

The Secrets of Growing Superfood

Cutting-edge strategies to produce nutrient-dense food with forgotten flavours, and enhanced medicinal qualities

By Graeme Sait

Nurturing Your Patch

- Taking care of your **own patch** of the planet – your garden, can be your greatest personal contribution to the **climate change** challenge.
- Producing your own flavoursome, chemical-free, **nutrient- dense** food in your home garden, can also be your ultimate **wellness tool**.
- Apart from the production of **medicinal food**, the home garden is now recognised as a primary stress reducing tool. In fact, the smell of a healthy soil boosts **serotonin**.



Problems with Supermarket Food

Sourcing fresh food from supermarkets has some issues, including:

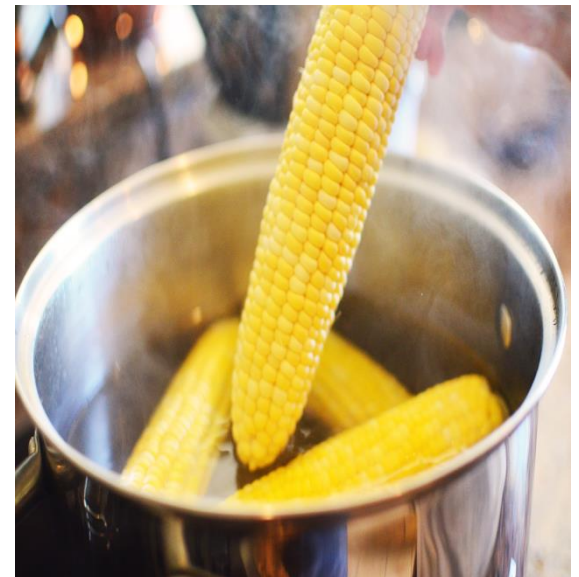
1. The bundling of food from **faceless suppliers** breeds less responsibility or motivation to produce clean quality food.
2. The rise and rise of **farmers markets** and vegetable boxes relates to consumer desire to put a '**face to their food**'
3. I regularly meet vegetable growers who will not **eat their own produce**. They have a separate patch out the back to produce food for their family.
4. Food miles and logistics means food is picked **unripe** and ripened in storage, resulting in less vitamins, antioxidants and **flavour**.



The Secrets of Growing Superfood

1. Harvest immediately before consumption

- Your home garden allows the opportunity for **champagne food**, picked immediately before it is eaten.
- There is a tremendous, unrecognised **loss of nutrition** associated with storage of food
- A snow pea for example loses **50%** of it's vitamin C within 12 hours of harvest.
- Sweet corn loses **40%** within the first 30 minutes
- Never pick food from your garden and store it in the fridge or you've missed one of the major benefits of the garden as a **wellness tool**.



2. Interplant Lucerne with Everything

Lucerne offer 6 distinct benefits:

- They fix **nitrogen** from the atmosphere
- They release acid exudates to break the bond between **calcium** and **phosphate** in your soil
- The acid exudates also encourage **beneficial fungi** to create a highly desirable crumb structure
- The leaves can be harvested as a **highly alkalising**, nutrient-dense addition to salads or green smoothies.
- The **edible flowers** are a sweet delicacy to die for.
- The chop and drop potential provides the best known **fertilising mulch**, attracting both protozoa and earthworms.



3. Use Worm Juice Liberally

- The liquid passed through a worm farm contains **billions of beneficial organisms** that are unique to the earth worm.
- These organisms stimulate plant growth and provide **protection** from disease
- It can be foliar sprayed or applied to the soil and should always be combined with some **nutrition**.
- A DIY worm farm can be made from a **1000 L shuttle** for as little as \$200. This can produce luxury amounts of both worm juice and **vermi-compost** (the very best compost known).



4. Seven reasons to bring back your Earthworms

1. Earthworms are **fertiliser machines**.
Vermicast contains 7 times more phosphorus, 10 times more potassium, 5 times more nitrogen, 3 times more magnesium and 1.5 times more calcium than the surrounding soil.
2. They will seriously increase the **infiltration** and **water holding** capacity of your soil.
3. If you could consistently find 25 earthworms per shovelful of your soil they would be contributing **300 tonnes** of castings per year.



4. Seven reasons to bring back your Earthworms

4. Earthworms are a **limeworks** – they have a calciferous gland, which adds calcium carbonate to everything.
5. Earthworms **transport minerals** from deep in the soil up to the root zone.
6. Earthworms **compost 4 times faster** than normal composting.
7. Earthworms **incubate bacteria** that are invaluable in the soil and only found in earthworms.



