



Life-Force®

Gardener's Guide

For Optimum Plant and Soil Nutrition



Life-Force® Home Garden Range

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Minerals and microorganisms are the basis for soil health, plant health and human health and they are the essence of satisfying, problem-free productivity in the home garden.

It's not just about throwing on some nitrogen or phosphorous to feed up the plants but rather it is a question of mineral balance. Similarly, the soil life equation involves more than applying lawn clipping compost to regenerate your microbe workforce. Poor production, unhealthy plants as well as pest and disease pressure are invariably symptoms of imbalance.

From a mineral perspective imbalance is most commonly linked to a lack of calcium and some of the key trace minerals or it can be related to an excess of phosphorous and potassium from over-application of chook manure fertilisers.

Nutri-Tech Solutions (NTS) is a world leader in balance-based, biological agriculture and we have utilized these skills to develop a revolutionary group of natural problem solvers called The **Life-Force® Home Garden Range**. This product range contains cutting edge components that have previously only been available in large scale agriculture.

The Life-Force® system was essentially developed to ensure success for even the most inexperienced gardener. When it comes to vegetable gardening, it is common to see first-timers produce straggly, substandard plants that are dogged by disease and inundated by insects. The novice invariably decides that is all too hard and an important opportunity has been lost. We want that first effort to be so exciting that you become a lifelong gardener, producing nutrient dense, medicinal food for yourself and your family.

However, the five-step, Life-Force® system offers more than just sure-fire success for the novices. It offers sensational results for the most seasoned gardeners while delivering a chemical-free backyard and superb food, shrubs, lawns and flowers for the enjoyment of all.

Key:



Key Elements for Soil & Plant Nutrition



Useful Information

The Ultimate Wellness Tool

The home garden is the ultimate wellness tool. Access to nutrient-dense, chemical-free food, which can be consumed immediately following harvest, is something of incredible value for our health. We can spend a lifetime achieving financial security and perhaps develop a taste for fine food and wine along the path. However, nothing compares with the forgotten flavours and extended shelf life linked to the “champagne food” we can produce in our own backyards. There are many other benefits associated with home food production and they include the following:

- There is nothing more relaxing than communing with nature in your garden. We live in a stress-filled society and the cliché “stress kills” is profoundly true on so many levels.
- Food security is becoming increasingly important in uncertain times and the home garden is the essence of self reliance.
- Food prices are rising and destined to continue escalating in line with increased production costs, linked to oil prices. The home garden can prove a big cost saver.
- There is no greater gift to your child than to inspire a love of gardening. They can escape the digital entertainment and get some exercise and sunshine therapy, punctuated with healthy vegetable or fruit snacks direct from the garden.
- Building the levels of organic matter (humus) on your property can be your biggest personal contribution in terms of combating global warming. A 1% increase represents 20 tonnes per hectare of CO₂ that is now stored in the soil, rather than in the atmosphere.
- Every 1% of organic matter that you can build in your soil equates to an increased water holding capacity of 17 litres per square meter. Building humus is the secret to drought proofing your garden and reducing your water consumption.



Graeme Sait, CEO of NTS, with his Life-Force® Vegetable Garden

Nutri-Store Gold™

What: Nutri-Store Gold™ is a complete Fertiliser and soil conditioner where multiple ingredients have been composted in a high carbon base. The broad range of minerals are correctly balanced and billions of microbes are present to ensure optimal delivery of the nutrients. All major minerals and micronutrients are included in this living, synergistic formulation. It supplies perfect food for the soil, the microbes and the plants and is the perfect pre-plant option for your home or school gardens.

Why: This is the best balanced foundation fertiliser on the market and it can serve to condition your soils, creates a functional mineral base and promote your soil life. This composted fertiliser also introduces an army of new beneficial organisms to look after your garden.

How: Apply at a rate of 1 kg per 2 to 4 square meters. Sprinkle around tree crops and existing plantings but blend the Fertiliser into the top soil for new planting areas.

