

Summer in the Garden

Gardening with permaculture design thinking encourages us to look at everything as a resource. Sun and heat are the major resources in summer. Sure it brings its problems but to have the most effective system/garden we need to utilise this resource not curse it. Put simply most common veggies don't need the sun from 10am until 3pm, the 6 hours of full sun often discussed is a European term. So if possible plant trees to covert solar light into habitat, food and mulch, grow veggies under dappled shade, grow summer active aquatic edibles, and plant summer and sub-tropic plants.

A simple summer memory jogger I read some time ago on Greenlife Soil Companies website **here** - <http://www.greenlifesoil.com.au/factsheet-summergardensurvival.htm>

Slip on some Mulch, Slop on some Water and Slap up some Shade.

However, assuming we don't have perfect garden ecosystems I will go through it in a different way.

WATER - Plant the water and the plants plant themselves.

How to 'plant water'? – Planting water is permaculture design thinking for dry landscapes and when establishing new trees and plant, and is a key principle. Collecting and harvesting water efficiently, and allowing the water to get into the soil (wetting agents and clays), and keeping it there (continual soil coverage with deep rooted pioneer vegetation, clay and organic material) will make an environment that soil biology and plants can and want to exist in. *Note: in Perth's extremely poor sands it is handy to plant some natural slow release minerals and fertility also at the same time.*

Harvesting Water – Water generally comes from the tap or directly from your reticulation. This is treated drinking water and is both an inefficient use of that commodity and a water that the plants don't really like. Bore water is often better so consider one if you have a large longer term garden as the water corp about the depth to drill and water quality in your area. Put a cut in the street curb and direct some of the flow into a stilling basin to soak into your front yard. Catch your rainwater and dew/condensation off roofs in summer. Save grey water with expensive automated systems but simply running the spin cycle of the washing machine into an elevated cistern or buckets and putting it on fruit trees is a great water supply.

Applying the Water – A lot is spoken about the most effective ways to water gardens. While it's safe to say that overhead automatic sprinklers are the worse option for many reasons, most of the other techniques are suitable in different situations. If you have good improved soil it's better to do less frequent (every 2nd day) longer and deeper watering in each area. This can be with drippers, hand watering or other techniques. However if you have poor shallow soil it is better to water less, more often, as the water won't 'store' and excess water just leaches down into the sand taking your nutrients and being lost to your veggies. Having containers, liners under the beds (black plastic, clay) that stop and hold the water (perched water table) is also a great way to water more, less often, as you are putting the water straight into the reservoir under the roots. Think Wicking Beds, and self watering pots.

Utilising the water- Whatever water you are putting on the garden make sure it's getting into the soil and down to the roots. Dig down and physically check it's wet. Adding a Short term Soil wetter, or preferably, a permanent wetter like claying the soil should be a priority. Deep mulching (10-15cms) with a water wise mulch (street tree pruning's) keeps the top soil protected from going water replant (hydrophobic), and stops moisture from being evaporated out and blown away.

Keeping the water there - As we have previously discussed adding clay and organic matter to the soil to allow it to hold more water and nutrients with a thick layer of water wise mulch on top is the best way to keep the water there, protecting plants from summer heat and water stress. For the clay use at least 1kg per 10m² on coarse sandy soils, working into the sand/soil thoroughly to a depth of 30cms. Milne Stockfeeds (and other rural stores) sells 1 tonne bags of bentonite for \$200 or smaller 20kg bags for around \$15. For a good discussion on clay go here - http://www.petercoppin.com/pdfs/amending_improving_gutless_sands_soils_perth_wa.pdf

Use **artificial techniques**. In smaller spaces, lower budgets and simply when you can't clay the soil, use water conserving growing techniques like wicking beds, self watering pots, container gardening. The best of these systems have a protected space that stores water under the soil and allows it to capillary up as the plant removes it. Even in these systems heavy surface mulching is essential in summer, once seedlings are in/up, get the mulch over the soil and around the plants.

MULCH- It is important to understand the different mulches.

