

Consumer Guide for Raised Garden Beds

All you need to know about buying, building and cultivating a healthy and productive raised garden bed.



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Contents

How to Avoid 5 Raised Garden Bed Rip-offs	3
4 Costly Misconceptions About Raised Garden Beds	8
8 Common Mistakes in Raised Gardening and How to Avoid Them	12
The Perfect Raised Garden Bed Soil Mix Formula	19
The Importance of Value & Price	21
Why Grow Your Own Food?	23
100% No-Risk Guarantee	25
The Importance of Eating Homegrown Food	26
5 Steps to a healthy, low-maintenance, productive edible garden	28

CHAPTER 1

How to Avoid 5 Raised Garden Bed Rip-offs

RIP-OFF

#1 RAISED GARDEN BEDS MADE FROM TREATED TIMBER

Preservative treated pine is timber that has been impregnated with a chemical solution containing two major components: fungicide and insecticide. This effective and lasting protection enables it to be used in many applications where untreated pine is not suitable, such as pergolas, decks, cladding, post and poles.

CCA (Copper Chrome Arsenic), ACQ (Alkaline Copper Quaternary ammonium compounds), CuAz (Copper Azole), LOSP (Light Organic Solvent Preservative), and PEC (Pigment Emulsified Creosote) are the preservatives commonly used for the pressure treatment of pine timber.

When it comes to raised garden beds, though, **these treatments will leach and contaminate soil**. This not only makes the exercise of organic gardening futile, but can be very dangerous to our health. Despite this, the majority of wooden raised garden beds are made out of treated timber.

If it is unsafe, why is everyone using it? Because we usually trust the advice of people. Hardware store sales assistants, maintenance gardeners, neighbours, friends, say things like,

'This is what everyone buys for raised garden beds',

'Most of the landscapers use it',

'I built a vegie patch with it and I haven't got any problems'.

Don't trust your health to your neighbour's opinion. Become informed.

So, what should we do?

Ask for a Material Safety Data Sheet (MSDS) for these hazardous products that 'everyone is buying'. Merchants, treaters and preservative

manufacturers are legally required by the Australian Safety and Compensation Council (ASCC) to supply MSDS which fully detail any possible hazards related to handling, cutting and disposal of treated timber products. Disclaimers such as:

'This material and its container must be disposed of as hazardous waste',

'Avoid release to the environment',

'May cause cancer by inhalation'

are written on a popular new generation, eco friendly treated pine MSDS. The choice then is ours about whether we feel comfortable using a product with such disclaimers for an edible garden. If the garden bed needs to be considered 'hazardous waste', then you may want to continue searching for a safer alternative.

If you still want to use treated pine for raised gardens or you already have garden beds made out of treated pine, use a material to separate the soil from the timber such as a food grade liner.

RIP-OFF

#2 RAISED GARDEN BEDS MADE FROM RECYCLED PLASTIC

Recycled plastic products are made from a mixture of plastics such as ink cartridges, computers, televisions and car parts. They are a wonderful invention that are doing a lot to reduce landfill and are an environmental option for many building projects.

What can't be guaranteed, however, is whether recycled materials are food grade, as one can never be 100% sure of their previous use and their future stability.

The structure of plastic raised garden beds can release dangerous particles when exposed to water and when heated in the sun. Two chemicals gaining a lot of attention are BPA and phthalates. They are known as 'endocrine disruptors' as they enter the body and behave in similar ways to natural hormones such as estrogen. A multitude of health problems are being attributed to these chemicals, including infertility, obesity, breast cancer, prostate cancer, heart disease and diabetes. Particles from the plastic's original use can be trapped in the holding process and emitted also.

These dangerous particles are unimportant if using recycled plastic products for sandpits, retaining walls and fencing. But if you are building an edible garden, your materials need to be food grade quality. In general avoid plastic, especially recycled plastics.

If you already have plastic and want to hang on to it, use a food grade liner to insulate the soil from the potential of chemicals leaching into your garden bed.

