



WATER AND SOIL IN WICKING BEDS (vs 2 - Sep 2019) **'SIMPLE TO WATER – EVEN KIDS CAN DO IT'**

(Also see companion Info-sheet '*How to build wicking beds for schools*'.)

Water

Water management determines 90% of gardening success.

- When there is not enough the soil gets too dry – plants suffer.
- When there is too much air is excluded – plants suffer.
- When nearby trees suck most of it up – your plants miss out and suffer.
- When water is leaking below the roots – it is lost to your plants and wasted.

Wicking beds to the rescue

- They do not allow overwatering, the overflow prevents that - when you see it, you stop.
- They provide an extra water reservoir – you don't need to water every day.
- They stop tree roots taking water and nutrients – you get your money's worth.
- They can be built close to trees, buildings, on concrete or on contaminated soil – as long as they receive six hours of sunshine each day.

THE BIG NO-NOS: NO ROCKS, NO GRAVEL, NO GEO-FABRIC, NO BARK CHIPS

- Wicking beds rely on water moving sideways and upwards in the soil by wicking (like molten wax moves upwards in the wick of a burning candle).
- Clay soils have small, fine particles which is why they wick better and store more water than larger particles such as sand or gravel.
- Small particles also have a much larger surface area on which to store nutrients and for soil biology to stick itself to and find protection. Rocks are a 'dead' waste of space.
- Small rocks, gravel and especially fabric of any kind break the wicking action.
- Mulches and excess organic matter do not easily make capillaries in the soil.
- Some commercial potting or garden soil mixes will not wick due to excess larger organic material or pine bark. Others will not wick because they consist mainly of sand.
- Bark is designed by nature to ward off or kill diseases, insects and microbes.
- Organic gardening needs the microbes – the good ones will overcome the bad ones.

Please use a garden mix with some clay and loam but without gravel or rocks or pine bark.

How to water wicking beds – 80% bottom and 20% top

- Seedlings need to be top watered to ensure root/soil/water contact is established.
- Top watering assists in settling the soil and developing soil capillaries.

To fill a wicking bed to **maximum capacity** – the first time, for holidays or extended times:

- Fill the inlet pipe until water flows out of the outlet.
- Wait about 30 minutes to allow water to wick upwards in the soil.
- Refill the inlet pipe, again until water flows out of the outlet.
- Repeat until you can see water at the bottom when you look after 30 minutes.
- Allow the pipe to dry before refilling to prevent mozzie larvae.

ORGANIC IMPROVEMENTS TO SOILS

'Good' soil is a balance of fine sand, loam, clay and organic matter. Start filling the bed evenly with the soil from your garden if at all possible. If you need to buy soil, avoid mixtures that have no clay, are mainly sand or contain bark chips. **NB.** 'Top' soil can often refer to soil 'taken from the top' (which in the Bundaberg area is mainly sand, often water-repellent) and not mean 'the best quality'.

Adding minerals, organic matter and food for microbes. When the bed is about 1/2 full:

1. A light sprinkling of Ash - for potassium and other minerals- not too much - less is more. It raises the PH, less acidity.
2. A sprinkling of rock minerals - manganese, boron, zinc, iron etc.- as most soils are mineral deficient. Plants can survive without them, but won't be healthy nor provide us with the healthy nutrient-dense food we need.
3. A sprinkling of blood and bone (not for vegans).
4. A good covering of manure - for organic matter - plants grow better with manures.
5. If you have access to good compost or wormcasts, add a good layer. This is the best amendment to build up 'good' soil you can use. It is packed full of helpful microbes.
6. Give this all a bit of a fluff up to blend it into the soil.
7. If available, a good watering of molasses and water, (feeds the microbes) or weed tea and water, or comfrey tea and water, kelp tea and water or fish emulsion and water. (*See website below.*)

Continue to fill the wicking bed with soil.

When about 50mm short of the top.

Repeat steps 1 to 6 above.

Time to plant your new seeds or seedlings.

- Water them in.
- Mulch well around the seedlings but leave the soil above the seeds free of mulch.
- Make sure the soil on the top doesn't dry out until the plants have grown a bit.
- Mulch is used to prevent the soil from drying out. Mulch is a covering that mimics nature. Worms eat it and take it down to the roots of the plants. Any mulch is better than bare soil.
- The very best mulch is Lucerne, as it has from 16 to 20% protein. It feeds the soil and the plants as well as being a covering for the soil. Another choice is wood chips, especially around trees.
- NEVER leave the soil open to the elements. Better plant a cover crop than leave the soil bare.
- Water from the top as well as through the fill pipe till your new plants have matured a bit, and their roots are down to the water level in the wet soil. Use your best judgement on this.
- Don't forget the worms! Find some in a garden or a pot and put them to your wicking bed. They will eat, wee and poop their way through your bed and feed the microbes. The plants will love it.

About regular feeding

- Water your plants fortnightly with any of the teas mentioned above. (*See website below.*)
- Chicken manure is too rich to add directly and it is best used as a weak tea in water.
- Cow manure is fabulous when dried and sprinkled on top; water and the worms will take it down.
- Regular feeding is the key to success: a little bit often is far more beneficial than a lot occasionally.

NOTE ABOUT TIMBER

Micro PRO Sienna treated pine claims to be non-toxic and is generally approved by the Qld Education Department for use in schools. It is only available as 2,400 x 200 x 50 mm lengths. (approx. \$16). Recycled hardwood may be suitable for home wicking beds.

Happy Gardening from the Bundaberg Organic Gardeners (Inc).

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Feeding plants: details at <https://www.bundaberg-organic-gardeners.com/bogi-shop>