Where: Nutri-Store Gold™ is ideal for your vegetable gardens, fruit trees, lawns, exotic or ornamental gardens and pot plants. (avoid over application on natives).

When: Fruit trees and ornamentals will benefit from a spring feed while vegetable and flower crops may require more frequent feeding. These hungry crops respond well when they receive a light feed every 3 months. Top dress lawns in spring.



PACKAGING
25 kg bags
Product Code: NSTG



i How Nutrients are Stored in Your Soil.

Soils consist of clay, humus, silt and sand. It is the clay and humus that serve to store minerals in your soil. They form tiny particles called colloids that are electrically charged. Both clay and humus are negatively charged but humus also features positive charges. This is important because it will help you understand mineral storage in your soil. Minerals are either positively or negatively charged. The positively charged minerals are called cations, while negatively charged minerals are anions.

Cations are attracted to the negatively charged clay colloid and they can also stick to the humus colloid. However, anions can only be stored on the positively charged humus colloid. If you have no humus in your soil then you will struggle to store anions like nitrogen, sulphur and boron and they will leach readily. Sandy soils contain very little clay or humus so there is very little storage capacity. That is why these soils need spoonfeeding i.e little amounts of fertiliser often.

The mineral storage capacity of a given soil can be likened to a fuel tank. A light, sandy soil is like the small fuel tank of a motor bike while a heavy clay soil is like that of a V8 gas guzzler.

E Nitrogen (N) - Understanding the Number 1 Nutrient

Nitrogen is the nutrient required in the largest amount for plant growth. In the natural scheme of things nitrogen is largely sourced from the atmosphere, where 74,000



tonnes of nitrogen gas hovers above every hectare. Soil bacteria are responsible for the conversion of this gas into plant-available nitrogen but they need good levels of calcium, sulphur and molybdenum to perform this role. The aim of biological gardening is to optimize conditions for natural nitrogen fixation while supplying supplemental nitrogen in a natural form. Nitrate nitrogen is the form most commonly used in commercial home garden fertilisers and it is not conducive to the production of nutrient-packed, insect resistant crops. In fact, it encourages the exact opposite! Nitrates are taken into the plant with water and this dilutes all other nutrients. This mineral deficient plant then becomes a calling card for insect pests and disease.

Nitrogen in plants – this mineral is the basis of vigorous growth as it is needed to build plant protein, hormones

