



Learn Grow and Thrive

with

Cath Manuel

4 Weeks to Fresh Food Lesson 2.

~ Creating ~

~ Please print your Lesson Notes and read through prior to each Lesson.

~ Spaces are available through the Lesson Notes to take extra notes during the Lesson.

Enjoy!!

Creating...

Once your garden is planned you can start creating garden spaces to grow in. There are many ways to grow a sustainable garden. You can use raised garden beds, garden plots straight on the ground or container growing. Where possible use recycled containers or other items for creating growing spaces.

From your vision board and dream list start establishing each feature/element within your garden once the area is prepared.

Start with these features...

- ✓ **Garden beds** – garden plots in ground or raised garden beds with deep soil. Follow the No-dig method below, or fill gardens with high quality garden soil with added fertilisers.
- ✓ **Lay pathways** – consider options for materials to use, eg mulch, bark, wood chip, pebbles, pavers, old bricks, crusher dust or concrete.
- ✓ **Planting trees and shrubs** – where are the trees and shrubs being planted? Place markers or stakes with the plant name written to help determine their final location.
- ✓ **Creative Containers** – what plants will be grown in pots or large tubs? Choose locations with morning sun for delicate plants and full sun for hardy herbs and flowers.

- ✓ **Set up compost and worm farms** – an important element in a sustainable garden.
- ✓ **Seating and relaxing spaces** – every garden needs somewhere to relax. Find old garden benches at second-hand stores or new items at outdoor stores or garden centres.
- ✓ **Potting shed and place to store equipment** – keep your gardening equipment on hand to use as needed and to keep it all safe and tidy. Small sheds work well or an old work bench or door is great as a potting bench. Store potting mix, compost, fertilisers and other products in large plastic tubs or buckets, with sealed lids to keep dry and critters out.

Consider the spacing of each feature in your garden. Allow for a wheelbarrow or other equipment to be used within the space. Allow enough room to grow all your crops, including spaces for container growing and fruit trees.

~ Creating Your Garden ~

If you have areas that will be changed to pathways, new gardens or areas that are heavily covered in weeds, a good sustainable solution is **sheet mulching**. This is a method of covering the weeds or grass to kill them (instead of using chemicals) and prevents them from growing back. This is also a good way of re-using newspapers, cardboard boxes, old bed sheets or cotton towels.

If you are covering a grassed area it's best to mow it very low before starting.

No catcher is required as the clippings will break down, improve the soil and encourage earthworms. You can sprinkle blood and bone to also improve the soil and assist with decomposing of old weeds and grass.

Next step is to soak the newspaper in water as this stops it from blowing away!! Cover the area with a thick layer of newspaper, some cardboard, sheets or towels, making sure you overlap the edges well, maybe about 3 cm. You can use bricks or rocks to also hold these items down.



Here's the start of my kitchen garden using old bed sheets.

Cover the area with mulch, either hay, sugar cane, lucerne, or bark mulch, depending on surface required. This is a good method for pathways - just re-cover it as it wears thin.

You can then place new garden beds over this area. Mark out your growing areas with garden edging, bricks, hay bales or logs then use the no-dig recipe or garden soil to fill new garden beds. (see below)

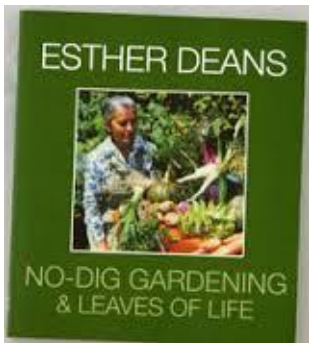
Then start adding other elements from your design.



Our kitchen garden all done!

~ No-Dig Gardens ~

As the name suggests, no-dig gardens are raised garden beds that don't require any digging to get ready for planting. The no-dig idea was established by a lady from Sydney, Esther Dean, in the 1970's.



Esther was ill and couldn't garden so she built her garden beds in layers on top of old bed frames. She could sit by the beds and add the ingredients and plant straight into it. Since then her recipe has been modified by many people, but using the same principal of building layers of organic matter to create humus (soil)

Her recovery and good health enabled her to help others, especially children with disabilities, to garden and use gardening as therapy. Esther continued to inspire gardeners throughout Australia and the world to try 'no-dig' gardening.

