

Permaculture in Edible Garden Design

by Charles Otway - Terra Perma teacher and PermacultureWest mentor.

What is permaculture - To me Permaculture is deliberate regenerative land use, harmonising human habitat with nature, creating richly productive results. More than just permanent agriculture, we are creating permanent culture.

We have a **limited time** here as when I teach a permaculture design course we struggle to fit the information into 72hrs. So I will highlight what permaculture is and looks like in edible garden design.

Design is a key word here, organic gardening is a technique, permaculture is a design process that uses all appropriate techniques to achieve ecological design aims.

Permaculture thinks ecologically. We are part of the system not the system, we think eco not ego. We are at the top of the food and environmental change pyramids but we recognise we can only exist on the excess yield of those elements below us. The more capacity our soil, plants and animal systems have the more comfortable our role at the top of the food chain can be.

Year of the Soil - Everyone is hopefully taking a better look beneath their feet, because as Charlie McGee's latest permaculture song *Down, Down, Down*, written for National Permaculture Day (Sunday) sings - You are what you eat, and you are What what you eat eat's and your even are what what what you eat eats eats.

For example yield of an apple tree is not simply the kg of apples per year, but the sun and shade it creates given its deciduous characteristics, the solar power it stores through photosynthesis, the shelter and habitat it creates as a tree, the beauty and pollen it provides while flowering and all the sub soil relationships and fertility trading it carries out to build soil capacity. **In Permaculture yield is seen as what the plant/element has to give** without degenerating the tree or the soil, i.e. its surplus, not everything we could possible take.

Everything is connected, and infinitely complex. While we might not understand exactly how we realise that enhancing these connections and diversity in a system allows for more stability and capacity and thus greater surplus or yield and less work needed from us to keep things going.

Patterns are observed in nature, these are repeated and fixed and thus if we can design our systems sympathetically or advantageously for those patterns we will work in harmony with nature instead of against it. There are seasons every year we plan for and design accordingly. Permaculture takes this observation deeper with edge. The edge between two ecosystems (a pond and garden) has more diversity and thus yield than one ecosystem. The joint actually has 3 times the capacity, ecosystem 1, ecosystem 2 and ecosystem 3 (the interface specialists). Deliberately designing more edge into our systems offers more potential yield. Nature has few straight lines for logical reasons and we try to mimic that pattern in permaculture design. **Herb spirals and mandala's are not the answer but they are the pattern.** They are techniques and will not always be appropriate, but edge (and more of it) is.

Permaculture designs from 'Patterns to Details'. That is we look at the global ever present factors effecting our system before we buy our favourite fruit tree. We might love eating cherries but if we do not have enough winter chill to set fruit or even grow healthy trees (i.e. Perth coastal plain) there is no point buying and planting that cherry tree. Further if we look at the temperature trend pattern it is getting warmer in winter and summer and thus there will be even less chill in the future. A cherry tree takes 3-4 year to bear so even if it could just yield now how will it be in 5-6 years time.

The main patterns or factors that limit edible gardens are summer sun (heat waves), seasonal rainfall and soil types. Oh yes I missed the most important limiting factor **the human climate**, that is the perceptions and judgements we subconsciously rain on our system without even realising.

When designing edible gardens in Perth my first **check is on the satellite maps, council intramaps** is usually the best option. Get a map of your property, **find north** (where all the sun comes from), find the size of your block and perhaps even the slope or your position in the general topology.

We know that the **sun arcs** through a higher path (with more direct sunlight) for long hours in summer and arcs a much lower and shorter path of less direct sunlight (energy and heat) in winter. Planning the sun and shade patches through the seasons on your block is the single most helpful way to start a garden in the best spot. Too much sun in summer at midday or late afternoons will kill most edibles, not enough sun in winter due to high walls or buildings will slow plant growth. **You may find you have different summer and winter growing spots.** These are patterns and by recognising (observing these) and planning your garden accordingly you are well on your way to success.

Seasonal rain, we are in a Mediterranean weather belt (sort of) that means we get cool wet winters and hot dry summers with two shoulder seasons of change. We have four seasons, whereas the tropics have 2 (warm wet and warm dry). Techniques and practices that work well in the tropics won't work well in a Mediterranean climate and plants that do best in one zone do not do best in another (though they might grow). **Understanding your climate patterns is critical.**

Most coastal soils are ancient deep hungry sand, useless soil for high input high output food systems. While market gardens look productive they are using artificial fertiliser and water 7 times a day to create glorified 'aquaponic' crops. We want home garden edibles to be healthy, highly mineralised and ecologically ethical, that the whole point of growing food, as it is certainly not the cheapest way to get food on the plate in the short term. Thought it has many other benefits realised in time.

If we recognise the physical limitations of our soil we can help them by adding amendments or containerise our gardening rather than just buying \$500 of compost each year and ending up with sand a year later. European soils and American soils have far more capacity to yield crops with little extra human inputs, **the techniques that work there for crop growing do not work here.**

While these broad ecological patterns should define how we design we also need to take a close look and audit of our human needs and wants.

Do a water audit supply and demand (drinking, washing, irrigation), **determine what you want from an edible garden**, look at **how you will/can cycle nutrients** (compost, chooks, mulch, etc), **a time audit, a skills audit.** Let us start our design being realistic about the human element, in both its needs and its capacity.

A successful permaculture design or garden needs its owner/shaper to evolve, adapt and change/learn faster than the system. You must observe and interact, trial and error, you must be an integral part of the design or you will end up with a wild mess. Though some of us enjoy this it is not seen as desired or productive by most folks.

Define edible ? I know what all my plants do, decorative, weeds and edibles. They all have ecological use i.e. soil building, food. SO I eat most my weeds or I appreciate their purpose i.e. building soil fertility or protecting soil and I help them do that job (**love them to death**) rather than pull them out.

Permaculture is about totally changing your thinking, seeing opportunities rather than problems, an **area that floods** in winter is not a problem (just poor design), you have a natural wet land, or surplus water for tanks or a place to place things with heavy water heavy needs. A **cold damp dark**

*spot down the side of the house is always a waste, but it should not be. The characteristics of this space create a **niche**, you just need to be thinking and informed enough to find a suitable element that needs that niche. Worm farms need cool moist conditions in the shade, ferns and shade plants need this niche, water tanks can be placed here to reduce their effect on your more desirable locations.*

*Organic food waste is everywhere why not grow free food by composting these scraps. Even better feed them to chooks or worms first and get a harvest/surplus off the animal systems and then use their upcycled wastes to grow your crops. **People have not seen the Permaculture wood for the trees!***

For more information on Permaculture Design head to www.terraferma.com.au and www.permaculturewest.org.au, email: info@terraferma.com.au or call Charles on 0466633275

Perennials replace Annuals

Design is Tree Centric

Plant stacking is critical - Food Forest Concept, Canopy layer, Lower trees, Shrubs, herb layer, ground cover, roots, vines, fungi - Aquatics.

Mulch everything always - Carbon is an exact measure of the possible sustainable yield of your system