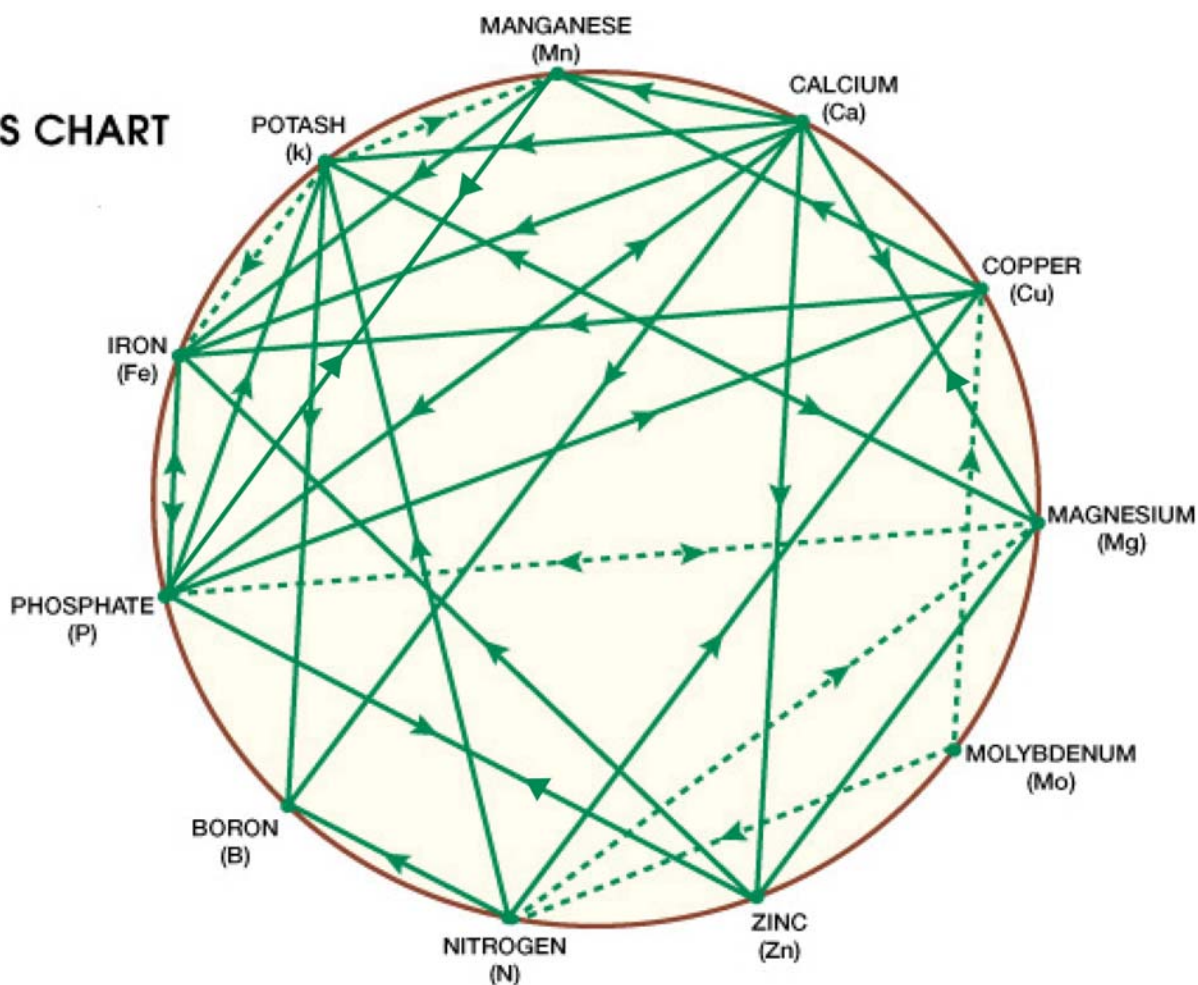
and enzymes. Along with magnesium it is the main mineral in chlorophyll, the green pigment that houses the sugar factories that produce glucose through photosynthesis. The best sources of natural nitrogen include compost, manures and fish fertilisers. However, it is essential that your plant foods contain molybdenum, so you have access to the “free gift” from the atmosphere.

Plant Deficiency Symptoms – a nitrogen deficient plant is often a thin straggly plant with fewer stems and poor vigour. The leaves are uniformly pale and yellow (including the veins).

The Mulder’s Chart

This is a chart that highlights the powerful inter-reactions between minerals and why balance is so important to achieve maximum mineral availability. (See below).

MULDER’S CHART



Antagonism ——— A decrease in availability to the plant of a nutrient by the action of another nutrient. (see direction of arrow)

Stimulation - - - - - An increase in the uptake of a nutrient by the plant because of the increase in the level of another nutrient.

Total Cover™

What: This speciality liquid foliar fertiliser covers all bases. Almost all of the major minerals and trace elements are included in this formulation along with state-of-the-art organic technology which maximises mineral uptake while simultaneously feeding soil life. Seven natural growth promotants are included in this blend which can be used effectively throughout the complete plant cycle.

Why: For healthy, vigorous growth with improved root structure. Broad spectrum, balanced minerals address the plants' nutrition needs. Helps to increase yield and give more even fruit size and better colour. Total Cover™ contains substantial levels of selenium to boost the health of you and your family when consuming selenium enriched produce

How: Foliar feeding is ideal to direct nutrition into the plant, avoiding any problems the soil may have with mineral 'lock-ups'. For foliar feeding dilute at 10 mL per litre (1:100). For soil applications dilute 20 mL in 10 litres of water and apply over 10 square metres.

Where: Suitable for all vegies, fruits, ornamentals, indoor plants and lawns where broad-spectrum mineral delivery is needed.