Reclaiming Earthworms

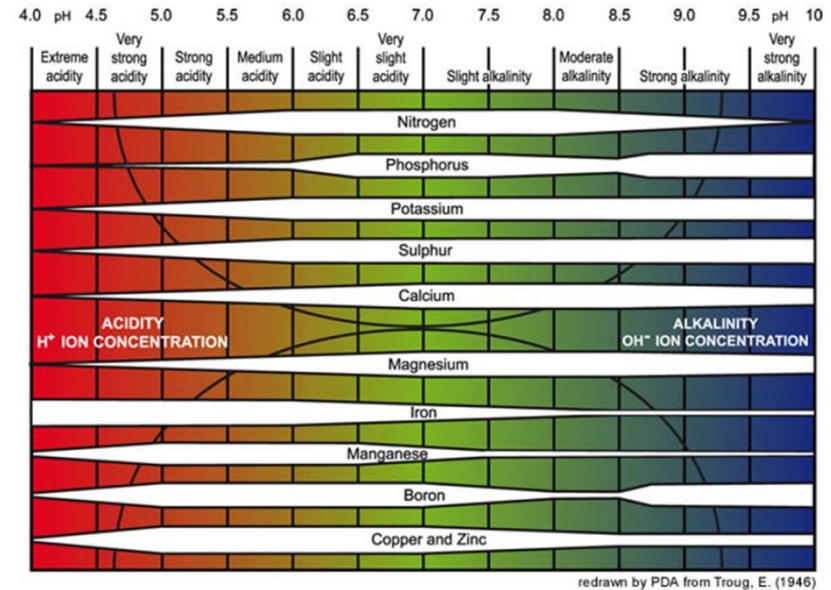


- The key to restoring protozoa numbers and reclaiming earthworms and nitrogen recycling is to make a **lucerne tea**.
- Lucerne that is organic or free from chemicals harbours huge numbers of **protozoa**.
- The lucerne is placed in a shade cloth, drawstring bag and ‘**brewed**’ for 24 hours with a food source.
- We have seen significant reductions in **N requirements** following applications of lucerne tea.

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5. Correct your soil pH

- Nutrient uptake is **pH dependant**.
- An ideal soil pH is **6.4**, which ensures you are accessing maximum nutrition from your fresh food.
- You can test your soil pH with an **inexpensive kit** from a hardware store.
- Correction might involve **limestone** on a heavier soil, or a combination of lime and **dolomite** in sandy soil.
- **Gypsum** or sulphur might be required to help reduce soil pH if the soil is too **alkaline**.
- **Calcium** is the single most important mineral flocculating the soil, to allow **oxygen** entry and CO2 exit.



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6. Direct inject your nutrition

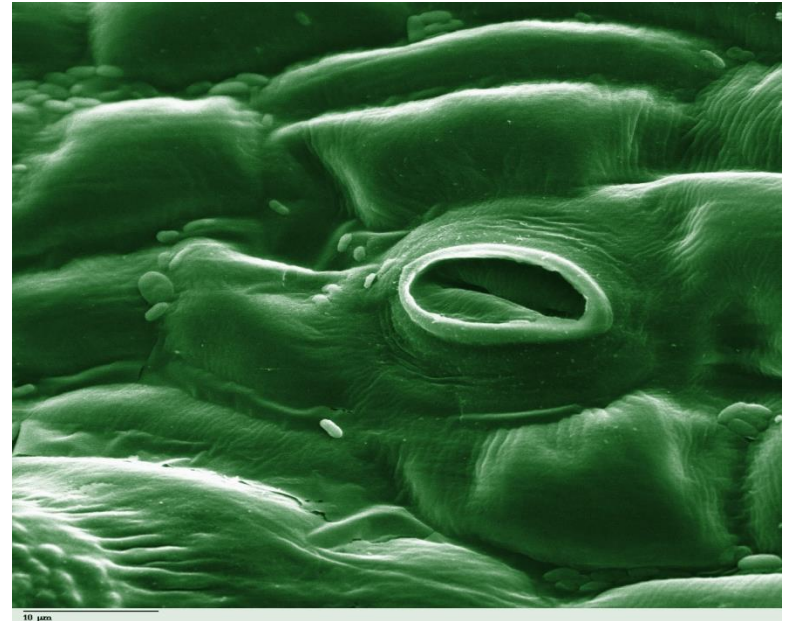
- No mineral is an island and it is very common for **excesses** in the home garden to limit the uptake of several other minerals. **Phosphate** from chicken manure is a good example.
- **Excess P** shuts down calcium, potassium, zinc, iron and copper. Three of these minerals are key players in resilience.
- **Foliar fertilising** is **12 times** more efficient than mineral delivery via the soil.
- The foliar route is a **direct injection** of nutrition, not limited by mineral dynamics in the soil.



