What Is a Wicking Bed and Why Would I Want One?

So, what is a wicking bed? Well, as I explained to a colleague of mine, it's essentially a giant "self watering pot" in the form of a garden bed. Okay, there is a fair bit more to it than that, but the idea is a garden bed designed to draw water up from a reservoir below, hence "wicking" through the soil directly to the roots. A system devised by Australian engineer Colin Austin, wicking garden beds (and wicking worm beds) are gaining popularity as a wonderfully water wise garden bed alternative.

Drawing water from a reservoir below the growing medium, wicking beds operate on the concept of capillary action, with the soil and plant roots drawing this water upwards as required. Essentially, this means that a properly constructed and maintained wicking bed should have nice, moist soil most of the time, with the roots accessing the water as they require it.

Wicking beds have a number of benefits, both environmentally and horticulturally. Firstly, it's a great set up for thirsty gardens (like vegie patches) in areas that have lower rainfall or are affected by water restrictions. Wicking beds also deliver the water where it's needed (the plant roots), which minimises water wastage, and can also help to reduce the risk of funky fungal foliage issues. Also, wicking beds are said to be more effective at sequestering atmospheric carbon than many other traditional types of garden bed set ups, meaning it's a win for us, and the planet.

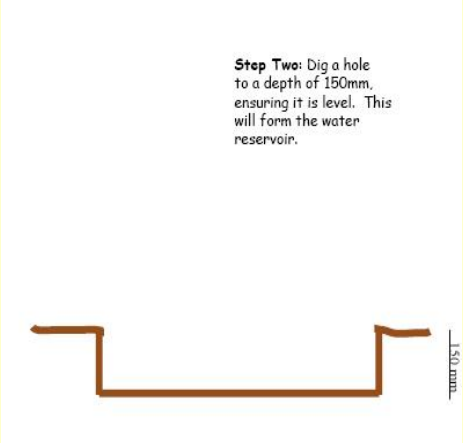
The Wicking Bed How To

So let's look at the nuts and bolts of constructing a good, functioning wicking bed. Essentially, it's all about having the right depth, right medium (both for drainage and for growing your plants) and taking a bit of time to construct the bed properly. It may sound tedious, but you will thank me in the long run. So where do we start?

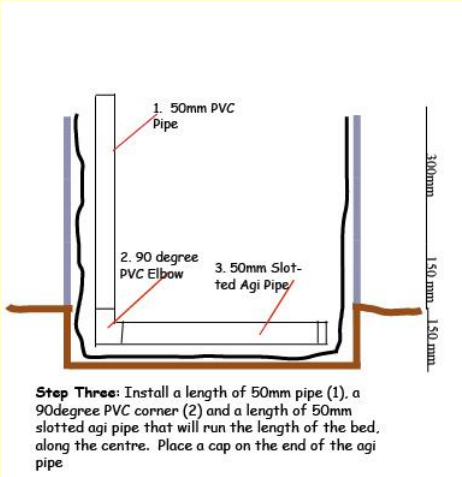
1. Choose a suitable site for your patch (full sun for vegies), ensuring that it is level (or you are able to level it) – wicking beds work best when they are level, as this ensures even water dispersal down the track.

2. The total depth of the patch may vary depending on what you wish to plant, but, for a wicking vegie bed, the overall depth needs, ideally, to be 600mm. This equates to 300mm for the reservoir/water saturation zone and 300mm for the growing/root zone. It should be noted here that wicking bed wizards all agree that water cannot be wicked further than 300mm, so bear this in mind when you are looking at preparing your patch.

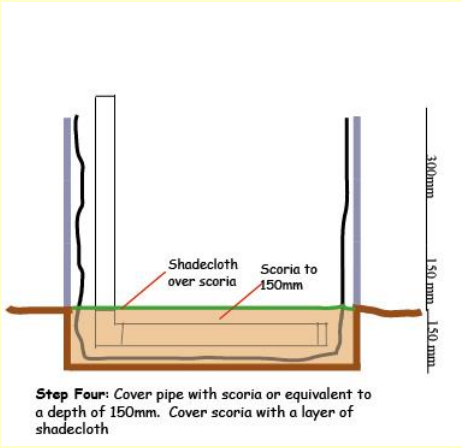
It is possible to use polystyrene fruit/vegetable boxes e.g. broccoli boxes, for wicking beds. In that case, the overall depth will be reduced.



