

# Creating a Waterwise Community Garden Best Practice Guidelines



These guidelines have been developed to provide a summary of the key strategies for increasing water use efficiency in a community garden. These guidelines have been prepared in conjunction with the community gardens watering exemption in recognition of the valuable role community gardens play in promoting local food production.

## Water Sensitive Design

### Microclimate

The design of your community garden should improve the microclimate to reduce plant water use, for example by incorporating windbreaks and creating beneficial shade.

**Windbreaks:** When designing the windbreak, keep in mind that the denser it is, the shorter the distance of wind protection it provides. As a general rule of thumb, a windbreak with around fifty percent permeability will provide a good level of wind protection for a distance of around fifteen times the height of the windbreak.

**Shading:** Where possible consideration should be given to minimising surrounding hard stand to reduce heat loading to help keep the area cool. Where hard stand is required shading this will further reduce the water needs of your plants. Where shade cloth is used to protect plants during extreme weather, choose a product with a maximum shade rating of 50%, as heavier shade can result in poor plant performance.

### Hydrozones

To deliver the watering needed to different groups of plants without over or under watering divide your community garden into watering zones (i.e. hydrozones).

These zones should correspond to the different types of plants you are growing and their respective water needs, for example annual vegetables and flowers, fruit trees, and hardy perennial shrubs.

## Irrigating

### Irrigation Systems

A properly designed, maintained and operated automatic irrigation system is the most effective way to irrigate. Drip irrigation is the most efficient way to apply the water because it delivers water directly to the roots of your plants.

The Waterwise Garden Irrigation Program (WGIP) provides industry standards for the design, installation and maintenance of your irrigation system. For more information visit the **Irrigation Australia** website

### Determining the Application Rate of Your System and Maximum Run Time

The application rate of both sprinkler and drip irrigation systems can easily be calculated by dividing the quantity of water applied to your garden (in litres per hour) by the area of the garden (in square metres). The simplest way to ascertain the quantity of water applied is to run your irrigation system for 10 minutes (making sure that no other water is being used), take note of the reading, and multiply this figure by 6. For example, a meter reading result of 300L over a 10 minute period, multiplied by 6 equals 1800 litres per hour. Dividing this by a garden area of 50m<sup>2</sup> tells us that the application rate is 36mm per hour.

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To calculate the system run time to comply with the watering exemption policy, simply divide the maximum daily application amount by the system application rate and multiply by 60 minutes. For example, if the maximum daily application amount for your region is 10mm, divided by a system application rate of 36mm per hour, multiplied by 60 minutes, then the system should be run for a maximum of 17 minutes.

You should note that the system application rate is likely to vary between stations if different types of sprinklers or drip emitters are used, or if the stations vary in size.

## Seasonal Irrigation Scheduling

Seasonal irrigation scheduling should meet plant water requirements (and comply with the community garden exemption rule) whilst minimising wastage of water through evaporation, run off or deep percolation. Factors to consider are the water holding capacity of the soil, the crop factor and root depth of the plants, the daily evaporation rate and the application rate and efficiency of the irrigation system. A seasonal irrigation plan enables you to irrigate your garden in a way that accounts for the changing evaporation rates across the year.

The WA Department of Agriculture **Irrigation Calculator** provides more information about how to develop a seasonal irrigation.

## Splitting Maximum Daily Application Rates

Most vegetables have shallow root systems, especially when they are in the early stages of development. Splitting the daily water requirement over two applications when using drip irrigation can help to keep plants hydrated and reduce water losses past the root zone.

## Soil Conditioning and Mulching

### Organic Matter and Soil Amendments

Sandy soils are free draining and poor at retaining water or nutrients. This can be addressed by adding organic matter in the form of compost and manure, helping it to retain moisture like a sponge. Adding bentonite clay to sandy soil is also a good strategy. This is a fine, white, swelling clay that can be dug into the soil before planting at the rate of around one kilogram per square metre where it will help to retain moisture and nutrients where plants can access them.

### Wetting Agents

When sandy soils and potting mixes are free draining and dry out they develop a tendency to repel water. This is caused by the build up of waxy coating on the sand particles which makes it almost impossible for water to penetrate. The best way to combat this problem in the long term is to build a healthy, humus rich soil and to prevent it from drying out, though in the short term it's often necessary to apply a soil wetting agent. Soil wetting agents are available in both liquid and granular form.

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## Mulching

Applying a 50-75 mm layer of mulch consisting of coarse, irregular particles will dramatically reduce moisture loss from the surface of the soil, keep plant roots cool, as well as suppress weeds. A soil conditioning and mulching program should be put in place according to the types of plants you are growing and the soil type at your site. More information can be found in our **Water Saving Ideas – Soil Improvement** brochure.

## Monitoring

Water use monitoring is an important tool for maintaining and improving water use efficiency in your community garden. To track progress it may be useful to complete a Waterwise Report, which includes:

- A plan of your community garden;
- Details on the seasonal productivity of your garden (e.g. crop yields etc)
- A log of monthly water use;
- Existing waterwise garden design features;
- Details of irrigation systems and seasonal scheduling based on plant types and weather conditions;
- Details of soil conditioning and mulching;
- A list of the opportunities to make your community garden more Waterwise; and
- Planned actions for the coming year to make your garden more Waterwise.

## More Information

For more information about the Community Garden Watering Exemption visit [www.watercorporation.com.au](http://www.watercorporation.com.au) or contact us on **13 10 39**.

ISBN 1 74043 715 2 May 2011

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