6. Direct inject your nutrition

There are several key tips to successful foliar fertilising including:

- Always direct the spray on the **underside** of the leaf.
- Don't spray in the middle of the day. **Early morning** or evening are better.
- **Calcium** is particularly important as foliar because this mineral is poorly translocated (Life Force Trio).
- Broad spectrum **trace minerals** (Life Force Total Cover) are also important as they fuel plant immunity and impact flavour.



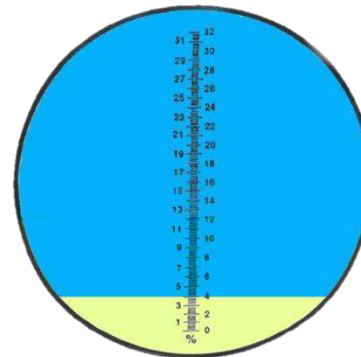
7. Measure for Mastery

It is important to avoid driving blind when producing high quality food. There are several simple monitoring tools that ensure some precision in our nutrition.

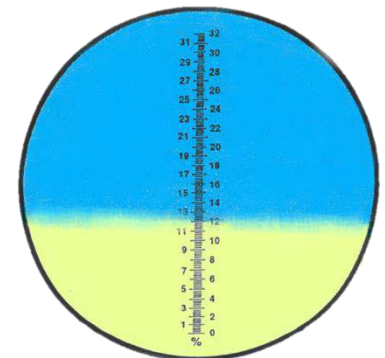
- The **refractometer**- this simple tool measures food quality. The higher the brix level, the more flavoursome the food, the greater the **medicinal value**, the longer the shelf life and the more problem-free the gardening experience.
- The refractometer can also be used as a meter to monitor the most important of all **minerals** - calcium.



Poor Calcium



Good Calcium



7. Measure for Mastery

Sap pH as a problem solver.

- American scientist, **Bruce Tainio**, discovered the pH of plant sap is an invaluable guideline as to crop quality, resilience and productivity.
- There are specialist meters for agriculture, but the home gardener can still benefit with the use of **simple pH strips**.
- Simply squeeze some sap from the leaf with a garlic crusher and place a few drops onto the **NTS pH strip**. A healthy disease resistant plant has a sap pH of **6.4**
- You can use these same strips to monitor your own **acid/alkaline** balance with urine or saliva (6.4 is also your ideal).



8. Organic Matter Matters

- **Humus** is the essence of soil health.
- This sweet smelling soil chocolate is created by microorganisms and serves as their **home base** and **support** system.
- Humus is the **storage** and **delivery** system for all minerals
- It also houses a suite of microbial exudates that help create **disease suppressive** soils.
- The higher the humus levels, the greater the **nutrient-density** and **medicinal value**, the less the need for stressful pest management and the greater your **gardening pleasure**.



8. Organic Matter Matters

Compost, compost, compost!

- Compost is cornerstone of **gardening vitality**
- Every home needs a compost bin/ pile and a **vermi-compost** station
- Compost is a profound source of biodiversity with over **30,000** different creatures within the 5 billion good organisms found in a teaspoon of good compost.
- Compost is both an invaluable source of **stable humus** and a **triggering** mechanism to reclaim the humus building potential of your garden.



8. Organic Matter Matters

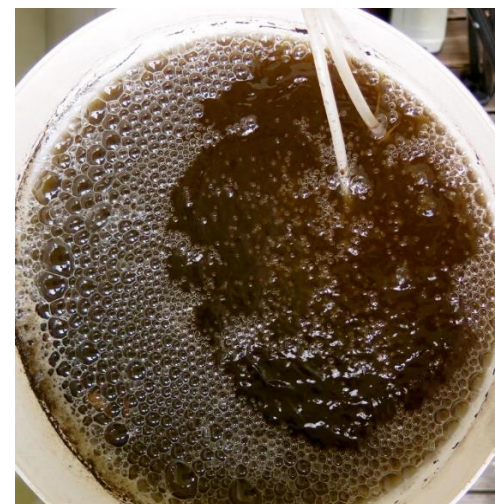
Building a compost heap

- Build your pile in **25 cm** layers
- Alternate **carbon** layers (straw, council mulch, prunings, autumn leaves etc.) with **nitrogen** layers (manure, lawn clippings, green waste etc.)
- Sprinkle **lime**, soft rock phosphate, crusher dust, and previous compost (which serves as a starter) on each layer.
- Thoroughly **wet down** each level as you build your layer cake
- When the pile is complete, cover with **wet sacks**, or an old carpet, and turn it several times over the next **3 months**.



