Water: a resource to be conserved

Water is a precious natural resource which is likely to become scarcer (and more expensive) as changes in the climate bring even hotter and drier summers to some parts of the world. What is more, the pressures on water supplies all around the Mediterranean are getting steadily greater due to increased populations, changes in life style (e.g. swimming pools, the use of dishwashers) and an influx of holiday-makers and second-home owners in the driest months. In some regions hosepipe bans and other restrictions on garden watering already apply, with fines for over-use, and these may well be implemented in other areas too in the future.

Boreholes might seem to provide plentiful water and to be an easy answer – but the underground water they draw on has often taken thousands of years to accumulate and is not infinite; moreover in some Mediterranean coastal areas the pumping up of too much underground water for irrigation has led to penetration by seawater and irreversible salination. Thus all gardeners in regions with a mediterranean climate, regardless of whether their water comes from a borehole or an urban supply, should be becoming increasingly aware of the need not to squander it.

A waterwise garden is one that makes every single drop of water count. It employs appropriate irrigation and gardening techniques which help reduce water consumption. Above all, it uses plants from mediterranean climates that have low water requirements.

How can I reduce the amount of water I use in my garden? Get rid of your lawn. Lawns are the single largest guzzler of water in the garden. Indeed, it has been calculated that for a lawn to remain a lush emerald green in the mediterranean it will require about 1000 litres of water per square metre over the course of each summer. Lawns may be replaced by paving or gravel, both of which look good in mediterranean gardens and have the additional advantage of providing a dry surface for sitting – or even eating – in the garden during the winter months. Another alternative to a lawn is a wildflower meadow, full of brightly coloured native annuals from autumn until spring, then cleared completely to remain restfully and neatly bare in summer. Lawns may also be replaced by low-growing carpet-forming plants such as *Dichondra repens*, *Phyla nodiflora* or some species of *Achillea*; bear in mind, however, that these will require some water, do not necessarily stand up well to being walked on a lot and do not look their best in high summer. If you cannot yet bring yourself to abolish your lawn, try at least to reduce its area as much as possible.

Choose plants that are native to your region or to one of the other mediterranean-climate regions of the world and that are thus well adapted to survive the long hot summers with little or no water – for example cistus, rosemary, various salvias, lavender and teucrium species. You have a wide choice for there are many thousands of such plants: they include trees, shrubs (including many climbers), sub-shrubs (including many aromatic plants), bulbs, winter- or spring-flowering annuals and some herbaceous perennials.

Group your plants in different zones of the garden according to their water requirements. It makes no sense to plant a thirsty species beside a plant that can very well withstand the summer without water, and then to water both equally.

Grow plants that need a lot of water in pots, perhaps near the house. If you are using grey water (see below), then this can be led directly to a bed close to the house which could be full of colourful sub-tropicals or annuals. Prevent moisture loss through evaporation from the surface of the soil by covering the bare soil between your plants with a 10cm layer of gravel or pebbles. This will also help to suppress weeds. An organic mulch (shredded garden waste or other vegetable matter), twice as thick, can be used for parts of the garden that are watered, e.g. the vegetable garden, though it is not suitable for really drought-resistant plants such as rosemary. Learn how to water your garden in such a way as to minimise waste so that every drop of water reaches the plants' roots.

How do I water without waste?

Whether you have an automatic irrigation system or water by hand with a hose, the important thing to know is that a larger quantity of water given infrequently is of very much greater value to plants than a little water given often. The reason is that frequent application of small amounts of water encourages plants to develop their roots near the surface of the soil, whereas widely spaced application of copious water allows the water to penetrate deep into the soil and encourages the plants to put down deep roots, thus enabling them to withstand drought better.

Always water the garden very early in the morning or at night in order to avoid water loss through evaporation.

If you have an automatic system, use drip irrigation with outlets close to each plant. Do not use a spray irrigation system for a significant amount of sprayed water is lost to evaporation, either immediately in the air or from the foliage of the plants.

Make a large watering basin around each plant (or around groups of smaller plants), about 20cm deep, taking care that the sides are even so that when you fill it no water spills out on to the surrounding soil. Fill this basin to the brim with water and then allow it to seep slowly deep into the ground. If you are using automatic drip irrigation, then fill the watering basin by hand with a can or bucket the first time, measuring the amount of water needed to fill it to the brim; then subsequently adjust the outlets and the timing of your system to give this amount of water at each watering.

