

A woman wearing a straw hat and a blue and white checkered shirt is smiling and working in a garden. She is leaning on a white metal fence and holding a pair of red-handled shears. The garden is lush with green plants, including a large banana plant in the background and yellow flowers in the foreground. The scene is set outdoors with trees and foliage in the background.

How to design A Sustainable Garden

By Cath Manuel

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The author shall not be liable for misuse of this information. The purpose of this book is to guide and educate readers. The steps outlined in this book are to be applied with care and consideration and further research is suggested before completing any suggested activities.

The author is not responsible for information outlined in this book and this information may not suit everyone's individual situation.

Personal protective equipment and duty of care should always be applied when completing outdoor activities.

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How to Plan and Design a Sustainable Garden for Your Household

Notes adapted from Soil to Supper Workshop Program.

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Introduction

“Apprentice yourself to Nature. Not a day will pass without her opening a new and wondrous world of experience to learn from and enjoy.”

- Richard W. Langer -

If you've always wanted to grow and cook fresh, home-grown food, then having a Sustainable Garden is a very important part of your home and family life-style.

A sustainable garden considers the environment and has long term growth and functionality. These are important elements to consider when planning your garden.

A beautiful, thriving garden produces fresh, organic food year-round, offers a place to relax and unwind, and provides opportunities for the kids to explore and be creative.

Imagine walking out the door and picking fresh, seasonal, organically grown vegetables, herbs, or some fruit, and preparing a meal for your family. One of my favourite things is to share my home-grown produce with family and friends.

A sustainable garden can be created in any size property, even in the suburbs, and it has all the necessary ingredients and elements for you and your family to enjoy.



Chapter 1

Planning Your Perfect Garden

Gardening is really exciting and once we've made a decision to start growing, most of us are ready with all the tools and equipment. Many people start adding soil and plants to gardens without actually planning in advance what should go where.

Planning your garden is one of the most important things you can do for your garden. Good planning saves you time and money in the long run.

Before getting started, it's a good idea to make a list of all the things you really want in a garden.

Grab a notebook and a pens and spend time with the members of your household answering a few basic questions.

Here's a few things to consider -

- ✓ How many people are in your home? Planning your edible gardens spaces around the number of people within your home, helps to determine how much food to grow.
- ✓ How many hours each week could you spend in your garden? The more time you have to spend in the garden, the more you can grow.
- ✓ What are the aims for your garden? Different goals could be container growing, growing herbs, a kitchen garden, chooks, animals, orchard, self-sufficiency, permaculture, space for relaxation or meditation, etc.
- ✓ The land size for food production can be a balcony, courtyard, small yard, large yard, or acreage. The larger the space, the more growing areas you can design. If you live on a small block, then consider creating container gardens and grow dwarf fruit trees.
- ✓ Do you know your soil type? Sandy, clay or loam? It's good to get to know your soil. This helps to plan what plants you will grow in your garden, as plants require certain types of soil to grow well.

- ✓ Do you know where North/South is situated? This is covered in the next chapter.
- ✓ Do you have a water supply for the garden, other than town water? Consider installing a water tank or dam on larger property.
- ✓ What is the slope of the land? Is it flat/low, gentle slope, steep, very steep, vertical. This helps with understanding water flow, what plants to grow and other elements.
- ✓ Do you have any views to keep or screen out? This helps with planning border plants.
- ✓ List any new features that you would like to include in the plans. For example, shed, water tank/s, orchard, gazebo, playground, sand pit, grass areas, paving, herb spiral, fences, pathways, chook house, pool, pond, dam, solar power, compost, worm farm, or garden beds

Now create a 'Shopping List' of the fresh foods you enjoy eating. This is an important consideration when creating your garden. Make sure you include all the vegetables, fruits, herbs, trees, shrubs, and flowers on your *wish list*.

Remember this is a *wish list*, so dream big! Also note any existing plants or fruit trees you have growing on your list.

The answers to these questions will help with your garden planning. It's important to know all these things before starting your garden.



One fun method for planning your garden is to use a **Vision Board** or a website like **Pinterest**.

(For ideas on planning gardens visit Cath's Pinterest page – www.pinterest.com/cathmanuel)

Start with a large piece of cardboard and draw the areas of your garden, including any existing features like boundaries, trees, buildings, playground, paths, etc. Look through magazines and old books for inspirations for your garden. Choose colourful, bright images of your dream garden features and all the other elements from your wish list. This is a great activity for everyone to participate.