RIP-OFF

#3 RAISED GARDEN BEDS MADE FROM APPLE CRATES

Fruit and vegetable storage bins, such as apple crates, used as vegie patches are a great way to recycle. The wood is untreated so as to store fresh produce, and as such, they are a safe food grade option for an edible garden.

The sad problem with the rustic apple crate is that they are originally designed to be stored indoors. Outdoors, in the elements, they do not last. Rain seeps into the corners of the crates causing the nails to rust and the whole structure bulges and falls apart within 2 or 3 seasons. This is an unfortunate reality of which consumers are not always aware. **It's a short lifespan and a broken crate with spilled soil is a lot of messy effort to remove.**

If you're especially keen on the apple crate look, you can seal the timber inside and out with a marine grade paint, and then use a food grade liner to avoid potential soil contamination.

RIP-OFF

#4 RAISED GARDEN BEDS MADE FROM CORRUGATED IRON

Corrugated iron garden beds evolved from a desire to recycle water tanks. They look great, can be suited to varying heights, widths, and shapes and can be matched with a water tank for outdoor symmetry. They have been a popular choice with gardeners and are widely available.

Aquaplate® is the most common material being used for both corrugated iron water tanks and garden beds. It is outwardly composed of corrugated steel, with a spray-on plastic polymer lining. The plastic lining prevents rust and prolongs the life of the tank.

Unfortunately, there are two problems with corrugated iron garden beds: lack of insulation and soil contamination.

Lack of insulation: Corrugated iron's thermal conductivity means that the heat of the sun transfers directly to the soil, which heats up fast, burning the roots of your plants and baking the delicate organisms within the soil.

Soil contamination: Any plastic which is directly in contact with the water in your soil is worrying. Bisphenol A (BPA), a chemical found in hard plastics, acts as an endocrine disrupter and is a serious health threat. Given the propensity for corrugated iron garden beds to heat up, this significantly increases the contamination issue for an edible garden. The only safe corrugated iron garden beds are the stainless steel variety which are free from polymer linings, however there is still an insulation need.

If you already have a corrugated iron garden bed or plan on purchasing one, it is advisable to provide adequate thermal insulation between steel and your garden bed soil. A food grade liner, is also recommended, to avoid the soil contamination from the plastic lining.

#5 "SPECIAL" VEGIE MIX SOIL

Garden centres make special soil mixes that are specifically prepared for vegetable gardens. They are usually composed of top soil and compost. Conveniently, these soil mixes can be bought by the cubic metre, be delivered, and are an economic (yet disastrous) way to fill a raised garden bed.

For raised vegetable gardens to thrive, the soil needs to retain moisture, drain perfectly and have all the nutrients and trace minerals a plant could ever want.

Unfortunately, specialised vegie mix soil blends are not made with a raised vegetable garden bed in mind.

It is a mistake to buy vegie mix soil blends from garden centres and use them trusting they have everything a raised vegetable garden bed needs. They do not have a suitable compost variety or enough drainage texture, and rarely can the garden centre tell you the pH level of their mix. This eventuates in a vegetable garden that does so-so in the first season, and terribly in the next. The soil compacts and you'll need to test the pH and dig in more nutrients. Of course everything can be fixed with the right ingredients, but it's a lot of work to get the balance right once you have a substandard base line.

Soil may be the most costly part of your raised garden, and it is worth every cent to get a good mix from the start. This way it will perform well and last for a long time. See the Soil Section of this guide for a more in-depth discussion of the properties required in a raised garden bed and suggested ratios to guarantee success.

If you are unhappy with the performance of your raised garden bed, it's probably due to poor quality soil. Unfortunately, it may mean digging it all out and replacing it with a proper raised garden bed soil mix.

CHAPTER 2

4 Costly Misconceptions About Raised Garden Beds

MISCONCEPTION

#1 ANY MATERIAL CAN BE USED TO CONSTRUCT A RAISED GARDEN BED...

