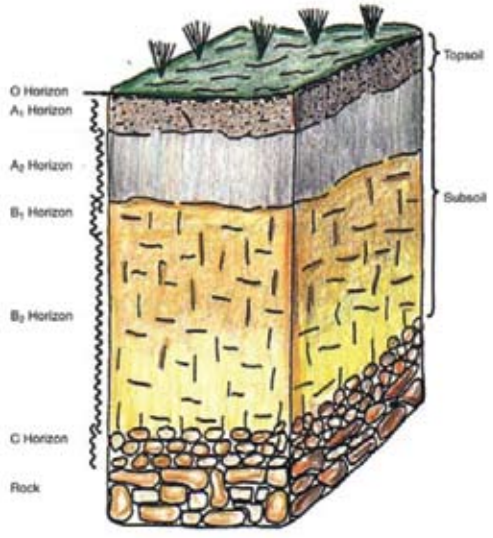

Figure 3. A typical soil profile (Source: DPI, 2008)

Table 1. Soil Structure Assessment

Structure	Photo	Description
Compacted (poorly structured soil)		Soil will hold together and form a hard layer that can be picked up as a hard chunk of soil.
Non-compacted (average to well structured soil)	 	Soil will slightly hold together but will slowly break away when picked up or touched or Soil will look crumbly, broken away in numerous small soil biscuits (peds). There may be signs of aeration practices.

MICROCLIMATE

Microclimate will drive your Green Area's watering schedule. **It is important that all of your selected Green Area is affected in roughly the same way by wind and shade.**

SHADE

The amount of shade your gardens and lawn receive plays a big part in deciding how much water is needed to maintain your plants in a healthy condition. Shade reduces evaporation, so the water stays in the plant and the soil for longer. As shade varies throughout the day, assess how much shade falls on each Green Area in the middle of the day, using the selection below. It is best to assess shade in your garden during summer.

- **Full sun:** The majority of your Green Area receives no shade during the day.
- **1 or 2 hours of shade:** The majority of your Green Area is still quite sunny, but is partially shaded for up to 2 hours.
- **Moderate shade:** Your Green Area is completely shaded in the morning, but not shaded from the summer sun in the middle of the day or the afternoon.
- **Full shade:** The majority of your Green Area receives no direct sunlight throughout the day in summer.

Record your observations for each Green Area on your Field Sheets.

WESTERLY AND NORTHERLY WIND

Canberra gardens are particularly affected by hot, dry summer winds from the north and west. This often occurs in the new and establishing suburbs, where there are few large trees and windbreaks. If your garden is in these areas or is otherwise subject to these types of wind, this will increase the amount of water your exposed Green Areas need. In addition, you will need to carefully consider the types of plants you can use, focussing on hardy, waterwise species, particularly Canberra natives.

Even if your garden is vulnerable to drying winds, shelter provided by fences and walls, trees, hedges and other plantings will mitigate the effects of summer wind. This section of the Webtool will allow you to assess the exposure of your various Green Areas.

To observe the impact of wind on your garden, first consider the slope and aspect of your Green Areas. If they are on a slope that faces west or north, then you will be subject to these winds. South and east facing gardens are largely protected. Flat gardens need only consider the presence of windbreaks on and around the property.

Next, stand near the highest water-use plant in each Green Area. If you can do this assessment when winds are blowing, then this will be the most accurate method. Have a look around and see what provides shelter for the Green Area. Don't forget to assess both northerly and westerly wind directions. Often your house and/or garage will provide shelter from the wind in one direction, but not necessarily both. Large trees, hedges, fences and adjacent buildings can also provide shelter from wind. Assess the degree to which you are protected from these summer winds. Do you receive, full, partial or no protection? Select one of the following three categories that best describes the impact of the northerly and westerly wind on your Green Area:

- **Fully exposed:** This includes:
  - Green Areas with no shelter on three sides or more; and/or
  - Green Areas with some shelter, but which are on an exposed hill, headland or in a wind tunnel between tall buildings.