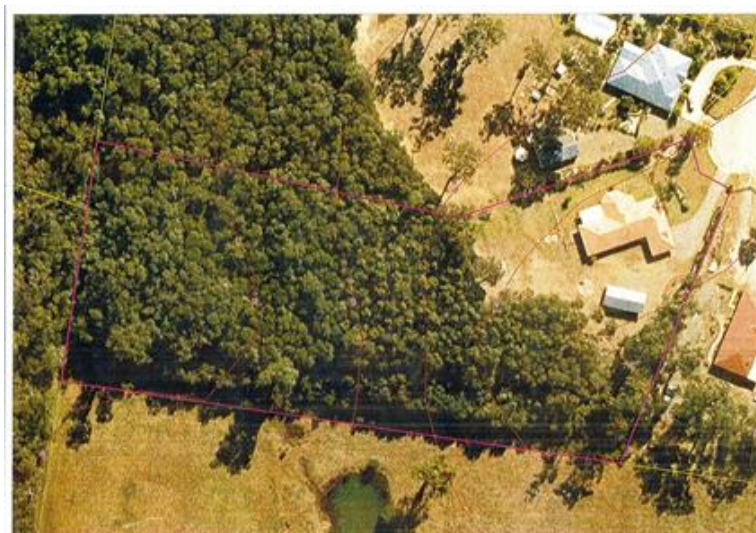
Place all the cut out images in the areas where you might like them on the vision board, considering natural elements and zones. Move things around until they're all in the right place, functional, and look good.

Mark the sunny or shady areas and also existing trees, shrubs, gardens, pathways or other elements already in your garden.

Start gluing the pictures onto your vision board and then add comments about your elements, eg chook shed here, plan for next season, fruit tree growing full size, etc. Make this a fun activity.

Obtain gardening and inspiring quotes to help complete your vision board.

It's also a good idea to start with a printed aerial image of your property, which are available through local councils or online. Keep the original for inspiration and record ideas on the photocopies.



Chapter 2

Get into the Zone

Now is the time to consider other aspects of your new sustainable property.

Natural Elements, Sun Angles and Zones

There are elements in nature that must be considered before establishing garden spaces.

These natural elements are also called wild energies (things we can't control) and can have a positive or negative impact on the site. We can work with them to create harmony within our spaces, but they need to be included as part of the planning process.

A few natural elements to consider:

- the sun
- wind
- slope of the land
- animals
- humans (especially kids)
- water
- fire
- seasons
- pollutants (e.g. in air, noise or unattractive views)
- Also consider any easements, neighbouring land or natural water flow.

It's important to know if any of these elements will affect your property and the potential for thriving garden spaces.

A few examples:

- Water from heavy rains running through your backyard
- Unattractive buildings next to your property
- Pets running tracks in your lawn
- Kids jumping over fences to run across lawn areas
- Coastal winds coming onto the front of your property
- Strong summer sun burning down on your back garden space

If any of these are applicable to your property, mark them on your photocopy with coloured markers or pencils. Use arrows, dotted lines or other markings to record the natural elements, and their locations on your property.

Once you determine the natural elements, then plan your garden spaces and planting list around these, to create harmonious spaces and maximize your growing potential.

Zones are used to record the placement of garden elements on your land, according to the most or least used.

- Zone 0 would be your home. The centre of activity and most used living space. Plan from Zone 0, then head out to other areas. *Record Zone 0 on your plan.*
- Zone 1 are the garden elements visited most often, usually many times each day. E.g. the kitchen garden, container plants, compost, chooks, clothesline, shed. These are your gardens most harvested from. *Record Zone 1 areas and elements on your plan.*
- Zone 2 is an area visited once each day. Examples are fruit trees, relaxing/ meditating space, kids' playground. *Record Zone 2 areas and elements on your plan.*
- Zone 3 includes other animals that require larger space, but visited each day, or larger fruit trees and crops that you visit and harvest every few days or weekly. *Record Zone 3 areas and elements on your plan.*
- Zone 4 is for long term projects like farm forestry or food forest. These areas would suit small to large acreage properties. *Record Zone 4 areas and elements on your plan.*
- Zone 5 is for a wildlife corridor, natural bushland or forest, conservation areas or local parklands. Not necessarily on your property, but you may consider accessing them for recreation. *Record Zone 5 areas and elements on your plan.*

Sun Angles or the Aspect of your Garden

All garden areas and homes need sunshine. Good garden planning considers the sunny parts of the garden and also where there is shade and what grows there.