Many gardens are constructed using what is at hand, what can be salvaged, what is cheap or recycled. Car tyres, railway sleepers, treated pine, new generation 'eco' treated pine, floorboards, pallets, and corrugated iron water tanks are the most common and most dangerous choices.

Only some materials are suitable for an edible garden. First and foremost, materials need to be up to food grade standards. Materials that fail this test are most likely dangerous. Salvaged materials like old tyres, recycled treated wood or plastics are covered in toxic materials which leach into soil. Car tyres for example contain:

Rubber, Butadiene (carcinogenic), Benzene (carcinogenic), Styrene, Toluene (toxic), Xylene (irritant), Petroleum naphtha, Benzo(a)pyrene (carcinogenic), zinc, chromium, nickel, lead, copper & cadmium.

Fine between the wheel and the road, but hazardous ingredients in your dinner. In the coatings, paints and treatments of countless other common materials sits BPA, Arsenic, Lead, and a hundred more toxic elements that have a costly affect on your health.

Many gardeners are only now coming to terms with the idea of having a food grade vegetable garden. Always ask whether a product is food grade when purchasing from a supplier.

If you already have a raised vegetable garden bed made from something un-food grade, invest in a food grade liner for your next season of vegies.

#2 THE HIGHER IT IS, THE BETTER

Raised garden beds have been the answer to many people's gardening problems: back issues, decreased mobility, soil issues, and space utilisation. But most of all, raised garden beds have made gardening more comfortable by raising the soil to meet the gardener. Many gardeners are under the misconception that the higher their raised garden bed is, the better. Tall raised garden beds come with a variety of issues to consider.

The aim with comfortable gardening is to eliminate as much bending as possible in all actions: sowing, planting, weeding, digging, mulching, harvesting. Higher raised garden beds do not achieve all of these and pose other problems such as drainage issues and discomfort while digging. Also, calculating the perfect height can be tricky in a household with members of varying heights. So, how do we achieve a perfect height considering all of these issues?

Let's consider that a dining table is usually 850-950mm high. If you want a comfortable gardening experience for your back, a raised garden bed needs to be at least 900mm high if not more. In fact, the ultimate in comfortable gardening would be to have a raised garden bed at chest height. But this option comes with potential drainage issues, shorter family members being cut out of the gardening fun, difficulties in digging, and depending on the crop, the problem of reaching the fruit of the plants.

Now let's consider that a dining chair is 450-500mm high. Alternatively, comfortable gardening can take place from a seated position. Garden beds can be at 450-500mm of height with a stool, chair, or wide edging to sit on. All crops are at reach, drainage is maximised, digging is easy, and all members of the family are catered for in height.

Acknowledging all of the issues of height, the best option in terms of comfortable gardening, is to factor in a chair, stool, or wide edging to sit on and keep to a maximum of 450-500mm.

MISCONCEPTION

#3 THE BIGGER THE BETTER

Large, thriving vegetable gardens are an enviable sight. They signal abundance, health, and homeliness.

It is understandable then that raised garden beds are often made too big. If a garden bed is built too wide the gardener won't be able to reach her produce, resulting in standing on the garden itself. Standing on the garden compacts the soil creating an unhealthy anaerobic environment for the roots of the plants as well as deeper drainage problems.

Ideally, aim to build many garden beds vs one big garden bed. If you already have a large raised garden bed with this issue, position a plank across the garden that rests on the edges of the bed. This way you can walk across without touching, and compacting, the soil.

MISCONCEPTION

#4 NO-DIG GARDENS ARE MAINTENANCE FREE

The No Dig garden method enables the gardener to create wonderful blended compost in a raised garden bed. Using a layering method like making a lasagne, layers of organic material such as newspaper, lucern hay, manure, and straw are built up on top of one another to fill the raised garden bed. The topmost zone should consist of a thick layer of compost so that seedlings can be planted straight into the garden without waiting for the other layers to compost. Over the growing season, the layers compost down to create a rich, complex soil perfect for growing vegetables.