Do not be tempted to give the foliage of your plants a sprinkling with a hose "to refresh them". This simply wastes water without being of any benefit to the plant: plants need water deep in the soil at their roots, not on their leaves.

Always plant in autumn so that your new plants will benefit from the winter rains. Do not be tempted to buy and plant in spring or summer by colourful displays at garden centres.

How often should I water?

This depends on the plants you grow and on how well-established they are, as well as on the soil in your garden and other factors such as wind and planting site (sunny or shady).

During their first summer or two, before they have become established (developed a good root system and become accustomed to their new soil and location), young plants will need fairly frequent watering as described above. To encourage root growth, stretch the intervals between watering as long as you can without the plants drooping

Once established, a lot of dry-climate plants such as lentisk, phlomis (Jerusalem sage), cistus, lavender and many salvias will need no summer water at all. Others will benefit from watering, as above, at appropriately spaced intervals, for example once a month. Plants grown in pots and most plants in the vegetable garden are likely to need watering every day, or every other day, in summer. Clay soils retain moisture for longer than free-draining sandy soils, so you will need to space your watering – and choose your plants – accordingly.

Strong winds have a desiccating effect on plants, increasing water loss from their leaves.

Storing rainwater

It is usually possible to add guttering and a downpipe to existing buildings (house, garage etc) in order to "harvest" the rainwater that falls on their roofs. You may also harvest run-off from impermeable surfaces such as paths and patios. This water is channelled into a butt or storage tank so that it can be used when needed most. A variety of water butts and tanks are available; unless the garden is on a slope and the water tank is well above it, you will need a pump.

It is very important to ensure that any surfaces from which rainwater is collected are as clean as possible and free of debris. It is essential to fit a filter at the entrance to the tank and to clean it regularly. It's also important not to use strong detergents and chemicals on the paved areas where rainwater is collected.

At its simplest water harvesting could be just giving your paths a camber (a slight curve in cross section) so that rainwater runs off immediately to either side into your planting. A patio could have a small channel along one side of it, leading water to where you want it in the garden – perhaps via a system of gently inclined ditches. Remember, however, that little rain falls in the Mediterranean summer.

Grey water

Grey water is water recycled after domestic use, from sinks, baths and showers. It can be used on the garden. However, it is strongly recommended that eco-friendly cleaning products are used and strong/chemical detergents, soaps and bleaches are avoided. Grey water cannot be stored unless you install a filtration unit for otherwise it will quickly become unpleasantly smelly. An alternative is biological filtration of grey water: you can find more information on this system in the book by Dunnett and Clayden on Rainwater Harvesting and on the Internet.

Designing a new garden

If you are planning a new garden, or better still building a new house at the same time, then you are lucky. For you have the opportunity to incorporate the principles of waterwise gardening into your design, including perhaps underground cisterns for water storage and a grey water filtration unit. You have the luxury of planning ahead for shade, deciding where you'll plant the trees whose cool calm shade can reduce other plants' water needs. You have the chance to think carefully before you plant, secure in the knowledge that your garden can become a place of beauty with low water requirements.

Information on waterwise gardening can be found in the following books.

Olivier Filippi, *The Dry Garden Handbook: Plants and Practices for a Changing Climate*, Thames & Hudson, 2008

Olivier Filippi, Lawn Alternatives, Filbert Press, 2016

ASSOCIAÇÃO DE PLANTAS E JARDINS EM CLIMAS MEDITERRÂNICOS

Mediterranean Gardening Association – Portugal

Who are we ?

We are a group of people who have an interest in Mediterranean horticulture - gardens, vegetable gardens and plants. We are also part of wider network of likeminded people from around the world - www.mediterraneangardeninginternational.org

What can you do?

Promote and share knowledge and interest in Mediterranean plants and gardening, particularly in climates relevant to the topic. This includes aspects of education and research with environmentally friendly ethics as a major objective.

Attend events - these include garden visits, tours, educational visits, demonstrations, lectures and social events.

Promote a friendly, sociable and democratic relationship between our members and other groups with the same interests.

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GARDENING IN A MEDITERRANEAN CLIMATE:

THE WATERWISE GARDEN – CONSERVING WATER



"To promote Mediterranean plants and gardens, through education, culture, conservation and recognition of their community, environmental and economic importance in our everyday lives."

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