When: As a general rule you can feed every two weeks. Try alternating with Trio™ and SeaChange™.

Don't: Due to the delicate nature of fruit tree flowers we suggest that you avoid foliar spraying directly on to these flowers. Not suitable for phosphate sensitive natives. Foliar sprays also have the potential to deter pollinators from visiting your fruit trees when flowering.



PACKAGING

1 L, 5 L

Product Code: HGLFTCV



E Colour Me Phosphorus (P)

Soil: By world standards Australian soils are generally low in Phosphorus (P). Native plants have adapted to this by efficient uptake of any available P, but exotic food crops require supplementing of this essential nutrient. P is most available to plants in a 6-7 pH range.

Plants: This energy mineral is used in virtually every aspect of plant growth including photosynthesis, and the formation of plant sugars and starches. P promotes vigorous early root (good for root vegetables) and stem growth and flowering. The colour intensity of flowers, fruit and vegetables is determined by phosphorus.

People: P is needed by every cell in the body, and together with Ca, is essential for bone structure, pH balance and membrane structure in cells. This mineral is part of the co-enzyme ATP, which is critical for energy production and it is also closely linked to reproductive health.

Animals: As with people, P is essential for bone structure and must be balanced with Ca and vitamin D for maximum benefit. It is essential in the production and mobilization of energy and is required for reproductive efficiency.

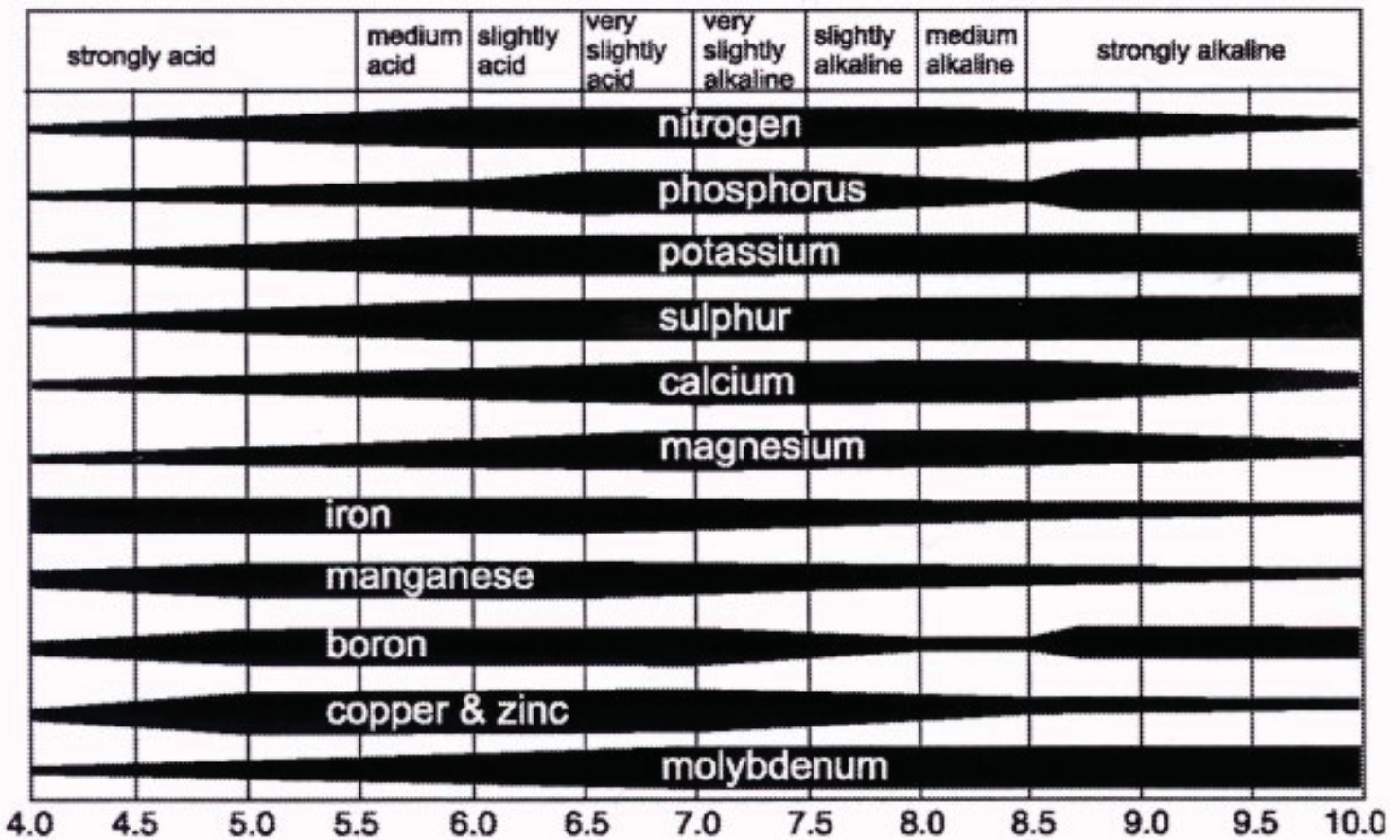
Plant Deficiency Symptoms: Plants are usually stunted with a reduced capacity to produce fruit. Leaves can take