A common misconception with the No Dig garden method, however, is that it is maintenance free. At the end of a growing season No Dig gardens will have composted all of the organic ingredients of the lasagne layers, and you will find that the soil level has dropped considerably leaving your raised garden bed very empty. Not a problem if you are aware that you will need to re-layer your garden every season, but certainly not maintenance free, as the name may imply. Another point to consider when planning a No Dig garden is to plant perennial plants (lasting

all year) in another garden bed. Due to the considerable drop in soil, a perennial plant will be sitting on the bottom of the garden bed and will need to be transplanted in order to re-layer the lasagne.

CHAPTER 3

8 Common Mistakes in Raised Gardening and How to Avoid Them

MISTAKE

#1 HEIGHTS OF RAISED GARDEN BEDS

The beauty of the raised garden bed is that it can be built any height you like, making gardening ergonomic, comfortable, and accessible. The mistakes that are most commonly made are more to do with the depth of soil required, than height requirements. Plants require at least 300mm of growing medium for proper development. More or less, and there are problems.

One common mistake is to build a raised garden bed over 300mm high and fill it entirely with soil, resulting in soil compaction and drainage issues. To avoid this problem, simply reserve the bottom section of the garden bed for a drainage medium, and use just the top 300mm of soil to grow your plants.

Another common height mistake is to build a raised garden bed too low. Plants need at least 300mm of medium for proper development. To avoid this problem, add height to your existing garden with food grade materials.

MISTAKE

#2 WIDTHS OF RAISED GARDEN BEDS

Everyone loves to see sprawling vegetable gardens that are full of leafy greens, climbing beans, juicy tomatoes. Of course we want enormous gardens. But built too wide, and a raised garden bed becomes a wilderness that we have to actually get into in order to harvest our food.

The mistake here is to stand on the soil. If our raised garden bed is wider than what we can reach with our arms, it is too wide. Standing on an oversized raised garden bed, to reach our produce, compresses the soil which in turn creates an anaerobic environment and drainage issues.

A safe measurement is 1200mm in width. If you already have a raised garden bed that is too wide, rest a plank on the edges of the bed so that it stretches across the garden. You can then use the plank to walk across the raised garden bed without standing on the soil.

MISTAKE

#3 POSITIONING

It can be tricky to place a raised vegetable garden bed when you come to build one. Where in your yard do you get enough sun? And how much is enough? Is the light different in Summer and Winter? How do you choose the best spot?

It is a common gardening mistake to place a garden bed in a spot that does not receive the required amount of light. Edible plants need no more than five hours of direct Australian Summer sun. Anything more than this will burn plants. In Winter they need at least 5 hours of direct sun. Anything less than this and plants will struggle. Different seasons produce different degrees of light and shadow depending on the height of the sun. Depending on the orientation of your yard, you will receive more or less sun too e.g. North facing yards will receive more sunlight in all Seasons.

Before building a raised garden bed, spend some time working out which spots in your yard actually get the necessary sun throughout the day and seasons. In some cases it may be the front yard. If you have to choose

between full sun and shade, choose the sunny spot and create shade. If possible, select a part of the garden facing north to north-east to catch the morning sun. Or, think laterally and place wheels on your raised vegetable garden bed and move it as necessary.

MISTAKE

#4 NON FOOD GRADE MATERIAL

Many raised garden beds are built using what is at hand, what can be salvaged, what is cheap or recycled. This in itself is not a costly mistake. Car tyres, railway sleepers, treated pine, new generation 'eco' treated pine, floorboards, pallets, and corrugated iron water tanks are the most common and most dangerous choices, however, if mistakenly built without the appropriate food grade lining.

Only some materials are suitable for an edible garden. First and foremost, materials need to be up to food grade standards. Materials that fail this test are most likely dangerous. Salvaged materials like old tyres, recycled wood or plastics are covered in toxic materials which leach into soil. These dangerous toxins are unimportant if using un-food grade material for sandpits, retaining walls and fencing. But if you are building an edible garden, your materials need to be food grade quality.