This helps decide where plants will grow, where you can put spaces to relax, and plant trees or grow a lush lawn.

It's important to know where **North is situated in Southern Hemisphere locations,** and **South in Northern Hemisphere locations.** This helps determine where your garden receives the most or least sunlight through the seasons.



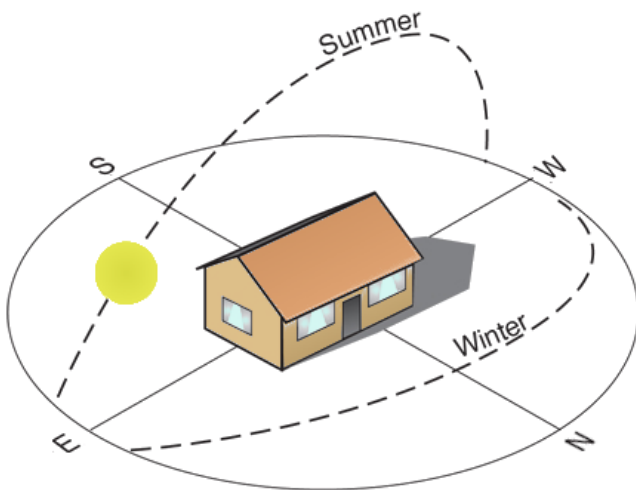
A garden that faces the correct location receives plenty of sun throughout the year.

It's important to know the angles of the sun during summer and winter months to help you determine which part of your garden receives the most sun. Most vegetables, herbs, and fruit trees grow best with more than five hours of full sun each day.

Examples of Sun Paths for Summer and Winter

Southern Hemisphere

The sun is angled towards North in the Winter



Northern Hemisphere

The sun is angled towards South in the Winter

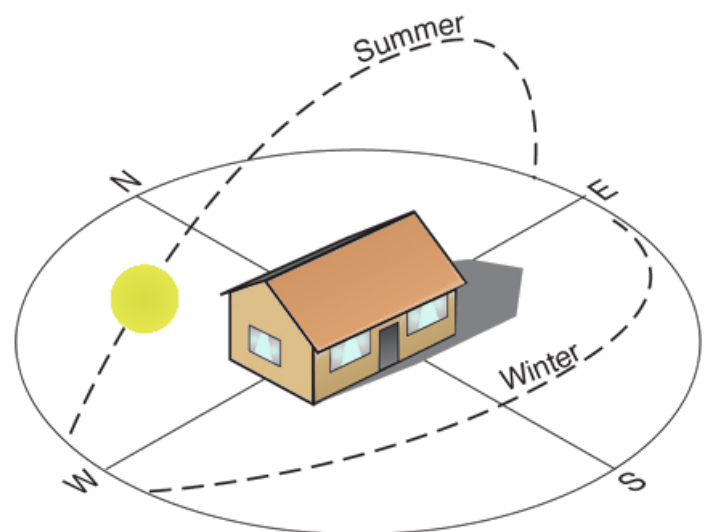


Image courtesy of www.ecowho.com

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Use a compass, (either regular style compass or a smartphone app), to determine the orientation of the garden to the sun's path. Record the sun angles on your plan or vision board using the following steps.

To do this you must:

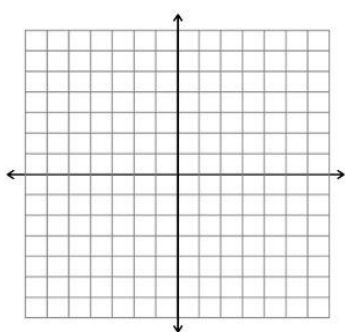
- stand at a marked feature on your plan, i.e. house, fence, driveway
- align the compass with North/South
- transfer this marker to your plan/map by placing the compass on the page and ruling along the line

By marking the sun's angles, you can determine the summer and winter sunshine through your garden. This is an important part of creating your garden space.