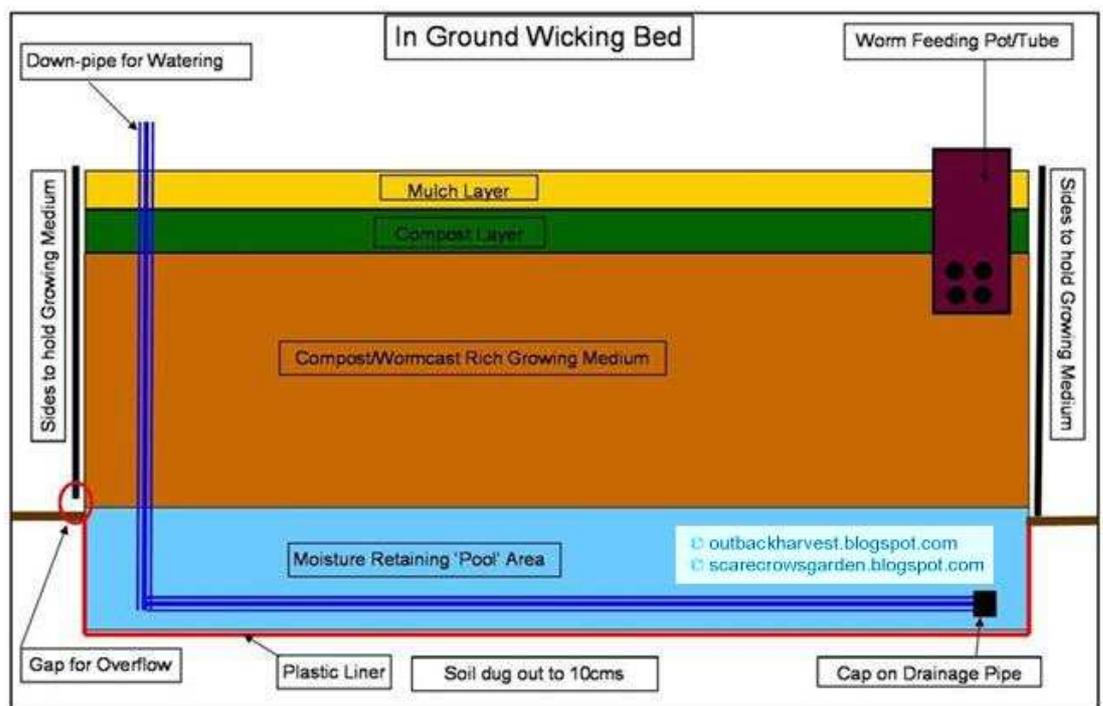
Street tree pruning's is the only and cheapest mulch worth using for water saving. Forget sugar cane trucked in from QLD. It goes on top in summer, the thicker the better (min 10cm deep), it is coarse and non porous so it doesn't 'wick' up the moisture from the soil and it stops the wind and sun from getting to the soils moisture. The leaves and bark break down rapidly avoiding the nitrogen draw down that just carbon (woodchips or sawdust) might create.

Softer mulches like pea hay, straw, hay bales, lucerne and lupin break down rapidly and are porous sucking up the soil moisture and evaporating it out (straw acts like a straw). They are great for feeding the soil, however, too much straw breeds slaters, pea straw brings in pea virus's, and hay (and even straw) can have huge amounts of grass seeds.

I recommend Lucerne or Lupin as mineral rich feeding mulches, they cost more but it's worth it. Put them underneath the street tree mulch and you get the best of both worlds. DSATCO Lupin mulch can come in 1000l bale for \$215, enough to do your whole garden. Or grow your own Lucerne/Alfalfa.

Wicking Beds

Without going into it anymore here, Wicking Beds are simply the most efficient water conserving food growing garden beds for urban Perth.



SHADE – Consider Winter beds and Summer Beds – Observe and Use Sun and Shade patterns.

I have different areas of the garden that are better in summer and winter, so I use those areas for high yield/intensity veggie growing at the appropriate times. This is mainly because I have a big gum tree providing too much (natural and immobile) shade in winter but great dappled shade in summer. Beds in full sun in winter work well but come summer these are too hot unless covered with shade cloth or other shade techniques. My verge is clear and facing North so it's my new winter veggie lot.

Another other option, which is from a permaculture perspective is better than artificial shade, is to plant a hardy crop like sweet potatoes to grow and protect the soil over summer or a summer nitrogen fixer/legume. While it provides a lower yield food (edible leaves and 3-4 months later tubers) it also requires very little effort and water. Some people simply mulch the soil heavily and don't grow veggies from Nov-Feb to avoid wasting resources in these hard times.

Natural Shade – Trees, vines, and annual climbers provide natural shade. This is the best shade as the plants are growing and adding biology and biomass to your garden. Trees evaporate (lose) some moisture but this acts to cool the garden (air conditioning), on top of the shading of the soil that is also cooling the garden. Some plants might need to be thinned out or pruned to allow a dappled light to veggies underneath, but that pruning's is the mulch you need for the soil in summer anyway. Deciduous trees shade in summer and allow sun in winter, so are especially good. Albizia (Pink Sirus), Jube Jube, Mulberries and Figs are some good productive deciduous trees. Also consider a grape arbor or trellising vines across wires to make natural 'shade cloths'. Or pruning evergreen nitrogen fixers like Tagasaste or Accacias

As mentioned before **summer sunlight is an asset, not a problem**, plant and harvest it and your garden ecosystem will do much better and eventually thrive.

Artificial Shade - 30% shade cloth, curtains, and slats or tree brush on a trellis or wires acts as an effective shade if you don't have an trees yet. It doesn't have the above benefits to ecology as the trees but it can be more mobile and flexible. Buy lengths of shade cloth from the hardware store and 'sew' your own shade sails with flexible tie wire. Arches made from white polypipe or black Ag (retic) pipe can make a great dome to put up shade and row/crop covers over. Weld mesh can be placed/propped on a 45 degree angle facing north and have summer vines/climbing plants run over it and delicate shade preferring plants grown under it (accessed from south side). Sweet potatoes, pumpkins, cucumbers, or snake beans would do the job. The options are only limited by your imagination and often wallet.