If unsure of the food grade standard of your already existing raised garden bed, invest in a food grade liner to protect your vegetables from leaching toxins. If you are yet to build your raised garden bed, ask suppliers about the food grade standards of their products.

#5 PLANTING

A very important factor when growing vegetables in raised garden beds, is to know their requirements for cold and warmth. Most vegetables are disappointing if planted out of season. Different vegetable types also require different amounts of space to ensure healthy growth and a good crop. Compatibility of plants is also a consideration when planting a variety of vegetables.

Common seasonal planting mistakes can happen easily in Australia if we are not savvy to the different climates and seasons. The best months for planting each kind of vegetable depends on the climate zone of your garden; tropical/subtropical, temperate, and cold. Seasonally, vegetables will have a window of planting and harvesting time which, especially in the cold zone, closes once the temperature rises or falls. Climbing beans, for example, can be planted in the Tropical/Subtropical zone almost all year. In the Cold zone however, there is a relatively short window of October, November and December. Planted outside of this window and climbing beans won't do well at all.

Spacing mistakes are also easy to make, especially as there are so many opinions on how to achieve the best yield from your garden. Crowding plants too tightly will mean that some plants won't reach their full size or yield. An important point is that weight yield, per square foot, is more important than the number of plants per square foot. For example, a spacing increase of 20cm to 25 cms between lettuces can double the weight yield per plant. Overly crowded spacing can also strain plants, making them more prone to diseases and insect attack.

Accidentally planting antagonistic vegetables is a common mistake. Allelopathy is the scientific term given to companion planting. While some plants grow better, stronger, and yield more fruit when they are planted next to a good neighbour, bad neighbours do the opposite. All of the benefits such as natural pest control, pollination, and providing habitats for beneficial creatures that thoughtful companion planting can provide is lost without careful consideration of who likes who. Bad neighbour combinations, such as tomatoes with potatoes, and beans with beetroot produce marble-like fruit and weak plants. Some good neighbouring companions include: tomatoes, basil and onions; lettuces and peas; carrots, onions and radishes; and beetroot and celery.

For raised garden bed planting success, plant according to the climate zone of your garden and check on the seasonal windows for all of your vegetable plants. Space your plants so that they have enough room to thrive, and find out which companion plants will neighbour well.

MISTAKE

#6 FAILURE TO REPLENISH SOIL NUTRIENTS

After a successful growing season it is a common mistake not to replenish the stores of nutrients in soil. Once a season is finished and crops have been harvested, the balance of Nitrogen, Phosphorus, Potassium, (NPK) and trace elements in the soil will be out of balance. Failure to replenish soil results in successive growing seasons not yielding the same high standards of the first due to plants lacking these key minerals and substances.

Organic fertilisers and organic composts should be added to help re-establish the balance of NPK and trace elements to give your plants the best chance at thriving in the next season.

MISTAKE

#7 WATERING

Raised garden beds dry out faster than traditional garden beds. With the appropriate soil ingredients and correct soil height, your raised garden bed should drain effectively. It is a common mistake, however, to forget that raised garden beds are a contained microsystem that will need more watering attention than traditional garden beds. Without a plan, your raised garden bed will dry out quickly and your plants will suffer.

An irrigation system will provide adequate watering results. But even better are sub irrigation wicking systems – these feed water up from the bottom of the garden bed, meaning nutrients are not washed away from the surface and plants take only as much as they need. These systems can reduce the frequency of watering down to a little as once every few weeks, even through January and February and are easily installed in raised garden beds.

MISTAKE

#8 MULCHING WITH SUGAR CANE MULCH, PEA STRAW AND LUCERNE

Every garden bed needs mulch. The function of mulch is to reduce the amount of evaporation from the top soil, and screen for weeds.

Using sugar cane mulch, pea straw and lucern are the most popular choices, yet they carry a problem that is not usually considered. They do not reduce top soil evaporation, they increase it.

