Barossa Bushgardens

Place Plants People

WICKING BEDS

What is a Wicking Bed?

Wicking beds were invented by an Australian named Colin Austin. He as a renowned researcher and has been looking into ways to conserve precious water.

The idea behind a wicking bed is to water the plants from underneath rather than the top to prevent water from evaporating. The water is kept in a reservoir underneath the soil and using capillary action or 'wicking' is drawn upwards.

It is important to keep the water in the reservoir separate from the soil as permanent inundation will kill the microbial life forms in the soil and lead to rotting of the roots.

Small rocks in the bottom will keep the soil from collapsing into the water and a sheet of something that lets water wick up, but stops soil from moving down.

An overflow will make sure to not overfill the reservoir and an observation pipe will indicate how much water is still in there.

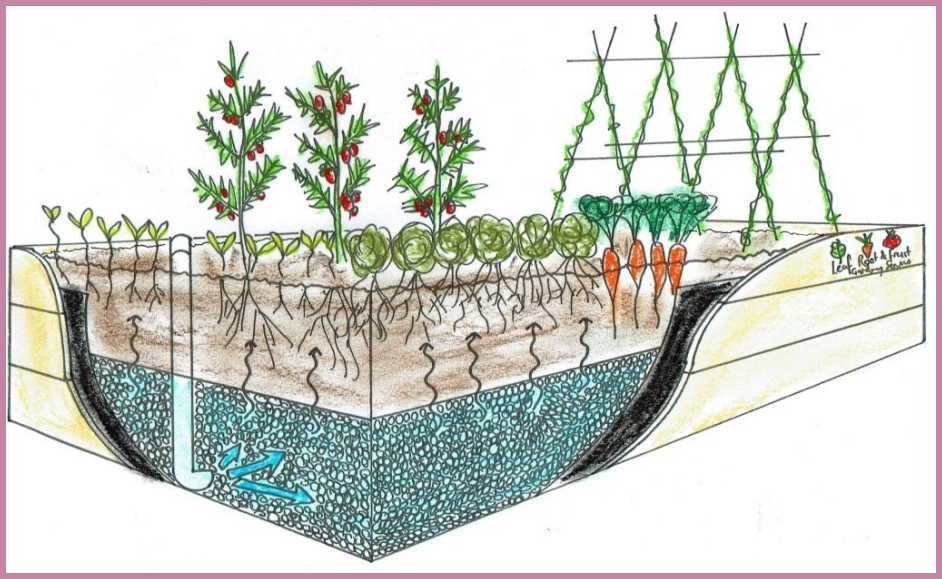

Image: Wicking bed, Source: leafrootfruit.com.au

Pros and Cons of Wicking Beds

Pros

- Easier gardening. In the garden, overwatering can be just as big an issue as underwatering. With wicking beds, the observation pipe eliminates the guesswork of knowing when and how much to water.
- Happier, healthier, more productive veggies. Veggies love wicking beds because they provide a low-stress environment of constant, optimal moisture, good for soil life and good for plants.
- Less weeds. In wicking beds, the surface of the soil is relatively dry, making it more difficult for weeds to germinate.
- Use less water. Wicking beds flourish with a lot less water than normal raised beds.
- Water less often. Wicking beds need watering much less often, meaning plants will survive and thrive for days, or even a couple of weeks, even during a heatwave.
- Grow on any surface. Wicking beds are a great solution for spots where Eucalyptus or other vigorous tree roots might invade the bed. As water and nutrients are prevented from soaking through the bed base, the trees won't even realise the veggie bed and its rich soil is there. Wicking beds can be built on top of concrete, paving or contaminated soils, while keeping the soil in the bed separate from what's underneath.

Cons

- Trickier to install. Wicking beds require some technical understanding and skill to be built properly; they can leak or over-saturate the soil, either due to ppor design or being installed incorrectly.
- More expensive. Wicking beds typically cost a bit more to set up than non-wicking beds.
- More materials. Wicking beds generally require some non-renewable materials, i.e. poly pipes and liner.
- They can break. Wicking beds are sensible to being accidentally punctured, e.g. with a stake and replacing the liner will mean emptying the whole garden bed to replace the liner.
- Some training required. Wicking beds do require a little bit of knowledge or training to be used properly. Keeping the water level topped up through the inflow pipe rather than surface watering and draining the reservoir occasionally are some things that should be done.