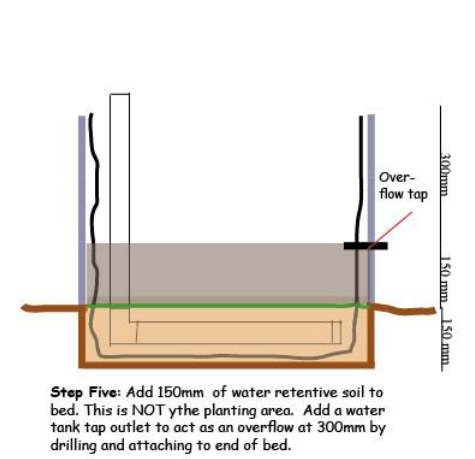
3. Of the 300mm reservoir/saturation area, about half of this (150mm) will contain gravel or scoria (we prefer scoria since it holds water) and the water inlet pipe, while the other 150mm will contain a soil blend. Prepare this area first. If using a polystyrene box, omit the 150mm soil blend layer.



4. If you are gardening on soil, dig a hole to a depth of 150mm, ensuring it is level. This will form the water reservoir. If you are placing your garden on a hard surface, ensure it is level and move to next step.

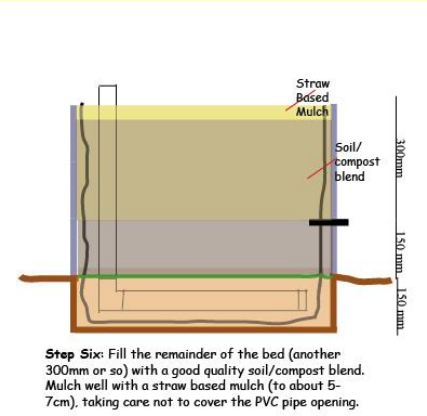


5. Make the sides, so the bed has a total depth of 600mm, including the hole you just dug. If using a polystyrene box it will, obviously,be less. Line the entire bed with good quality builders plastic or pond liner, ensuring there are no tears or holes. To prevent tears in the builder's plastic, you may wish to add a shallow bed of sand to the base of the reservoir hole.



Step Five: Add 150mm of water retentive soil to bed. This is NOT ythe planting area. Add a water tank tap outlet to act as an overflow at 300mm by drilling and attaching to end of bed.

6. Now it's time to put in the water delivery system. To do this, place about an inch of scoria into the bed for the horizontal pipe to sit on. This will act to improve the drainage. Then, install a length of 50mm wide PVC pipe vertically, attached to a PVC 90 degree elbow the will sit near the base of the bed on top of the scoria you have just placed. Next, attach a length of 50mm slotted agricultural pipe (this has outlets holes in it) to the elbow, and this will run the length of the bed, along the centre. Place a cap on the end of this agricultural pipe.



Step Six: Fill the remainder of the bed (another 300mm or so) with a good quality soil/compost blend. Mulch well with a straw based mulch (to about 5-7cm), taking care not to cover the PVC pipe opening.

7. Cover the pipe and the bottom of the bed with scoria, to a depth of 150mm. Cover the scoria with geotextile to prevent soil particles moving into the reservoir and blocking the pore spaces. Shade cloth could be used but it will allow some soil to pass through to the reservoir.

8. Fill the next 150mm of the wicking bed with a good quality water retentive soil – this will form the "saturation layer" and is NOT where your vegies will be planted. If using a polystyrene box, this layer is omitted.

9. At the top of this soil level (300mm), you will need to install an overflow – this will allow excess water to leave the wicking bed after significant irrigation events, or long periods of rain. If using a polystyrene box, this overflow will be at the top of the reservoir i.e. at 150mm. One of the easiest ways to do this is to use a water tank tap outlet, and drill an appropriate size hole through the end of the wicking bed opposite the water inlet. This is important and may help prevent the soil in the root zone becoming waterlogged and useless.

10. Fill the remainder of the bed (another 300mm or so) with a good quality soil/compost blend. We recommend 1/2 mushroom compost, 1/2 organic soil mix, as research and experience has shown that wicking beds work best with a higher than usual compost portion. DON"T use the soil from surrounding gardens, especially if it has a high clay content. Mulch well with a straw based mulch (to about 5-7cm), taking care not to cover the PVC pipe opening.

11. Using a hose, and in accordance with local water restrictions, fill the wicking bed reservoir using the PVC pipe opening. You may wish to use an old tomato stake or similar as a “dipstick” to see how deep the water is. Fill the reservoir to about 200mm.

12. Once the soil is damp (you may need to water from the top initially as well to encourage the wicking to begin), plant out your wicking bed with your favourite incredible edibles.

13. Sit back, water less, and enjoy your wicking bed and its harvest!

Produced by Sustainable Gardening Australia