Being fibrous material, sugar cane mulch, pea straw and lucern absorb water. Once they have dried out from the liberal watering required above, they will bring the water up from below to be evaporated in the topsoil. Instead of performing the function of keeping the garden moist, they behave as evaporative facilitators drying out the garden.

Use a coarse texture mulch instead. Coarse pine bark is a good choice.

CHAPTER 4

The Perfect Raised Garden Bed Soil Mix Formula

Raised garden beds were originally designed for conditions where there is poor garden performance due to a high level of precipitation. By elevating the garden bed water drainage was increased which dramatically improved growing potential. This means that they're perfect for wet seasons, but will dry out fast during the relatively rainless months. Accordingly, raised garden beds require a soil mix that performs well in both wet and dry seasons; one that drains well and retains moisture. Finding this balance is important, and worthwhile getting right the first time to avoid digging it out and doing it all again. A combination of sandy loam, premium organic potting mix, and blended organic compost has proven to be a blend that yields excellent raised garden bed crops.

Soil is generally described by textures. Sandy loam soil is a textural mixture of sand, silt and clay. It does not clump and as such has high drainage properties and is excellent as a base line for growing vegetables in a raised garden bed.

Since a plant in a raised garden bed does not have the luxury of spreading their roots into other areas of the garden to find water and nutrients, everything it needs has to be contained in the raised garden bed. Premium organic potting mix is made from organic materials and contains living organisms, including bacteria and fungi, as well as minerals and fertilisers. Premium organic potting mixes should also have a neutral pH level of 6.5 - 7 which is essential if you want high yielding, nutrient dense vegetables.

Blended organic compost contains a balance of nutrients ideal for growing vegetables within a friable texture. A combination of composts is much better than just one or two, and most high quality blended composts should also have a neutral pH level of 7. The best compost is home made from kitchen scraps and green waste due to the variety of ingredients.

A raised vegetable garden bed needs a soil mix that will perform well and last for a long time. This formula, at a volume ratio of 40% sandy loam, 40% premium organic potting mix, and 20% blended organic compost, will retain moisture, drain perfectly and have all the nutrients and trace minerals your plants need.

As most soil ingredients are sold by the litre, an example of quantities is as such:

*1 m x 1 m raised garden bed
300mm in height
=
120 litres of premium organic potting mix
120 litres of sandy loam soil
60 litres of blended compost*

Remember to top up your raised garden bed after each growing season and you will have a raised vegetable garden bed that performs well for many many seasons.

CHAPTER 5

The Importance of Value & Price

The consumer market of raised garden beds is growing. More and more people are wanting to grow their own vegetables in attractive and economical garden beds, and more and more businesses are producing raised garden beds. But how can you tell if you are getting ripped off or buying a quality product?

In the past, people have looked for the cheapest possible option for constructing a raised garden bed. They have felt a need for a return on their investment:

“how many zucchinis will I need to grow in order to justify the cost of this garden bed?”

Interestingly, the same concern is not there for landscaping, however a raised vegetable garden bed can be just as beautiful as a flower bed. The kitchen garden is also where we spend the most our gardening time and where we (smugly) take our guests to show off. We all want our hard efforts to be displayed in well made, aesthetically pleasing garden beds. But the cheapest initial option is not always cheap in the long run.

Two such examples are corrugated iron raised garden beds and apple crates. Both of these raised garden beds look great and are economical ways to start a raised vegetable garden.

Corrugated iron garden beds, however, need thermal insulation to prevent heat damage to the soil. Food grade liners are also recommended to avoid the leaching of chemicals into the soil. Initially an economical investment, but one with costly hidden needs.

Apple crates are very economical and are food grade quality which is perfect for growing an edible garden. The problem here is that the untreated timber of an apple crate will not survive long outdoors. After a few seasons the corners of the crates bulge and break apart, spilling soil

and plants into your yard; a big messy job to remove. Both initially cheap options that will cost a lot further down the line.