Esther's garden designs have inspired many people for over 40 years and the raised bed is a useful design for people in wheel chairs who have restricted movement and for children who can watch their teacher while gardening at the same time. Since then her method has been modified, but always using the same principle of building layers of organic matter to create humus (soil).

The no-dig garden is similar to composting but straight into the garden bed. The 'ingredients' will break down to create rich humus filled with many organisms.

My No-dig method...

These are some of the ingredients I use –

- * compost
- * mushroom compost
- * worm castings
- * brown garden clippings
- * rotted manures
- * blood and bone
- * organic slow release fertiliser pellets
- * fresh green garden pruning
- * grass clippings
- * green lucerne
- * brown hay or straw mulch
- * molasses
- * liquid fertilisers

For a small or low garden you won't need to use everything listed here, although all these ingredients will assist with creating rich humus (soil) which is the best growing medium for your garden.

As with composting always aim for a good balance of:

Carbon – brown, dead, old and dry, eg, hay or cane mulch, dry leaves, straw, saw dust, brown grass clippings or mushroom compost. Use more carbon than nitrogen in each layer.

Nitrogen – green and fresh, eg, fresh green garden clippings, lucerne (green), rotted manures, fresh non-invasive weeds, green grass clippings, blood and bone and support plants.

Follow these steps of layering carbon and nitrogen to fill your garden bed, making each layer about 10cm. Remember to water each layer really well as moisture helps the ingredients to decompose...***If they're dry they won't break down!!***

My boys helped to build a hay-bale no-dig garden...very easy and fun!!

Have your garden bed or edging in place before starting.

- Add a layer of compost over the base
- Cover with a layer of nitrogen – either garden prunings (finely cut), grass clippings or green lucerne
- Add some blood and bone, minerals or organic slow release fertiliser pellets
- Water with hose

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- Add mulch, sawdust or another fine carbon layer and water all ingredients well
- Add a 5cm layer of rotted manure – sheep, cow, horse or chook
- Add another layer of carbon
- Add more blood and bone, minerals or organic slow release fertiliser pellets
- Water again
- Cover with a layer of compost or mushroom compost
- Add more blood and bone, minerals or organic slow release fertiliser pellets

....Continue with these layers until the garden bed is full, then...

- Water well with a mix of liquid fertiliser (comfrey tea, worm juice, compost tea or purchased organic liquid fertiliser) and molasses (approx. 1tbspn) to 9L water in watering can
- Top with a layer of mulch - always finish with a layer of mulch (carbon).



Wait **at least 4 weeks** before planting into your garden bed as the ingredients will heat up, like a compost heap, which can damage the roots of new plants.

If you want to plant straight away (and you're keen to get growing!!) do this in the **cooler months** and only plant **above ground crops**, eg salad greens and herbs (no root crops for about 3 months).

The soil level of the garden bed will sink down over time, so when you're replanting the next season crops just top up the gardens beds with a few layers of carbon, nitrogen and compost then you're ready to replant and re-mulch your gardens. You can also use the last of any plants to chop up for an added nitrogen layer.

No-dig gardens are a quick and fun way of creating new gardens in no time at all. I love this simple method as I can build a garden anytime I'm ready and I usually keep the ingredients on hand for when I get the urge to build a new garden...which is a lot of the time!!

Notes...

~ Creative Containers ~

One fun and creative way of gardening, especially if you're limited for space or time, is growing plants in containers or pots. For many people this is a great method to start off with gardening, especially when introducing children to gardening, and for growing in containers can fit perfectly into a busy lifestyle.

There's many benefits to growing in containers...

- ✓ **Limited space** – use any size container to grow in the space you have available
- ✓ **Containers can be moved to catch the sun** – potted plants can be placed in any area that receives at least 4 hours of sunshine
- ✓ **Easy access** – people with limited movement can place containers at any height needed to access plants
- ✓ **You can be really creative** – any item that can hold potting mix, be planted into and has good drainage is considered suitable to grow plants in, even old wheel barrow, buckets, foam boxes, etc
- ✓ **A garden can be created anywhere** – this is great for people renting, who want to grow fruit trees but have limited room and also anyone who enjoys having their herbs and veggies close at hand



There's many options for growing in containers, so get creative!! Hunt around at second-hand stores, local trash shops (one man's trash is another's treasure) and even look in your own garden shed as many containers are potential gardens.