on a dull green to purple hue, often affecting older leaves first. Purple lower leaves are a classic sign of P deficiency.

Interesting point: Old farming lands often have a good store of P locked away in their soils from years of super phosphate applications. Home gardeners can tap into this frozen reserve using inoculums of phosphate solubilising organisms like those found in **Life-Force® Micro-Force™**.

Handy Tip: Soil pH is a powerful guideline to nutrient uptake and it has been determined that a pH of 6.4 is ideal. At that level, the best balance of availabilities is found (as you can see on the chart below), so you will be getting the highest nutrient density for the health of you and your family. People often think of pH as an indicator of calcium levels in the soil but magnesium is just as important, particularly in lighter soils. In these soils it is advised to use dolomite rather than limestone as you will require both calcium and magnesium. An acid soil is equivalent to an empty pantry because it is dominated by the mineral, hydrogen, which is the acid element and it is not a plant food.



What: A high analysis source of chelated calcium and magnesium with complexed boron. This Fertiliser also contains fulvic acid and kelp. Trio™ contains the two key minerals missing in Total Cover™ and is designed to be used in conjunction with this product to supply complete plant nutrition.

Why: Although considered secondary nutrients, calcium, magnesium and boron are vital for plant health. Calcium for cell division and strength, magnesium is the central element of chlorophyll and boron is a calcium synergist, essentially 'steering' the calcium where it is needed.

How: For foliar feeding dilute at 10 mL per litre (1:100). For soil applications, dilute 10 - 40 mL per 10 litres of water and apply over 10 square metres.

Where: As with Total Cover™, Trio™ can be used on all your vegies, fruit trees, indoor plants and lawns.

When: Can be used with SeaChange™ and alternating with Total Cover™ either fortnightly or monthly.



PACKAGING
1 L
Product Code: HGLFTRIO

i Selecting Compost & Manures

Manures and composts come in many forms. In choosing to use any of them you should consider what you aim to achieve. Mushroom compost has great levels of carbon and is terrific for building soil profile while not having much impact on nutrient levels. Animal manures will have differing mineral analyses depending upon the source. Chook manure contains good levels of phosphorus, for example, while cow manure contains a greater overall mineralisation. All animal manures are a good source of the important minerals, nitrogen, potassium and phosphorous and chook manure is also a good source of calcium.

All animal manures need to be used sensibly to avoid imbalance and nutrient run-off into the surrounding environment. Remember to strike a balance in garden inputs, if you over supply nitrogen via manures you risk unhealthy nitrate contamination of your vegetables.