You can then determine the best place for your garden to receive winter sun from the North/South and the morning and afternoon sunshine. The shady side of a building or tree will not receive as much winter sun, therefore is not a good location for vegetable gardens.

Now that you've identified your household's needs and new features for your garden, the natural elements, zones and sun angles, you can mark these items on your plans.

Using a pencil, start marking the elements and items on your wish list onto your plan.



Grid paper helps determine location and size of objects and elements, i.e. width of pathways, garden beds, etc.

Rulers and templates help with marking objects and sizes.

Consider the relative location of elements to allow for maximum benefits of all components.

For example: Place the compost near garden and house, water tanks or taps near your home and garden, shade trees on sunny side of house to protect from hot afternoon sun, and containers of herbs close by your kitchen (Zone 1) to harvest.

Chapter 3

Time to Get Your Hands Dirty!

“He who plants a garden, plants happiness.”

- Chinese Proverb -



Once your new garden is planned and you are happy with the layout, you can start creating new garden areas!

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.

An old bathtub is perfect for growing herbs or a salad garden.

One sustainable, simple, and very quick way to establish new garden areas is by a method called Sheet Mulching.

If you have existing areas of lawn or spaces full of weeds being changed to new gardens or pathways, a good solution is **sheet mulching**.

This is a method of covering the lawn or weeds to kill them (instead of using chemicals) and prevent them from growing back.

This is also a good way of re-using newspapers, cardboard, old cotton sheets, or towels.



Simple Methods for Sheet Mulching

- If you are covering a lawn area, it's best to mow it very low before starting. No catcher is required as the clippings will decompose, improve the soil and encourage earthworms. You can sprinkle blood and bone over the cut grass to also improve the soil and assist with decomposing.
- Decide which recycled items you are using to sheet mulch. If using old newspaper, soak it in water first so it doesn't blow away.
- Cover the area with a thick layer of wet newspaper, some cardboard, cotton sheets or towels, making sure you overlap the edges by about three cm. You can use bricks or rocks to hold these items down.
- Cover the area with mulch; either hay, sugar cane, lucerne, or bark mulch, depending on the surface required. This is also a good method for creating pathways in the garden- just reapply mulch as it wears out.
- Line your growing areas with garden edging, brick or logs. Use the no-dig recipe below to fill new garden beds.
- Build new gardens and pathways over this area.
- Establish a compost system and place fencing, chook yard, containers and pots, paving, and any other element from your design.

For more information on using this method visit my Online Gardening Tutorials at www.curious.com/soiltosupper



Creating 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 'ingredients' are placed in layers, similar to making a lasagne, and over time they decompose and create rich, healthy garden soil, or *humus*.

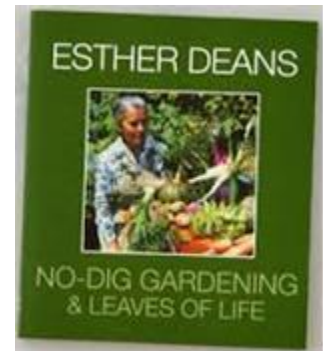
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The no-dig idea was established by a lady from Sydney, Esther Dean, in the 1970's.

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 soil.

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

Esther's garden designs have inspired many people for more than 40 years. The raised bed is a useful design for people in wheelchairs who have restricted movement and for young students, who can practice while the teacher demonstrates the lessons. Since then, her method has been modified, but always using the same principle of building layers of organic matter to create healthy soil.



Here is my suggested 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 clippings
- ✓ green and brown lawn clippings
- ✓ bale of green lucerne
- ✓ brown hay or straw mulch
- ✓ liquid fertiliser

TIP - When using garden products follow manufacturers suggested application rate.

For a small, or low, garden you won't need to use everything listed here.

As with a composting method, always aim for a good balance of these ingredients:

- **Carbon** – brown, dead, old and dry. For example, hay or cane mulch, dry leaves, straw, saw dust, brown grass clippings, compost or mushroom compost.
- **Nitrogen** – green and fresh. For example, fresh food scraps, Lucerne (green), rotted manures, fresh non-invasive weeds, green grass clippings, fresh garden clippings, blood and bone, Comfrey, Pigeon Pea, Arrowroot and other greens.