The wisest investment is to build or buy a quality raised garden bed that is aesthetically pleasing, which is food grade quality, that will last for decades.

Initially they will cost more than cheaper materials. But they will last. They will be safe. They don't have any hidden costs. They won't need to be replaced, and in the long run they are actually the cheaper option. Australian native Cypress and any other hardwood raised garden beds are an excellent example of quality products that will last.

CHAPTER 6

Why Grow Your Own Food?

People are shifting to home grown organic produce in droves. One of the reasons is a growing understanding of the hazards posed by non-organic agriculture. The list of pesticides, polluting chemicals, steroids, hormones and genetic manipulations used in the production of most supermarket food is enough to turn anyone off their vegies. You might feel slightly sickened about the sheer fact that it's all so unnatural, but there are also big consequences to non-organic farming. It poses some serious risks – to our health, and our environment.

HEALTH HAZARDS

Broad-spectrum pesticides and insecticides, in particular organophosphates, are not only neurotoxins to insects but humans as well. Food Standards Australian New Zealand (FSANZ) sets the maximum allowed limits for agricultural chemical residues present in foods, however there is an ever increasing number of neurological health issues appearing that can be attributed to pesticide/insecticide exposure. Subtle symptoms like memory loss, loss of coordination, altered or uncontrollable mood and general behaviour are common complaints that may not be recognised by the medical community as a clinical effect. More serious health concerns such as asthma, allergies, hypersensitivity, cancer, hormone disruption, and problems with reproduction and foetal development are being linked to Genetically Engineered (GE) fruit and vegetables. There is evidence linking atrazine, a common weed-killer, to increased infertility and miscarriage rates. The list goes on.

There are fruits and vegetables that have a lower chemical levels, but even after washing, peeling, and cooking, much of the produce bought in supermarkets will still retain levels of pesticide. Children are more vulnerable and at a greater risk of pesticide exposure due to their small size. Relative to their size, children eat, drink, and breathe more than

adults, and their bodies and organs are growing rapidly which increases the vulnerability.

ENVIRONMENTAL HAZARDS

Behind every non-organic apple and carrot on the supermarket shelf is a multitude of needless destruction and ethical dilemmas. For instance, the widespread use of super-charged pesticides has created all manner of problems. For one thing, they kill indiscriminately. Along with the targeted pest, the poison sprayed on crops kills everything else that comes into the vicinity, including species that act as a natural pest-control. This is creating gaping holes in the local ecology and disrupting the natural balance, often creating new and entirely unexpected pest problems as a side-effect.

Genetically modified crops, however, are the greatest environmental threat. Genetically modified (GM), or genetically modified organisms (GMOs) are plants with altered DNA in order to reduce disease in crops leading to larger quantities at less cost. GMOs, though, are disrupting the ecosystem by damaging vulnerable wild plant and animal populations with plants that are insect resistant, disease resistant and often sterile. They are inevitably increasing chemical inputs over long term by encouraging insect resistance and the creation of new, more toxic, pesticide products. GMOs can be toxic, allergenic and less nutritious than their natural counterparts, and once released, GMOs can not be recalled from the environment. They are infiltrating plant and wildlife biodiversity with detrimental affects.

Only by supplementing our diets by buying, growing and eating organic food can we avoid the concoction of chemicals and genetic engineering present in commercially grown food.

Home grown and locally sourced organic produce is taking a small ethical stance against the environmental problems of pesticides, insecticides and genetically engineered produce.

CHAPTER 7

100% No-Risk Guarantee

The sure way to avoid rip-offs and hidden costs when purchasing a raised garden bed is to ask for a guarantee. A business may say their products do not leach chemicals into the soil of your garden bed, but will they guarantee their materials are food grade? This question will sort the rip-offs from the quality suppliers.

In particular, ask suppliers:

How long will you guarantee your product will last?

Will you guarantee your materials up to food grade standards?

CHAPTER 8

The Importance of Eating Homegrown Food

Whether you choose to source all organic produce, supplement your diet, or grow your own chemically free food, eating organic foods are a smart priority.