If you compost manures or purchase them in composted form you do not run the risk of leaching or over supplying nitrates because the nitrogen has been complexed and stabilised. Composting can increase the availability of the nutrients, introduce effective soil microbes and break down carbon into humus making it more effective in terms of water and mineral retention in the soil. Overuse of un-composted manure can lead to serious mineral imbalances and lock-up of trace elements. There is also the potential issue of weed seed contamination. Nitrogen in fresh manures is volatile and easily escapes into the atmosphere. Incorporating into a compost pile or digging the manure into the soil can help slow down this mineral loss.

Chook manure is considered 'hot' when fresh. This means it's likely to burn delicate and sensitive plant roots and some soil microbes. It is a good strategy to compost this manure if that is possible. This manure has a fairly low carbon content unless it contains sawdust or straw.

Mushroom compost has high carbon content but it is generally low in overall nutrient content. The pH of mushroom compost can range from 6.8 to 8. Preferably select a product with a pH below 7.

Cow manure is used in the Bio Dynamic 500 preparation. It has good levels of carbon and nitrogen. Watch out for weed seeds.

Horse manure has great levels of carbon and breaks down quickly. Compost worms love horse manure but care needs to be taken to avoid manure straight after the animal has been wormed or vaccinated if you are feeding your compost worms. Watch out for weed seeds.





Green manure is what you grow during the off-season or when resting beds in a rotation. Green manure crops build your humus levels while feeding your beneficial soil microbes and earthworms. In warm areas try oats, Japanese millet, buckwheat, mung bean. In cooler areas try fava bean or fenugreek.

E The Calcium (Ca) Connection

Soil: Ca opens up (flocculates) the soil, improving structure and allowing plant roots, earthworms, oxygen, water and microbes to move freely through the soil. Ca is a critically important nutrient for the health of all life in the soil and it is also an important key to achieving the ideal soil pH of 6.4 (where nutrients are most available).

Plants: Ca is often referred to as “the trucker of all minerals” in relation to its role in mobilizing other nutrients. Ca sponsors cell division and hence it promotes root, stem and leaf growth. Ca is also a major mineral governing cell strength and associated disease resistance. This mineral often determines the quality of your fruit and vegetables and if you are seeking a problem-free garden then it should always be a first priority to address any Ca deficiencies.

Plant Deficiency Symptoms: Stunted root systems and a lack of vegetative vigour. Blossom end rot in tomatoes, capsicums and zucchini. Internal browning or blackening of celery, potatoes and Brussels sprouts.

People: Ca is one the major minerals linked to bone health and skeletal strength but needs to be balanced with magnesium. It is also a key player in cell function and it regulates the uptake of minerals into our cells, just like it influences plant uptake of minerals. Ca is an electrolyte important for cellular messaging and the electric life of cells.

Animals: Ca is a key element in maintaining good growth and bone health in animals. It is also important for healthy hormonal function and reproduction.

Common Forms: Lime stone contains 40% Ca and the finer ground the lime, the faster the response. Builder’s lime is called calcium hydroxide and it contains 30 times more soluble calcium than limestone so it can be used for “fast food” Ca. However, this “hot” material should always be combined with humic acid or compost to buffer the burning potential. Dolomite contains 20% Ca and 10% Mg. Gypsum (calcium sulphate) contains 20% Ca and 15% S and Guano contains 35% Ca and 12% P.

SeaChange™

What: A biological activator and foliar fertiliser involving a blend of 60% liquid fish, 30% kelp, 10% fulvic acid and triacontanol (a natural plant growth promotant).

Why: Soil health is about mineralisation and the greatest source of broad-spectrum minerals can be obtained from ocean plants and creatures. SeaChange™ promotes root growth and flowering. It can be used as a “rescue remedy” in times of stress (frost, transplant shock, hail damage, heat stress etc). SeaChange is also a favoured food source for earthworms and soil microbes. In fact, the earthworms appear out of nowhere at the first whiff of this soil-life promotant.

How: For foliar feeding dilute at 10 mL per litre (1:100). For soil application dilute 50 mL per 10 litres and apply over 10 m².

Where: SeaChange™ can be used on all vegetable, fruit crops and flowering plants as well as natives and indoor plants.