I have an old bath tub that I use for many different herbs and salad greens and it looks lovely sitting in the kitchen garden.

Avoid any containers that have stored chemicals or have sharp edges. If your choice of container has no drainage holes then using a power drill, place at least 3 or 4 drainage holes in the base of that container.

More on *Growing* in containers in our next lesson...

~ Composting ~

To maintain a productive garden you need to add compost and other ingredients to your soil. Up to 50 % of the waste that goes into landfill every single week could in fact be composted and turned into valuable food for the soil.

When food scraps are disposed into landfill they quickly rot and become carbon dioxide and methane, two of the most common greenhouse gasses. So to reduce greenhouse gases and improve our garden we all need to compost our food scraps and other household waste.

This saves us time and money by having nutrient rich plant food ready at home.

I always recommend having either a compost system, worm farm or both. These will supply your garden with rich, organic matter to help improve your soil. It's also useful when planting out seedlings, shrubs and trees

By composting we are creating a **'Closed Loop System'**
Here's an example of a closed loop system...

Household waste goes to compost then into garden to produce food. Food then gets eaten and scraps go to compost, etc..



This is a closed loop system as everything stays within the cycle, nothing leaves the loop therefore energy/ resources are not wasted. In order to save our time and energy we should adopt closed loop systems. This is an important part of permaculture principles.

Compost is decomposing organic matter. Composting is nature's process of decomposition. Fully decomposed matter is called Humus. Humus is one of the most important things you can add to your garden and is the basis for all sustainable gardening.

Ways to Compost...

The two methods to follow are Hot or Cold Composting.

Hot Composting, as the name suggests, gets very hot within the ingredients and decomposes quicker. Hot compost can be made in a bin system or open bay and can be made in as little as 18 days.

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Most hot compost methods take 4-6 weeks to break down and kills many pathogens and seeds.

Cold Composting doesn't heat up as high as hot compost, therefore many pathogens and weeds will not be destroyed in the process.

Cold composting uses less Nitrogen items and can take up to 6 months to break down. Cold composting is usually created in a bay system or within an open garden area.

Compost Ingredients:

Carbon – brown, dead, old and dry, eg mulch, newspaper, shredded paper, dry leaves, saw dust. You can also use tissues, paper towels (no chemicals used on these) or serviettes. I keep all old office paper and soak it in molasses or worm juice before putting in the compost as a carbon layer. Carbon supports fungi.

Nitrogen - green and fresh, eg; fresh food scraps, lucerne (green), manures, compost, coffee grounds, fresh weeds and grass clippings, blood and bone, Comfrey, Pigeon Pea, Arrowroot and other greens.

Keep a small bin in the kitchen for all food scraps. To help keep the bin clean line the base with a paper towel, piece of newspaper or old office paper. Just tip the whole lot in the compost when full, paper included!! Nitrogen supports bacteria.

Water - compost should be damp, not soaking.

Air - is present in the building process and added when mixed or turned.

Activators - high Nitrogen and gets the micro-organisms going, eg molasses, worm juice, liquid fertilisers, comfrey (leaves & home-made comfrey tea), old compost and even small freshly dead animals (yuk) can be used to activate the pile....

Carbon:Nitrogen (C:N) Ratio

For fast and best performance of the composting system it's important to have the correct C:N Ratio, or Carbon to Nitrogen Ratio, of the items being added.

This isn't the quantity of materials, but the chemical compound ratio of carbon to nitrogen in the actual materials themselves.

Organisms need about 30 parts carbon to one part nitrogen in what they consume, e.g. approx. a 30:1 C:N ratio..