Life Force Carbon™ - The Exciting New Humus Builder

- **Life Force Carbon™** is a dynamic new compost from NTS, based upon composted humates.
- This carbon-dense, microbe rich, natural fertiliser, is a perfect tool to revitalise your garden or as an ideal base for a productive **compost tea**. The benefits include:
 1. Life Force Carbon™ provides **stable carbon** which will last for up to 35 years in your soil.
 2. It will boost **microbial diversity** particularly in relation to beneficial fungi.
 3. The minerals present in this special compost are **complexed** and **stable**.
 4. Life Force Carbon™ supplies a rich load of both **humic** and **fulvic** acid.



8. Organic Matter Matters

Building a disease suppressive compost

- **Trichoderma** are an amazing multi-purpose species
- They control over **30 diseases**, they create humus, they solubilise phosphorus, they produce root growth hormones and bio-chemicals that **stimulate plant immunity**
- A trichoderma-based compost can be produced in just **4 weeks**.
- It can then be placed around plants to generate a tremendous response, or it can be used as an inoculum for a trichoderma **compost tea**, to manage many diseases.



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8. Organic Matter Matters

Building a disease suppressive compost

- Create a DIY **composting frame** by attaching 1 metre high chicken wire to four star pickets
- Mix together equal amounts of **straw** and **cow manure** and add the mixture into the wire bin at 25cm layers
- **Wet down** each layer with a watering can containing diluted trichoderma inoculum (Nutri-Life **Tricho-Shield**) at the rate of 1 watering can per layer.
- It will take 4 layers to fill your bin. The Tricho-Shield concentrate is included at the rate of **two heaped tablespoons** per watering can.
- There is no turning involved and at the end of 4 weeks you have created a powerful **disease suppressive compost**.



8. Organic Matter Matters

BAM Composting

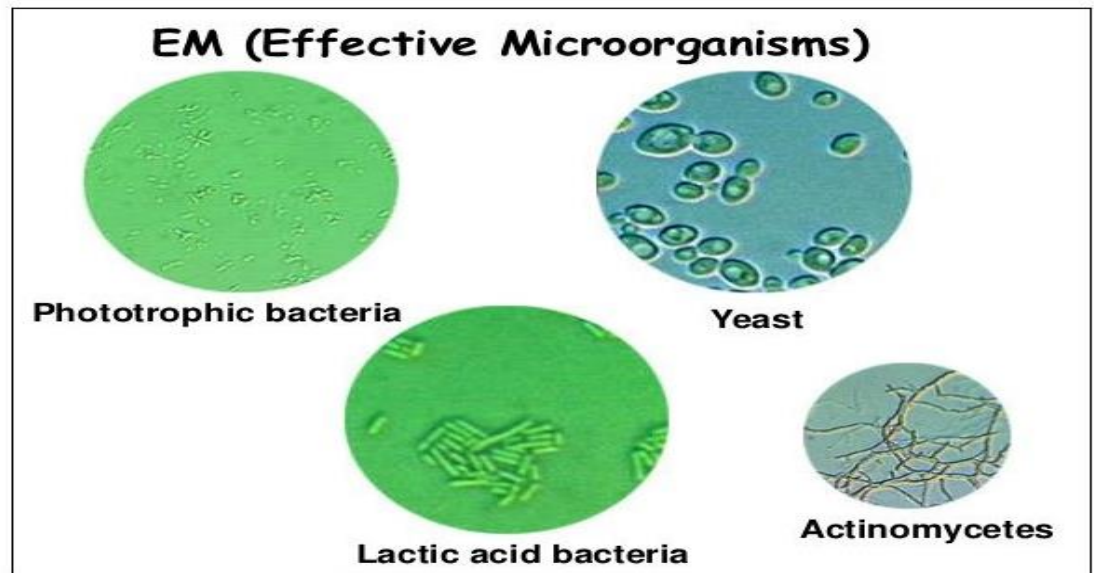
- Anaerobic bacteria are often **undesirable**, opportunistic pests behind garden disease.
- However, there is another group of anaerobes that are **immensely valuable**.
- They can protect from disease, while creating humus, **stimulating plant growth**, delivering minerals and improving soil structure.
- BAM composting delivers a beautiful product in just **8 weeks** with a much higher conversion rate.