- **Some wind protection:** This includes:
  - Green Areas with shelter on two sides; and/ or
  - Large gardens with low shelter on at least two sides.
- **Well protected:** These gardens have shelter on three or four sides, such as a small fenced backyard.

Record your observations for each Green Area on your Field Sheet.

WATERING METHOD

Hose

Many people still water with a hose, which can deliver up to 16 litres of water a minute. This Webtool assumes your hose is delivering 15 litres a minute.

Drip irrigation

Depending on your drip irrigation design and/ or installation, not all your covered soil area will get wet. Turn on your system and watch how the water is spread over one square metre for half an hour. On that square metre patch, determine if the wet soil area corresponds to 20, 40, 60, 80 or 100 per cent coverage.

Watering can or bucket

In the Webtool, the volume of a watering can or bucket is equivalent to 9 litres. If you are using a watering can or other watering devices, estimate the number of litres of water it can hold, then calculate how many of these containers equate to the number of buckets of water recommended in the watering advice in the Webtool.

WHAT'S NEXT?

After you have collected all the observations for your Green Areas, go to the WaterRight Gardens Webtool and enter the information for your first area. After completing one area, click on the 'See Results' button at the bottom of the page. The results will advise you how much water this area needs to remain healthy and how frequently it needs to be applied. You will also receive other recommendations about your area. You can then enter details for your next area. Up to five Green Areas can be added.

Remember to refer to the Fact Sheets and *Best practice guidelines for a water efficient garden* if you would like to learn more about any of the factors that impact water use in your landscape and for more information about waterwise gardening in Canberra.

MORE INFORMATION

For more information on water efficiency tools rebates and *Think water, act water* initiatives:

Ph: 13 22 81
Email: WaterResources@act.gov.au
Website: www.thinkwater.act.gov.au

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WATERRIGHT GARDENS FIELD SHEET

GARDEN		
	Example	**Green Area - Your answers**
Green Area Name	*Karen's native garden*	
Size in square metres (optional)	*10m²*	
Plant type and percent (%) per Green Area (up to 100%)	*Banksia 30%* *Eremophila 20%* *Dianella 20%* *Myoporum 30%*	
Irrigation method (bucket, watering can, drip, hose, sprinkler)	*Hose*	
Drip - percentage of soil wet (N/A, 20%, 40%, 60%, 80%, 100%)	*N/A*	
Ground cover (100%, 50%, mulch only, bare soil)	*Bare soil*	
Soil		
Soil structure (compacted or non-compacted)	*Non-compacted*	
Soil depth in mm (50, 100, 150, 200, 250, 300, deeper)	*200*	
Shade (full sun, 1-2 hours shade, exposed 11am-2pm, full shade)		
	Exposed 11am-2pm	
Wind (fully exposed, some wind protection, well protected)		
Westerly	*Fully exposed*	
Northerly	*Some wind protection*	
Notes:		

WATERRIGHT GARDENS FIELD SHEET

LAWN		
	Example	**Green Area - Your answers**
Lawn type (warm season, cool season	*Warm season*	
Size in square metres (optional)	*10m²*	
Irrigation method (hose, watering can, sprinkler, drip)	*Hose*	
Percent of soil wet (for drip only) (N/A, 20%, 40%, 60%, 80%, 100%)	*N/A*	
How you like your lawn to look (don't mind, average, lush)	*Average*	
Established trees impacting on your lawn (yes, no)	*Yes*	
Soil		
Soil structure (compacted or non-compacted)	*Compacted*	
Soil depth in mm (50, 100, 150, 200, 250, 300, deeper)	*200*	
Shade (full sun, 1-2 hour shade, exposed 11am-2pm, full shade)		
	Moderate	
Wind (fully exposed, some wind protection, well protected)		
Westerly	*Fully exposed*	
Northerly	*Some wind protection*	
Notes:		