When: Can be used with Trio™ alternating with Total Cover™ every fortnight for vegetables and monthly for fruit tree crops, indoor plants and lawns.



PACKAGING

1 L

Product Code: HGLFSC



i Getting Your pH Right.

The first step involves measuring your soil pH. This is as simple as making a 50/50 mixture of soil and deionised water, waiting for 5 minutes and then dipping a pH strip into the mixture. These inexpensive strips are available from NTS in a form that measures finer graduations than normal. You are seeking a pH of 6.4 for optimal plant growth. It is always important to try to understand why your soil is acidic or alkaline.

The best option is a soil test so there is no guess work involved. If you have an acreage, a soil test can be worth its weight in gold. It is common to waste huge amounts of precious time, driving blind in an acreage gardening project, when a soil test would immediately clarify options and strategies.

If you can't justify a soil test then these guidelines may assist you to diagnose the source of your pH imbalance. If you have a light, sandy soil that is acidic, then you probably need a mixture of calcium and magnesium (dolomite) to correct the imbalance. If it is a heavier soil with more clay component then you probably need limestone to alkalise the soil and you might choose to include some gypsum to help break up the clay. If the soil is heavy and alkaline, then there is probably too much magnesium and sodium, gypsum is the correction of choice.





E Mastering Magnesium (Mg)

Soil: Magnesium tends to tighten soils so it can be used to improve the loose structure of sandy soils. However, if there is too much magnesium in a heavy clay it makes the soil sticky and can tighten it up with an associated restriction of oxygen and soil-life. Gypsum is the best tool to reduce a magnesium excess.

Plants: Magnesium is the central molecule in chlorophyll, the green pigment which houses the sugar factories that fuel photosynthesis. If you are missing magnesium, you are lacking the lifeblood of the leaf and that loss of chlorophyll will be clearly visible. It is a little like the anemia associated with an iron deficiency in humans as magnesium is to plant sap what iron is to blood. Mg is the most important enzyme activator of all minerals so it impacts many different aspects of plant growth and health.

Deficiency Symptoms: Interveinal mottling (pale blotches between the veins) occurring on the older leaves. There may also be premature leaf drop in some species.

People: Mg is the single biggest deficiency in the western world. It is the “master mineral” responsible for 350 different enzymes. This missing mineral is needed for a healthy immune and detoxification system and it is the most important mineral for heart health. It is as

important for bone health as calcium but often ignored.

Animals: Mg plays a major role in neuro-muscular health and bone density in animals. Grass tetany in ruminant animals is directly related to a magnesium deficiency.

Common Forms: Magnesium carbonate (magnesite), dolomite and magnesium sulfate (Epsom salts).

i Feed the Soil and Feed the Plant

After you have addressed mineral balance with lime or dolomite and a complete fertiliser like Nutri-Store Gold™, then it becomes time to feed the soil-life and feed the plant. Mineral uptake is determined by mineral balance and soil microbes. The best way to build soil microbes is with a champagne food source like SeaChange™ and/or to apply compost. You may be quite content with the response from balancing and feeding the soil but if you are keen to achieve exceptional, problem-free growth, then you might also consider foliar feeding the plant.

Foliar feeding is a direct route into the plant, which bypasses any problems in the soil. Stomata are tiny little mouths on the underside of plant leaves, which are actually designed to capture carbon dioxide for photosynthesis and for moisture transpiration. Stomata are, in effect, the gateway between the outside and the inside of the plant and when nutrients are supplied to the leaf and enter via the stomata, it is actually 12 times more efficient than applying those

Instant Humus™

What: Humus is the dark coloured organic matter that is the essence of soil fertility. Composting is the best way to build humus. However, all humus contains humic acid and it has been found that this natural acid can be extracted from ancient plant materials and it can be used as a substitute for compost. Life-Force® Instant Humus™ is a concentrated soluble humic acid granule that can confer the many benefits of humus in soils with low levels of organic matter.