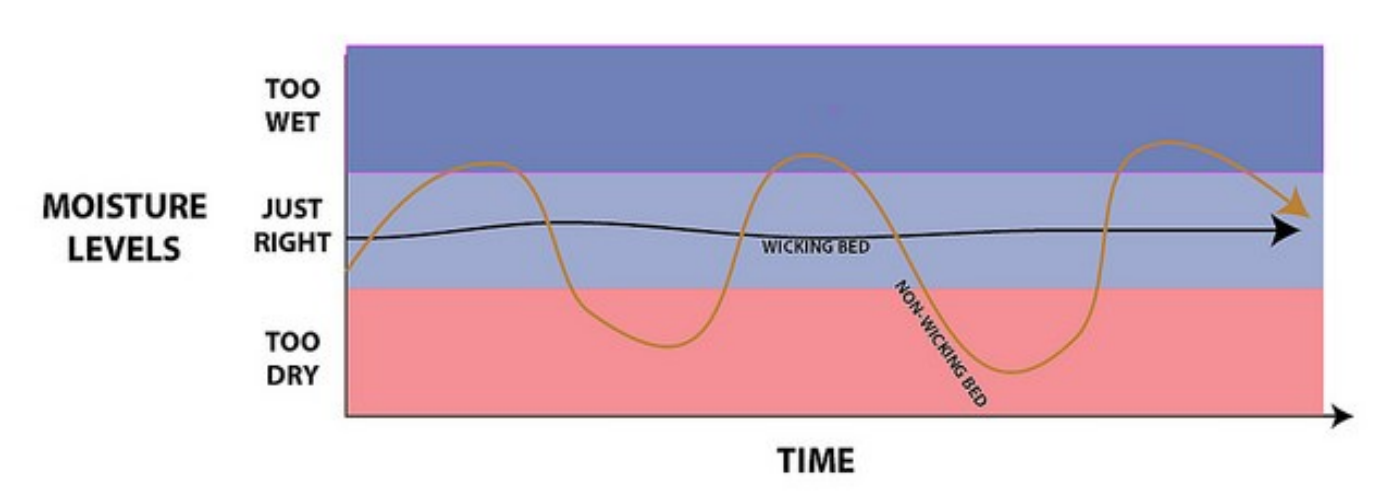

Image: Moisture level comparison, Source: wickingbeds.com.au

Creating a Wicking Bed

Ingredients:

A level, sturdy garden bed. This can be a solid built garden bed with wooden planks but an Intermediate Bulk Container (IBC) will be just as good and if it doesn't have any holes, a liner won't be needed. It's important that the soil level is somewhere in between 25cm and 40cm and the reservoir should be at least 20cm deep to make the whole effort worthwhile. Otherwise, the water will be used too quickly and refills are needed more often.

A solid PVC liner (except for IBC containers). Either the liner is thick or if using thinner ones, more layers are recommended. It's also worthwhile thinking about using food grade liners to prevent the plastic leaking into the soil.

50mm perforated ag pipe for the drainage at the bottom of the reservoir and the inlet on top of the rocks

25mm PVC inlet and outlet pipe (drainage if swiveled sideways), an elbow and connector through the side of the bed, silicon

Geotextile fabric

Scoria or screenings (5-7mm)

Soil

The size and lengths of each part depend on the measurements of the garden bed.