Microbial Inoculums – Boosting the Beneficials

Beneficial Anaerobes

- Professor **Teruo Higa** recognised the profound importance of the anaerobic side of soil life.
- He developed a product call **EM** which has transformed much of Asian agriculture.
- The NTS product, **BAM™**, is based upon the original EM formula with some new inclusions.
- BAM™ contains over **80 different microbe varieties** including lactobacillus, purple non-sulphur bacteria (pnsb), fermenting fungi, yeast, and actinomycetes.



Microbial Inoculums – Boosting the Beneficials

Beneficial Anaerobes - multiple benefits of BAM™

- **Boosts nitrogen fixation** – BAM™ includes PNSB (anaerobic nitrogen fixers), and their aerobic counterparts, azotobacter.
- **Powerhouse compost accelerant** - BAM™ can be used to produce an eight-week, anaerobic compost with a 910 kg yield. It can also be used in aerobic compost to speed the process considerably. However, the yield will not be as high. Turning the compost at 2 weeks, and again at 3 weeks, can produce a 5-week compost.
- **Suppresses pathogens** – these anaerobes have proven highly effective in the soil and on the leaf surface as antagonists of disease organisms.



Microbial Inoculums – Boosting the Beneficials

Beneficial Anaerobes - multiple benefits of BAM™

- **Transforms manure ponds** – BAM™ can turn a smelly liability into an invaluable asset.
- **Detoxification** - these anaerobes can speed the decomposition of chemical residues. In fact, they are one of the few organisms capable of removing dioxins from water and soil.
- **Increases soil heat** - in one Chinese study, a 3 metre snow pack rapidly disappeared in the treated field.
- **Biological seed treatment** – BAM™ triggers germination in all plants.
- **Weed reduction** – this germination enhancement triggers many more weeds to germinate after application. The following seasons, there are less and less weeds, as the seed bank has been diminished.



Microbial Inoculums – Boosting the Beneficials

Beneficial Anaerobes - multiple benefits of BAM™

- **Highly effective stubble digester** – can be sprayed on crop residues to speed breakdown and conversion to humus.
- **Cleaning stock water** - Apply to water troughs at 0.01% (1:10, 000) to cleanse the water and remove algae.
- **A living fertiliser** – BAM™ can be fertigated, liquid injected, or foliar sprayed to boost plant growth, health and yield.
- **Removes problem smells** - highly effective in piggeries and feed lots or when composting smelly ingredients.



Microbial Inoculums – Boosting the Beneficials

Beneficial Anaerobes - benefits of BAM™ in the home

- **Clean septic tanks** – 500 mL added to the tank removes smells.
- **Kills mosquito larvae** - EM is a recognised control mechanism for mosquitos.
- **Household cleaner** - can be used in the bathroom, shower, and kitchen benches. Will also deodorise smelly carpets.
- **Removes dog smells** - apply to the coat of the animal and to the bedding.
- **A living deodorant** - BAM™ kills the organisms responsible for underarm odours and removes the anaerobic smell.



8. Organic Matter Matters

Making your BAM Compost

- Begin with your 25cm layer of carbon (straw, dead leaves or fine council mulch)
- Sprinkle that layer with lime, crusher dust, soft rock phosphate and trace minerals (if needed)
- Dilute BAM concentrate and apply to the first layer at the rate of 1 L of concentrate per cubic meter.
- The second 25cm layer consists of nitrogen-based materials (lawn clippings, manure, green leaves or lucerne hay). Add extras, as above.
- When the pile is complete, cover it with an air-proof plastic tarp