Here's the approximate C:N ratio for a few common items –

- * Kitchen waste = 15:1
- * Fresh lawn & garden clippings = 20:1
- * Chook manure with hay or straw = 10:1
- * Animal manure = 20:1
- * Coffee Grounds = 25:1
- * Shredded paper = 150:1
- * Autumn Leaves = 50:1
- * Hay or Cane Mulch = 100:1
- * Sawdust = 400:1
- * General garden waste with brown leaves = 30:1

The fresher the item, the higher the nitrogen level, so lower the number.
The older and dryer the items, the higher the carbon level and higher number.

Compost needs to be made with items that add up to around a C:N ration of about 30:1. One example is kitchen scraps at 15:1 added with cane mulch of 100:1 would be a slightly high carbon ratio, but with added activators (high nitrogen, low C:N) should balance the mix to about 30:1 all up and decompose nicely.

Don't get carried away with worrying too much about counting carbon and nitrogen content, here's a simple rule...

If you add **too much nitrogen** the mix will be **wet and smelly** so just **add more carbon and air** (by turning with a fork).

If the mix is **too dry and not decomposing** then you've added **too much carbon** and you need to **add water and activators** to get the pile heated up and decomposing faster.

Where to locate the bins or bays?

- * My favourite place is in-garden composting
- * Near the house if possible
- * In full sun – compost heats up from the organisms, but full sunshine helps keep it warm, especially during cooler months
- * On the soil – connect the contents to the earth



- * Close to water and other materials, e.g kitchen garden near garden beds
- * Allow easy access for collecting compost

Compost recipe (one version of many available).

This is for a Hot Compost bin system, the same method is used for an open bay system.

- ✓ Have all the ingredients ready.
- ✓ Place the compost bin flat on the ground in a suitable location.
- ✓ Gloves and dust mask on.
- ✓ Then start filling it all in one go, until it's full to the top.

Here's what to add...

- * Put some old compost on the ground to start the process
- * Carbon – dry leaves, dry lawn clippings, mulch
- * Nitrogen – food scraps or garden clippings
- * Carbon – mulch
- * Activator
- * Nitrogen
- * Carbon
- * Water with diluted molasses or liquid fertiliser
- * Nitrogen
- * Carbon
- * ...until bin is full

- * Pour a full watering can made up of diluted worm juice or liquid fertiliser all over the contents. This helps to activate the mix and get the micro-organisms working throughout.

Always finish with a carbon layer, eg hay or cane mulch. Keep moist, but not too wet.

What to do now?

Leave the compost bin to sit for a few days. Then remove the lid and there should be moisture on the inside of the lid. This is a good indication that the mix is damp enough and starting to heat up.

You can now add your kitchen scraps, garden prunings or other nitrogens, then always top with a layer of mulch and water well. You can add a watering can of molasses or other activators to help the decomposing process. Place the lid back on after adding ingredients.

Continue to add ingredients until bin is completely full, generally two weeks, then let the bin rest while starting another bin in different location, e.g. another garden bed. You may need to loosen mix with a fork to add air if mix is too damp.

The first load of compost should be ready in about 4 – 6 weeks and you can then start to harvest the compost ready to use in the garden. This is great for feeding trees, planting shrubs or seedlings or use as a soil improver before planting.

Some problems you may find.....

Smelly, too wet, sour or rotten – means you have too much water, not enough air and not enough carbon. Add more carbon and turn the mix to allow for more air flow. Always top with a layer of carbon. Never leave food scraps uncovered as the mix will not decompose and there will be small flies in the bin.

Dry and not decomposing, ants have moved in – means there's too much carbon and not enough water. You need to add more nitrogen, eg lawn clippings, comfrey or other plant prunings or more food scraps. Water the mix well with a full watering can of diluted molasses or other liquid fertiliser. (Comfrey Tea would work well now) You could also add more activators or manures to help heat the mix up.

If you follow these steps and the compost still doesn't work then take it all apart and start again.

Notes...

Activity .

Complete **after** Lesson 2.

Establish an In-Garden Compost System in your garden.



Once you have established new garden spaces and added all the features to the garden, you can start Growing!!

I hope you enjoyed this lesson, you are now ready to create your garden!

Next Lesson – ‘Growing’

Cath Manuel

Soil to Supper | cath@soiltosupper.com.au | www.soiltosupper.com

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