TIP If you'd like to learn the simple steps to Composting, then follow my method here...www.soiltosupper.com/do-you-know-how-to-compost

Follow these steps layering carbon and nitrogen ingredients to fill your garden bed, making each layer about 5-10 cm.

Remember to water each layer really well as water helps the ingredients to decompose...***If they're dry, they won't break down!***

- Place the garden edging straight over the Sheet Mulching.
- Inside the garden add a layer of old brown garden waste (carbon).
- Spread a layer of compost over the carbon.



- Cover with a 5 cm layer of nitrogen – either garden clippings (finely cut), green lawn clippings or green Lucerne.
- Add a handful of blood and bone, or organic slow release fertiliser pellets.
- Give all layers of ingredients a good soak.
- Add brown mulch, sawdust or another fine carbon layer and water again.
- Add a 5 cm layer of rotted manure – sheep, cow, horse, or chook.

- Add another layer of carbon.
- Add more blood and bone or organic slow release fertiliser pellets.

- Water ingredients again.

- Cover with a layer of compost or mushroom compost.

- Add more blood and bone or organic slow release fertiliser pellets.



- Continue with these layers until the garden bed is full.

- Water well with organic liquid fertiliser.

- Top with a layer of mulch. Always finish with a layer of mulch (carbon).

Wait **at least 3-4 weeks** before planting into your garden bed, as the ingredients will heat up, like a compost heap, which could 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**, i.e. salad greens and herbs. No root crops for about three months or until most of the layers of ingredients have decomposed.

The soil level of the garden beds 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.

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

Chapter 4

How to Revamp that Old Garden Space

Existing gardens can be transformed into highly productive edible or ornamental gardens by taking simple steps.

Before you decide on revamping an existing garden, consider a few of the points from your garden planning. This will determine if the existing garden space is suitable for growing a new garden with items from your wish list.

Follow these steps...

- Remove any old bark or mulch that covers the area and remove any weeds or other plants that you don't want growing. If the plants removed are not invasive, and don't have seed heads, then the stems and leaves can be chopped and dropped onto the soil surface.
- Sprinkle blood and bone, or slow release organic fertiliser to improve soil.
- You can now follow the **no-dig recipe** to build up the height of the garden bed.

If there's not enough room for all the ingredients, make sure you use a layer of nitrogen followed by a layer of carbon, some manures, fertilisers, and compost/mushroom compost. Always water each layer really well and finish with a layer of mulch (carbon).

I suggest waiting about four weeks before planting in the garden.



Chapter 5

Extra Bits and Bobs...

When planning and building your new garden or revamping existing gardens to create thriving new growing areas, there are a few extra things to consider.

Give these some thought...

- ✓ Dream BIG! Include everything that your household would like to have and mark it on your plan.
- ✓ List your short and long term goals. This helps with the planning of larger or more expensive elements, like swimming pools, dams, sheds, or water tanks.
- ✓ Start small. Work in a way that you can manage. Remember how many hours you have to dedicate to your plans
- ✓ Get your partner or the whole family involved. The more helpers you have, the quicker you'll achieve your goals...and the more fun you'll have!
- ✓ Always consider the environment and make sustainable choices. Reduce the use of chemicals and synthetic/non-organic fertilisers and choose natural products for your garden.
- ✓ Monitor your soil and manage it well – “Feed the dirt, not the plants!”
- ✓ Start composting, it's a free resource for your garden – helps with the above point.
- ✓ Set realistic goals...Don't set yourself up for failure.
- ✓ Learn as much as you can, which includes making mistakes, as we all learn from our mistakes.
- ✓ Believe in yourself...YES, you can do this!
- ✓ Enjoy yourself, this must be FUN not a chore...

By starting with a good plan and building healthy soil, you are giving your garden the best start it needs to provide fresh, healthy food throughout the seasons.

For more information on Soil to Supper Products and Services visit www.soiltosupper.com and sign up for the FREE Soil to Supper Club Newsletter. You'll receive a free e-book and video on seed sowing and planting!

Growing with you,

 ***Cath***

About the author

Cath Manuel is an experienced Horticulturist, Consultant, and Educator based in Queensland, Australia.

She has many years' experience in the Gardening, Permaculture and Horticulture Industry and has a passion for growing fresh, organic food and living a sustainable lifestyle.

Cath shares her knowledge and experience worldwide through coaching programs, events, radio, television, and printed publications.



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