Choosing organic food, free from harmful chemicals, full of more nutrition, flavour and environmental sustainability, is a conscious choice for personal and environmental health.

HEALTH BENEFITS

First off, switching from non-organic supermarket produce to homegrown organics, even if it's just a partial switch, purges all kinds of chemicals from your diet. There are risks posed by trace elements of pesticides – links to cancer, autism, infertility and a hundred other problems. But it goes further than this. Organically grown food is also more nutritious; it has more nutrients - vitamins, minerals, enzymes, and micronutrients - compared to commercially grown food due to the sustainable practices employed to manage and nourish the soil. In a comprehensive survey conducted by The Journal of Alternative and Complementary Medicine about the nutritional content of organically grown food, it was concluded that there are significantly more nutrients in organic food compared to commercially grown food. The study shows that five servings of organically grown vegetables met the recommended daily intake of Vitamin C compared to the same commercially grown vegetables which did not. On the whole, organic food contains 21.1% more iron, 27% more vitamin C, 29.3% more magnesium, and 13.6% more phosphorous. When grown in well balanced and nourished soil plants are also healthier and stronger, producing better tasting fruit and vegetables. So, it's healthier and more delicious to eat home grown organic produce.

ENVIRONMENTAL BENEFITS

Growing organic food from home will do the planet a favour. Most of the commercially grown fruit and vegetables available at the supermarket have travelled hundreds or thousands of kilometres. Carbon emissions from refrigerated transport contribute significantly to climate change. Add this to the fossil fuels and poison sprays used in the agricultural system and the impact is enormous. By growing food at home, you'll actually be restoring and enriching the environment. As your vegetable garden grows and matures, it will attract insects, bees, birds and other critters. The local biodiversity will grow, helping to make the environment more resilient. The longer you grow, the more your garden will produce, thanks to all the ecological synergies and positive feedbacks that will emerge. And all that will flow on to the gardens of your neighbours, your street, your suburb.

THE WARM & FUZZY BIT

There's also the less tangible thing that you'll get from homegrown food, something impossible to find any other way: meaning. Knowing and caring for food from seed to plate expands and deepens our relationship with our food. It brings a satisfaction and a newfound appreciation for good, nourishing, flavourful food. Your produce will mean something to you, you'll savour it more, think about it more, enjoy it more. Food is such a big part of every day, doing something to make it better, more enjoyable, more meaningful – that's the kind of thing that changes your whole quality of life.

CHAPTER 9

5 Steps to a healthy, low-maintenance, productive edible garden

STEP #1 SELECT THE RIGHT WIDTH & HEIGHT

Make sure you can reach the middle of your garden bed without having to climb into it – this will prevent compression of the soil, which can ruin soil-structure and affect drainage. Generally anything under 1200mm wide will be ok. Also ensure that garden beds utilise only 300mm of soil. Fill the bottom of the garden bed with a drainage medium or sub irrigation wicking system.

STEP #2 SELECT THE RIGHT SPOT

Make sure you find a spot in the garden with the right amount of sun and shade for the kinds of plants you're hoping to grow. Check the directional positioning of your garden and think about the availability of the sun during the cooler months. Fruiting plants will want 5 hours of sun each day.

STEP #3 SELECT THE RIGHT MATERIALS

Food grade, long-life, untreated timbers are best when it comes to raised garden beds. If you can, try to avoid plastics, corrugated iron, treated timbers or recycled or salvaged materials – all of these come with risks of contamination. If you are already using these materials, ensure a food grade liner is used to keep plants protected from contaminants.

STEP
#4 FILL IT WITH THE RIGHT SOIL

Raised garden beds require a soil that drains well and retains moisture. A blend of Premium Organic Potting Mix, Sandy Loam and Blended Compost will work best.

STEP
#5 HAVE A WATERING PLAN

Raised garden beds dry out faster than traditional garden beds. A sub irrigation wicking systems is the best option for ensuring the success of your raised garden bed.