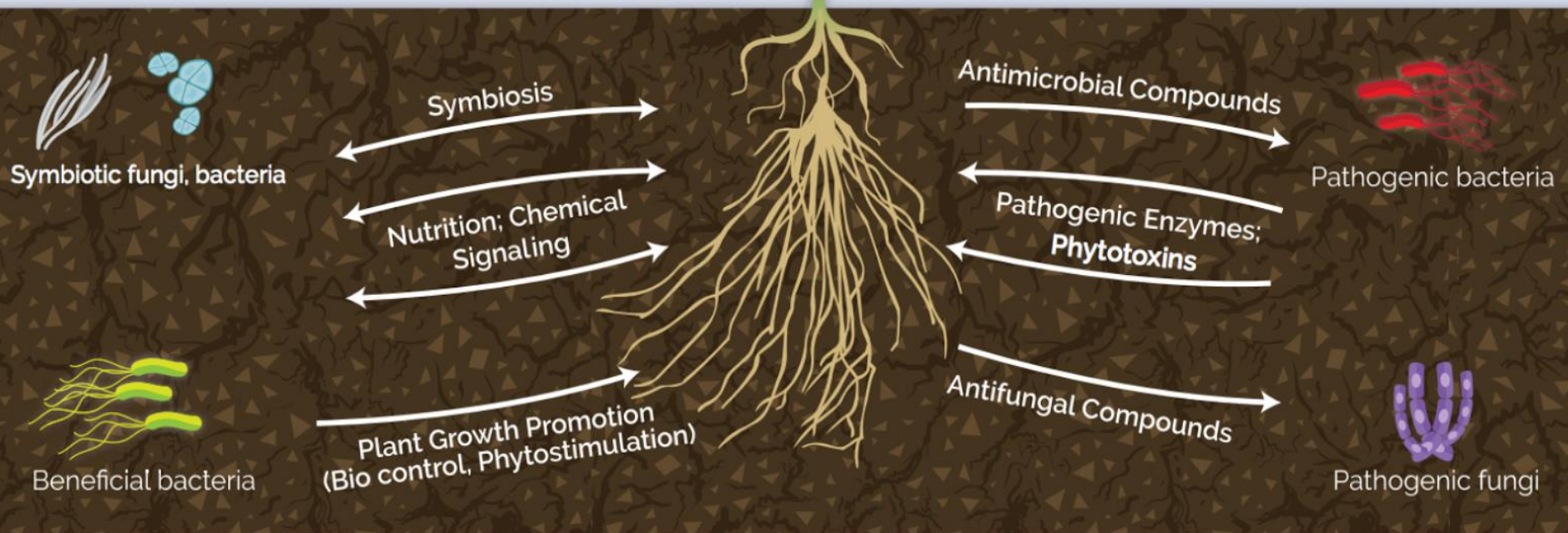


9. Supporting the Workforce

- When you see your soil life as a **hidden workforce**, you begin to understand that it a workplace health and safety issue.
- When we mistreat our workers, there will be **increasing issues**



- **Health** is about providing food and ideal living conditions for your workforce
- **Safety** is about protecting them from toxins and poor soil management decisions



Representation of the complex interactions that take place in the rhizosphere between plant roots and microorganisms (from Haichar et al., 2014).

9. Supporting the Workforce

- There are two foods to feed the **bacterial component** of your workforce
- These include **simple sugars**, like molasses and raw sugar, and a powerful natural acid called fulvic acid.
- **Fulvic acid** is the most powerful known bacterial stimulant.
- These tiny creatures (500,000 on a pinhead), fix nitrogen from the atmosphere, deliver minerals, support plant immunity and **protect from disease**



Fulvic Acid – More Than a Foliar

- Promotes root growth
- Dissolves minerals
- Prolongs production
- Provides growth promotion
- Serves as a 'second sun'
- Detoxifies pollutants
- Magnifies nutrient uptake
- Improves moisture retention
- Stimulates bacteria
- A powerful electrolyte (capable of facilitating electrical reactions)



9. Supporting the Workforce

- **Humic acid** is the second natural acid of tremendous benefit in the garden.
- Humic acid specifically feeds **fungi**.
- Fungi create **stable humus** (lasting 35 years in your soil) and they are responsible for creating the large aggregates (**crumb structure**) that allows your soil to breathe.
- **Life Force Instant Humus** is concentrated humic acid in a soluble granule.
- Simply add one heaped tablespoon to a **watering can** filled with water.



The Benefits of Humic Acid

Humic acid is one of the most important ingredients in Nutrition Gardening. The benefits include:

1. It increases the uptake of all other nutrients by 33%.
2. It features a natural hormone which increases root and leaf size.
3. It immobilises the enzymes produced by pathogens to facilitate their attack.
4. It holds 7 times its own weight in moisture, for drought resistance.



Humic Acid



9. Supporting the Workforce

- Kelp is another Nutrition Gardening essential.
- Kelp also contains **complex carbohydrates** to feed fungi but has a myriad of other benefits:
- **Mannitol**, a powerful chelating agent.
- Wide range of **minerals** derived from seawater.
- **4 natural growth promotants** - cytokinins, gibberellins, auxins and betaines.
- **Vitamins** – can be used by plants and microbes.
- **Iodine** – Kelp is the highest known source of iodine, which has natural fungicidal qualities



10. Naked soil is never good

- Soil never appreciates **exposure**
- That is why nature **fills the void** whenever a soil is uncovered (in the form of weeds)
- Plants provide a living **protective cloak** over precious top soil to shelter, insulate and sustain.
- Plants **feed beneficial soil life** with a constant flow of glucose, some of which becomes humus.
- There is a constant **dynamic flow** of communication between plants and plants, plants and microbes and between all forms of soil-life.



