

Microclimate

The wind, temperature and rainfall of your area will largely dictate what plants will thrive in your garden. In Canberra, there can be significant variations in the climate within your yard, called microclimate. Accurately assessing your garden's microclimate will help you water effectively and plan your waterwise garden.

COPING WITH CLIMATE

Canberra gardeners have to contend with a relatively dry, continental climate with warm to hot summers and cool to cold winters (including frost). Additionally, prevailing winds in Canberra's seasonal climate vary and will have very different effects on your garden. Summer winds in Canberra are generally hot, northerly and westerly winds. While temperature and rainfall have an obvious impact on your plant choice and water use, you should also be aware of the effect of your garden's microclimate.

The aspect, amount of sun and shade you get in your garden, the prevailing winds and the slope together create your microclimate. Your garden's microclimate is moderated by:

- buildings;
- walls;
- fences;
- structures;
- the placement of hard surfaces such as paving, paths or roads that may radiate extra heat;
- trees;
- shrubs; and
- windbreaks.

RIGHT PLANT RIGHT PLACE

You can make your garden more water efficient by understanding:

- how your garden features create microclimates;
- how to use your garden features to your advantage; and
- how to modify your garden features if necessary.

Each microclimate provides different growing conditions for plants. Matching plants to the conditions they require is a major step towards creating a healthy and waterwise garden.

Plants that are matched with climates, and with the microclimates that suit them, will need less water and maintenance, grow better and suffer less stress.

SITE ASPECT

It is critical to know which direction your garden faces, especially which way is north, because that's the direction the sun comes from. The position of the sun in different seasons and the patterns of sun and shade at different times of the day will have a major impact on plant choice and water use.

A sunny aspect is useful if you want to grow plants that require full sunlight, especially vegetables and fruit trees. However it may also mean that you use large quantities of water. Drought tolerant plants are a good choice for a sunny aspect.

You can modify the impact of aspect, but generally the northern side of your house will be sunnier, warmer and more exposed to the elements. So the best place for most low water-use plants is the northern side of your house. Also, an exposed western side will get the hot afternoon sun, creating high water demand unless you plant arid zone plants.



USING SHADE

Design your garden to create natural shade, so the garden will be cooler and need less water, by:

- using trees, shrubs, windbreaks, climbing plants, pergolas and screens to provide shade for the garden and outdoor living areas;
- planting large trees that provide their own shady microclimate. Deciduous trees can be useful on the north side of the house to provide summer shade and will let in winter light and warmth; and
- planting high water-use and/or shade or semi-shade tolerant plants on the south or south-eastern side of the house. You will probably need to apply less water in this area than you use in your north facing area, as it is often more shaded and moist.

WIND

Canberra's climate varies from season to season, particularly with respect to the prevailing winds. These winds have an impact on your garden's water needs. Summer's hot, dry westerly and northerly winds reduce humidity and greatly increase water loss from leaves due to transpiration and from soil due to evaporation.

The rate of transpiration rises with an increase in temperature, wind speed and a decrease in humidity. Plants wilt much faster on hot days, especially when the hot, dry summer winds are blowing.

Northerly and westerly aspects can be particularly exposed to these hot, dry summer winds. In winter exposure to the cold southerly winds can mean your garden is vulnerable to frosts and wind burn.

Windbreaks can moderate the effect of wind and help reduce your overall water needs.

Living windbreaks such as hedges or screening plants protect the garden from wind and create shade and privacy. In Canberra gardens windbreaks to the north and west protect your garden's plants from hot summer winds.

If living windbreaks aren't possible, use lattice, screens, shade cloth or pergolas to shelter plants. Windbreaks should act as a filter rather than a barrier, since a solid barrier will create an area of turbulence behind the windbreak.

If you can't moderate the wind, choose plants that tolerate the conditions. Plants with tough, hard leaves or silvery leaves often tolerate wind. Most Canberra area native plants can tolerate the effects of both heat and wind exposure and are worth considering if you want to create a garden suitable to the local conditions.

SLOPES

The topography and slope of your block will influence the microclimate by affecting drainage patterns. This can cause wet and dry spots, and may influence your planting schemes and irrigation patterns.

In Canberra, slopes facing into the seasonal prevailing winds can also increase exposure to strong winds and this needs to be taken into account in garden planning.

North and west facing slopes receive more direct sunlight and are more affected by summer winds than south facing slopes. South facing slopes are more affected by cold winter southerly winds.

You can turn slopes to your advantage by placing higher water-use plants in garden beds at the bottom of sheltered slopes.

On steep exposed slopes, use low water-use plants, including appropriate natives, succulents or other tough, waxy leafed species.

You can deliberately contour a garden to redirect runoff from paths or driveways to where it is needed, or slope paths towards garden beds. Terracing can help prevent water wastage on sloping blocks.

Avoid planting lawn on slopes as this can lead to water loss from runoff.

BUILDINGS

Buildings, walls, fences and other structures affect microclimate in a number of ways:

- they can radiate heat to create hot spots that may require additional watering;
- they may block the sun to create areas of shadow and shade that require shade tolerant plants and less watering; and
- house eaves may create relatively dry spots that don't receive rain. This can create a hot and dry microclimate (on the north side) suited to cacti and succulents, or cool and dry shade (on the south side) favoured by plants that like cooler conditions.

HARD SURFACES

Garden beds near paving or driveways that radiate heat will be warmer than those near turf or out in the open. Being near the road often adds heat to front gardens. Large areas of hard surfaces can create hot spots that require additional water.

To minimise this effect, choose light coloured paving (and walls) that absorb less heat to minimise this effect. Making paved areas more permeable to allow rain to seep into soil and nearby plant roots can help save water. Make paths from organic material such as woodchips or bark mulch, rather than using hard surfaces.

GROUNDCOVERS

Groundcovers can be very useful in keeping weeds under control and reducing the rate of water evaporating from the soil. They also shelter the root system of other plants, allowing a 'cool root run' which is very important for the health of many plant species. In Canberra, covering the ground surface is of critical importance in creating waterwise gardens. Groundcovers or 'green mulches' can be used to reduce overall water loss from the soil by reducing the impact of wind and sunlight.

CONSTANT CHANGE

Be aware of changes to the microclimate with the seasons and as plants grow or are removed.

Trees that cast increasing shade as they mature may affect your watering regime, or you may have to prune trees to let more light into your house or onto your sun-loving plants.

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