

About Wicking

How WaterUps Advanced Wicking



The Rise of Wicking Garden Beds

Wicking Garden Beds have become increasingly popular as more people understand the benefits of the wicking watering system in reducing garden watering requirements while at the same time producing more prolific plants. WaterUps offers a modular cell that be used in existing and new installations in any size you need.

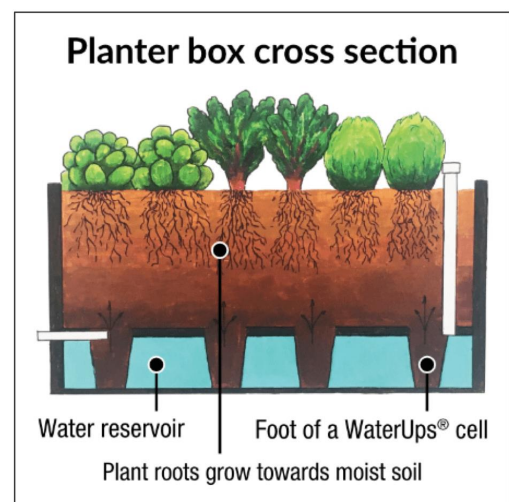
What is Wicking?

Wicking is the movement of liquid by ‘capillary action’, where moisture is drawn upwards due to surface tension and the interaction of adhesive and cohesive forces. If you think of old-fashioned lanterns, the base of the wick would sit inside an oil or kerosene well and draw the oil up to the top of the wick so that it could burn when lit.

A wicking garden bed works in a similar way. It uses wicks or “feet” to sit in a well of water to draw water and nutrients up into the lower levels of soil. From there they are taken up by the roots into the trunk, then the leaves, fruit and flowers of plant. In wicking beds, water is drawn up into the pore spaces in the soil to a height of about 350mm.

Wicking has occurred naturally on earth since rivers first formed. Archaeological evidence of gardens irrigated by capillary action dates back about 2,500 years to near the City of Old Jerusalem. In more modern times, ‘Popular Mechanics’ magazine in 1909 made mention of a “Self Watering Flower Box” that “protects plants from neglect” and a patent was granted in the United States in 1917 for a sub-irrigated planter.

There, they use the term “sub-irrigated pots” or SIP’s. In Australia, we use the terms “wicking” and “wicking beds”. Wicking is a system that fall under the category of ‘sub-irrigation’, which include ebb and flow systems, flood floors, dutch trays and capillary mats. Importantly, wicking



All information courtesy of WaterUps and related to the WaterUps range of wicking beds and cells sold at Four Seasons Nursery & Garden Centre



is the most versatile, efficient, and effective sub-irrigation system for residential, civil and commercial use for growing both ornamentals and edibles.

With water in Australia a scarce resource, due to our climatic conditions and at times harsh growing environment, in recent decades there has been a renewed interest in wicking to help grow plants and keep them healthy. Wicking systems have also performed very well in La Nina conditions on the east coast of Australia. Because of the overflow mechanism our wicking beds avoid water saturated soil.

Why use Wicking Garden Beds

Wicking garden beds eliminate the problem of deciding when and how much to water. Plants in a wicking bed can last up to 4 weeks or longer without additional watering. In contrast surface watering can require daily watering depending on climatic conditions. For people who manually do this, this can be very time-consuming, and you can end up being a slave to your garden. Few people have time for this, given the busy lives they lead. As a result, their gardens and plant suffer. For those that install drip watering systems, spray nozzles or sprinklers, there can be considerable water waste in the quest for vibrant gardens and abundant fruit and vegetables. Also, these systems tend to require regular maintenance.

A Water Wicking System – Essential Elements

To create a wicking system, you need 4 key elements

1. A TANK OR RESERVOIR TO HOLD WATER.

We offer a choice of pre-formed Reservoir liners for pre-built raised garden beds, an enclosed irrigation trough system or pond liner.

2. A MEDIUM – OR WICK – TO TRANSFER THE WATER UP INTO THE SOIL

This is what differentiates WaterUps® Systems from all others and makes it so powerful and efficient.

At the heart of WaterUps is a recycled plastic cell Unit that has 4 feet – WICKS – with tiny perforations at the base. We fill these feet up with Perlite, a lightweight porous stone – it's the only medium we recommend for these [reasons](#). The perlite wicks create a powerful conduit for drawing up the water to the soil level above.

Other commercial or DIY designs might use gravel, river sand or scoria filling up the entire reservoir with this wicking layer. That is an excessive use of materials and as our tests have proven not as efficient as the perlite wicking feet. In our wicking garden beds, we use a row of wicking cells that will happily sit in the reservoir for decades – such is the quality of the recycled



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plastic used. **The wicking cell also enables – for the first time ever – scalability – any size wicking garden bed is possible.**

3. AN OVERFLOW PIPE BECAUSE TOO MUCH WATER IN THE RESERVOIR WILL LEAD TO ROOT ROT

We include this with all custom and packaged raised garden beds

4. AN INLET PIPE TO TOP UP THE WATER RESERVOIR

Again, this is included with all WaterUps orders. We will also soon offer an automated top up hose option which will add more water once the water in the reservoir drops below a certain level

Above Ground or in Ground Wicking Beds

Wicking Beds have historically been used above ground in raised garden beds. These are termed ‘closed’ wicking systems. However, they can also be used inground to deliver better results than a garden at ground level with no wicking system. These are termed ‘open’ wicking systems. (See next section). When a wicking bed is used inground there is wicking that happens beyond the parameters of the wicking cell, spreading the water into nearby soil, resulting in the wicking reservoir emptying faster than above ground set-ups. This is because it is watering a larger area. **A raised wicking garden bed is for many planting situations the best type of garden bed you can have.**

Massive Water Savings with WaterUps

Apart from having to water less frequently with a wicking garden bed, as noted earlier, there is a substantial saving of water itself in using the wicking method.

In 2018 a [Sydney Garden Research Centre](#), conducted a water usage trial comparing the performance of WaterUps wicking systems. **The 90-day trial found that WaterUps Wicking System in a raised garden bed uses 20% of the water of traditional in ground garden bed with top irrigation methods.**

Peter Rutherford, Senior Ecologist also, noted that “our regular observations of the gardens showed that the plants in the wicking bed gardens maintained a more even and ‘lush’ growth, compared to the plants in the traditional gardens.”

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