10. Naked soil is never good

Learning to love cover.

Cover crops offer several benefits including:

- To provide **biodiversity** - the dominant principle throughout nature
- To help **manage weeds** - here you can effectively choose your “weeds”
- To **feed soil life** - different plants feed different microbes. The greater the biodiversity above ground, the greater the biodiversity below



10. Naked soil is never good

Learning to love cover

To build humus - part of the glucose component becomes humus and when the crop is turned in or cut with a whipper snipper, more humus is produced

- **To prevent erosion** - at the current rate of top soil loss (3-5 tonnes per acre per year), there will be zero remaining in just 60 years. Naked soil invites erosion as there is no root stabilizing effect or soil glue.



10. Naked soil is never good

Learning to love cover

To manage pests and nurture bees - plants like marigolds and brassicas, release bio-chemicals that reduce root disease including nematodes. Cover crops can also serve as trap crops for beneficial predators and they also attract and feed pollinators. We all need to nurture bees in our garden.

- Recent German research revealed a **75% decline** in flying insects during the past 27 years. Much of the global food chain is insect dependant. Compare your windscreen today verses 10 years ago.



10. Naked soil is never good

The Mulching Imperative

- **Mulching** retains moisture, protects the soil from extremes, and most importantly, it feeds and **stimulates soil life**.
- In this critical strategy for **Nutrition Gardening**, you can protect your soil with straw, council-green waste or cane mulch.
- You may even opt for a fertilising mulch like **lucerne hay**.



10. Cocktail cover crops - a soil-building breakthrough

- **Brazilian agronomist** - Aldemir Caligari discovered a revolutionary new way to cover crop.
- He demonstrated that when **five specific plant families** are combined in a cover crop, something amazing happens.
- Plant roots begin messaging each other and initiate the outpouring of **phenolic compounds** into the soil.
- These **anti-oxidants** appear to put soil life into hyper-drive.
- The five species include cereals, grasses, brassicas, legumes and chenopods
- A home blend might include rye grass, barley, wheat, lucerne, 3 clovers, daikon radish, kale and silverbeet – you can produce a **green smoothie** from this crop.



Choosing Wellness Crops

- Your home garden is your **ultimate wellness tool**.
- The luxury of eating **nutrient-dense** food, freshly harvested, simply cannot be achieved elsewhere.
- We can boost the **medicinal capacity** of home food production if we include plantings of proven plant medicines.
- These might include vegetables like **kale**, beetroot, herbs etc.
- However, there are **3 remarkable crops**, easily grown in this region, that should be included in every garden.
- These include: turmeric, ginger, and **yacons**.



1. Embrace Turmeric

- This herb contains a remarkable substance called curcumin, which has been described as “the most powerful natural anti-inflammatory ever discovered”.
- The daily consumption of one teaspoon of turmeric in a glass of juice can have remarkable benefits.
- A massive amount of research supports protection from Alzheimer’s, stroke, CHD, Type 2 diabetes, obesity, digestive problems and it also has an anti-tumour effect.



1. Embrace Turmeric

- It takes just two minutes to plant turmeric roots and in twenty weeks you have edible roots.
- These can be added to stir-fries and stews, or included with a green smoothie.
- You can also make a turmeric tincture by filling a jar with chopped root and topping it with vodka. Leave it for three weeks, and consume a teaspoon three times a day.



Golden Paste

1/2 cup (125 mls/60gms) turmeric powder

1 cup water (250 mls) PLUS 1 cup water in reserve, if needed

1/3 cup (70 mls) one of the following oils:
Cold Pressed Coconut Oil or Virgin Olive Oil

2-3 teaspoons freshly ground black pepper

Bring the turmeric and water to a boil, then lower the heat and simmer until you have a thick paste. This should take about 7-10 minutes and you may need to add additional water along the way.

Add the freshly ground pepper and oil at the end of cooking, when the turmeric and water mixture has cooled down to just warm. Stir well to incorporate the oil and allow to cool.