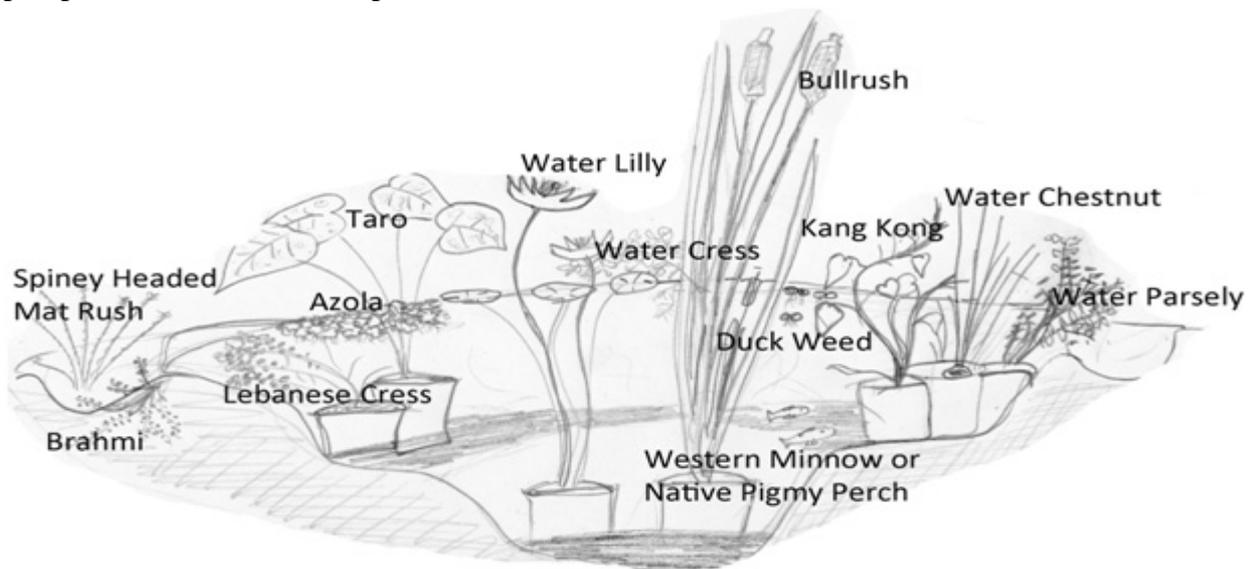
Hot Winds – Hot dry summer winds have a huge effect on evaporation rates, and plant health. If you have an exposed garden with lots of sun and hot winds buffeting your plants you will struggle to grow anything. A wind break is something that interrupts the wind (not stops it), this slows and if its hardy vegetation or trees, cools the winds before they get to your veggies. Windbreaks are more of a rural crop idea but using fences, hedges, sheds, and trees around your garden to interrupt the wind and create microclimates is essential on exposed blocks.

PLANT SUMMER HEAT LOVING PLANTS

Certain plants only grow well in the summer heat and warmer soils, so we should be growing them as a priority. Tomatoes, Eggplants, Capsicums, Chillis, Corn, Snake Beans, Bush Beans, Mellons, Cucumbers, Squash, and Zucchini's all bear better in summer if you can keep them alive. Some plants like carrots, beetroot, chard etc, will go all year in Perth but grow better at temps under 30 degrees.

Apart from these common summer plants, Jerusalem Artichokes, Fat hen, Kale, Malabar Spinach, Purslane, Dandelions, Chicory, Garlic Chives, Parsley, New Guinea Bean (gourd), snake beans all grow well in summer with water, even in our poor sandy soils. Most produce seed prolifically so can become weedy if you don't 'eat your weeds', but these are hardy easy food supplying Perth Permie Plants so we should be growing and eat them.

Ponds and Edible Aquatic Plants love summer heat - Permaculture Ponds and all of their many benefits will be a topic for another day. But briefly, many leafy aquatic edibles can be grown in the common garden pond, these plant thrive in the summer sun as they live in water so it's a great source of leafy green when other garden beds and plants die or become hard work in summer heat. Most of the plants in the picture below are edible and all work together to make a low maintenance and pump/fountain/aeration free pond.



SUMMER TIPS AND IDEAS – Think about some of the following to make summer less work and more manageable.

Stop growing leafy greens in soil from Nov-Feb, use icecream containers for seedlings (they dry out slower), place worm farms in full shade or under frequently watered seedlings, put in some ponds (preferably on the side where the hot summer breeze will be cooled as it passes over the water before it hits the veggies or the house), plant deciduous trees on the East and North sides of the house, get some solar shutters for windows, install windows that open like a breeze collector/wind vane to draft sea breezes through the house, shade bricks and cement (that stores and radiates heat), use many layers of plants (think food forest) to best use water and create air conditioning and microclimates, put clumping bamboo in large pots as a mobile but living shade sail.

And definitely put solar passive modifications on your house, install solar panels, use solar cooking ovens, and solar food dehydrators, to make those hot days a lot more gratifying and productive.

At least you know how much of a free energy supply you are getting while it kills your garden.

As always see PermacultureWest website for more information - <http://permaculturewest.org.au>