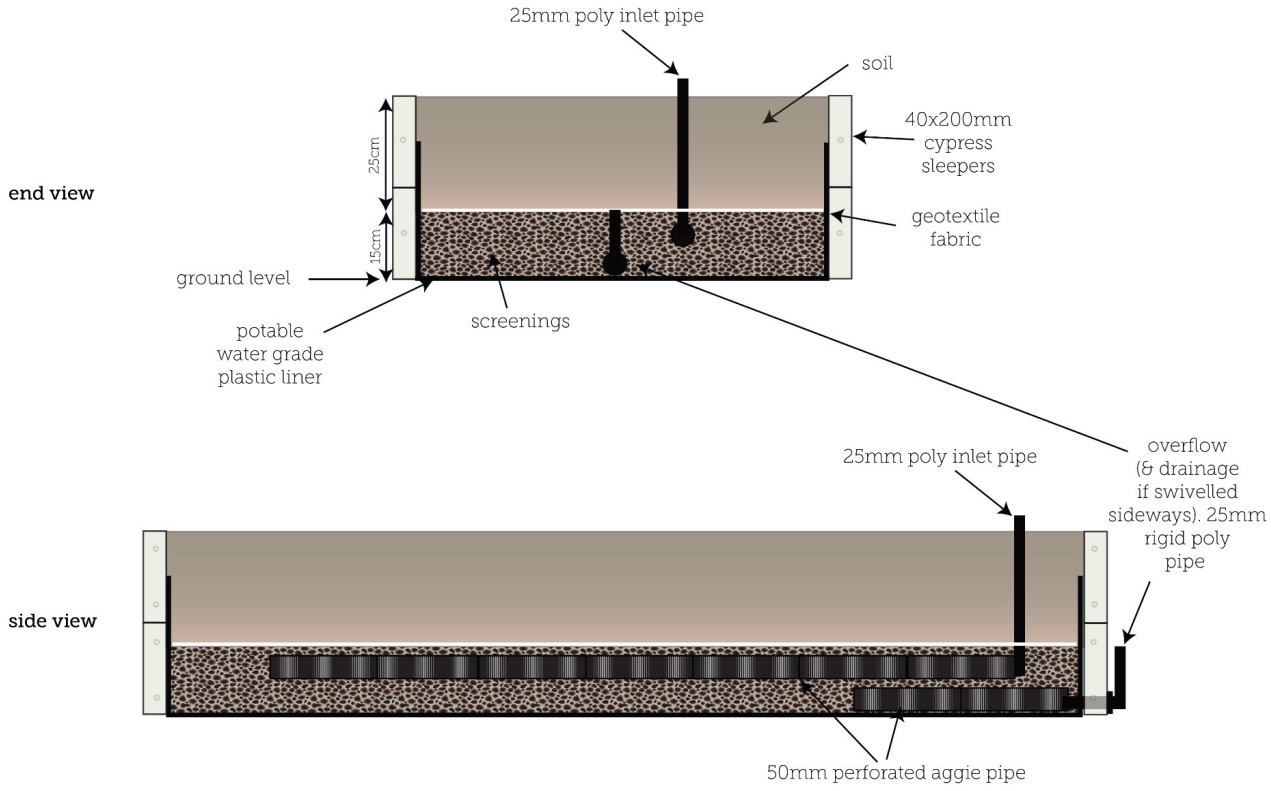

Image: Wicking bed set up, Source: wickingbeds.com.au

Step by step instructions

Build the garden bed using wood or an IBC, making sure the bed is deep enough. At least 15cm - 20cm of small rocks plus 25cm - 40cm for the soil.

Photos: Raised garden bed and IBC,
Source: ebay.com

Putting in the liner. If the ground is rough, it is recommended to add a layer of sand or fabric on the bottom before putting the liner in. It is also recommended to add another layer of fabric on top of the plastic at least to the depth of the rocks to avoid them puncturing it. This step can be left out if using an IBC.

Photo: Liner with ag pipe,
Source: wickingbeds.com.au

Drilling through the outside of the bed to create a hole for the overflow/drainage and cutting carefully through the plastic and fabric. Installing the 25mm poly pipe and using silicone to waterproof the outlet.

Adding some stones, the outlet ag pipe, more stones, the inlet ag pipe just below the top of the rock layer and the 25mm inlet pipe.

Photo: Bed filled with small rocks and water,
Source: wickingbeds.com.au

Now is a good time to fill the reservoir with water and let it sit overnight to check for any leaks.

The next step is adding a layer of geotextile or a double layer of shade cloth to prevent the soil moving into the reservoir.

Photo: Finished wicking bed,
Source: wickingbeds.com.au

The soil is next and with that, the planting can start. Note that seedlings have a very small root system and will need watering from above for the first couple of weeks until their roots can reach the wet soil underneath.

Extra tips: Using some fly mesh over the outlet will stop mosquitoes breeding in the reservoir.

Adding some organic mulch, like straw, will help save even more water and keep the top soil moist, especially for young plants.

Photo: Vegetables, Source: AnaBGD; iStock.com

References:

Very Edible Gardens - Wicking Beds

https://www.wickingbeds.com.au/

ABC - Gardening Australia - Wicking Beds

https://www.abc.net.au/gardening/factsheets/building-a-wicking-bed/9435452

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Opening hours:

Monday and Friday by appointment

Tuesday & Thursday

9 am - 4 pm

Wednesday

9 am - 12.30 pm

Saturday and Sunday closed

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