2. Ginger – The Flavorsome Flame Fighter

- **Ginger** is the world's most popular herb and for good reason.
- It combines powerhouse **anti-inflammatory** qualities with remarkable flavour.
- **Gingerol** is a potent bioactive compound found in ginger. It is both an anti inflammatory and a protective antioxidant.
- A second component in ginger called **shagaol** is a rare substance capable of killing the cold virus.
- A tablespoon of grated ginger in a cup of hot water provides the **1 ppm** of shagaol required to combat the **common cold**.



2. Ginger – The Flavorsome Flame Fight~

- Ginger is highly effective against **nausea**.
- It is widely used against travel sickness, morning sickness, and in cancer patients undergoing **chemotherapy**.
- Two grams of ginger per day has been shown to be a great strategy against exercise induced **muscle pain**.
- It has been shown to reduce the pain associated with **osteoarthritis** when consumed orally or applied topically on the skin.
- The latest findings with ginger reveal that it is a powerful tool to **lower blood sugar**.
- In a recent large scale trial involving **diabetics**, 2 grams of ginger powder reduced fasting blood sugar by 12% within 2 weeks.
- Ginger is also a great **digestive aid**. It reduces menstrual pain, and it lowers cholesterol.



3. Yacon – The Gut Boosting Superfood

- Residence of the Andes have enjoyed this sweet, juicy, root vegetable for over one thousand years. In fact, it is called '**The Peruvian Apple**'.
- **Yacon** can be eaten fresh, added to salads, steamed, baked, or juiced.
- It is a genuine **superfood**, with multiple benefits.
- It is a 2-metre sunflower-like bush, easily grown from **rhizomes** when planted in Spring.



Top Seven Benefits of Yacon

1. **A powerhouse prebiotic** – Yacon is the highest known source of fructooligosaccharides (FOS) and inulin, which serve to feed and support the good bacteria in our gut.
2. **An invaluable weight loss tool** – Often called “the diet potato”, yacon is a recognised regulator of body fat due to its low calorie content and very low GI (glycemic index).



Top Seven Benefits of Yacon

4. Addresses Metabolic Syndrome – Research published in the March 2008 issue of “Food and Chemical Toxicology” revealed a relationship between yacon consumption and reduced risk from Metabolic Syndrome.

5. Antioxidant impact – Yacon roots and leaves are rich in protective antioxidants. Yacon leaf tea contains 3 powerful antioxidants (caffeic acid, ferulic acid & chlorogenic acid), and the roots contain **resveratrol**, an anti-inflammatory. Finally, the roots also contain **tryptophan**, which boosts both serotonin and melatonin production.



Top Seven Benefits of Yacon

6. Conquers constipation – yacon's prebiotic influence aids digestion, and its high fibre content promotes bowel health.

7. Healthy versatility in the kitchen – this sweet root has the crunchy texture of an apple and can be eaten raw in both green salads and fruit salads. It can also be grated, stir fried, steamed or baked like other root vegetables. The prebiotic-packed leaves can be used to wrap other foods, or brewed to make a multi-benefit herbal tea.



Paw Paw – A Multi-Function Wonder

1. Paw Paw leaves can be used to make a tea that has proven **anti-cancer** benefits.
2. The green fruit contains 40 times more **papain** – the most powerful protein digesting enzyme.
3. **Green papaya salad** is a wonderful adjunct to any protein dish.
4. The red version outshines the yellow, due to the presence of **lycopene**.
5. A dehydrated paw paw **quadruples** the multiple benefits.
6. The seeds are **anti-parasitic** for humans and animals.
7. The **high germination** rate means the production of several hundred seedlings from a single fruit.



The Best Strategies For The Protective Trio

1. Ginger, turmeric and yacons all love the kickstart provided by a soaking in **Root & Shoot™** combined with **Platform™**. The new sprouts are vigorous and disease resistant when supported by this beneficial fungi.
2. All 3 root crops feature large leaves that are particularly receptive to **foliar fertilisers**.
3. A simple and effective foliar regime involves alternating **Total Cover™** and **Trio™** every 2-3 weeks.
4. These crops also love fish and kelp (**Life Force® Organic SeaChange™**) applied to the soil, in combination with beneficial anaerobes (**BAM™**).
5. The planting soil is best prepared with **Life Force® Gold**.



A man wearing a blue button-down shirt and a dark baseball cap with a logo is smiling and standing behind a raised garden bed. He is holding a long-handled tool, possibly a trowel or a small shovel, vertically. The garden bed is overflowing with various types of leafy vegetables, including large green leaves, red-leafed varieties, and several heads of light green lettuce. The background shows a grassy area and some trees.

In Conclusion

Healthy soils create hardy people and
a happy planet.