Why: Humus is the home base for beneficial biology in your soil and it also governs moisture retention. Humic acid is like a humus concentrate in itself but it also serves to boost production of stable humus by beneficial soil fungi. Humic acid is the most powerful known promoter of these creatures and when these organisms are activated they increase their humus building activity. Humic acid also promotes root growth, improves mineral retention and neutralises toxic residues and heavy metals.

How: For soil applications, dissolve one heaped tablespoon in a 7 litre watering can and apply to 10 square meters of soil. For foliar feeding dissolve two teaspoons in a 5 litre spray pack and apply to the leaf. Aim for the underside of the leaf for best response. Combine humic acid (Instant Humus™) with all other liquid or dry Fertilisers (that are compatible) to magnify and stabilise those inputs.

Where: Apply to lawns, flowers, vegetables, shrubs and fruit trees whenever a boost is required. This product can be used as a foliar or soil Fertiliser.

When: Include with regular watering but Instant Humus™ is particularly effective when combined with fertilisers as it increases their benefit and reduces their leaching and lockup potential. Add a tablespoon to a bucket of a fertiliser like Nutri-Store Gold™ and marvel at the response.



PACKAGING

1 kg

Product Code: HGLFIH



nutrients to the soil. Apart from this increased efficiency, there are other reasons to foliar feed. Soil-based lockups, where too much of one mineral antagonises the uptake of another are common and foliar feeding bypasses these lockups and delivers directly to the plant.

Soil feeding is ideal for dry minerals such as Nutri-Store Gold™ or Nutri-Store 180® or any of our other dry mineral products. Some plants will respond better to a soil application of liquid minerals while others prefer foliar applications.

i Retaining moisture in your garden.

Moisture retention is becoming more important as the cost of water increases and the availability decreases. Climate change is likely to exacerbate these issues. Building humus in your soil becomes the most rewarding strategy to reduce water loss.

Humus improves soil structure and seriously increases your moisture holding capacity. If you can increase your humus levels by just 1% then every square metre of your soil can now retain 17 litres more water.

Composting is an excellent way of building humus but you might also consider green manure crops whenever there is a chance. When you dig these back into your soils the organisms convert the organic matter into humus.





The other strategy is to use Instant Humus™ to encourage humus production.

The most successful commercial composting system in the world is called CMC composting and there are some lessons here for the home gardener. It has been found that the addition of 10% clay has proven to produce a form of stable humus that can continue offering benefits for up to 35 years. If you can't access a friable clay, then you might add some soil or NTS Soft Rock™ Phosphate. This is a clay form of phosphate, that creates a mineralized, fertilising, long-life compost.

E Potassium (K) Supplying the Spark Plug

Soil: Light sandy soils contain very little clay, the storage medium for potassium. In these soils K is easily leached so it is a good idea to spoon feed (little amounts applied often). Heavier soils have much better K storage, but they will still need recharging from time to time. NTS offers a product called Backyard Blooms™ which is an ideal liquid corrective when potassium needs recharging.

Plants: Potassium acts like a sparkplug which triggers over 50 enzymes within the plant. There is a higher requirement for potassium during the filling of fruit and seed. This is where Backyard Blooms™ can be an invaluable input. Potassium also helps to build disease

resistance, strengthens cells, buffers temperature extremes and regulates the opening and closing of stomata.

People: Potassium is an important electrolyte that plays a critical role in muscles, heart, kidney and nerve function. The ratio between sodium and potassium in the diet has a big impact upon kidney health and associated issues with high blood pressure. Those suffering hypertension should increase their potassium input while reducing sodium intake. Potatoes, bananas, avocados and apricots are foods rich in potassium.

Plant Deficiency Symptoms: This is the most mobile of all minerals so deficiency symptoms will appear first on the older leaves. This potassium shortage in lower leaves can trigger disease in many crops. The brown spots that appear on the lower leaves of tomato plants are a symptom of K deficiency. K deficient leaves often have scorched edges. Fruit and seed will be small and often shriveled and the fruit will lack flavour.

i Essential Oxygen (O)

Most beneficial microorganisms require good levels of oxygen to thrive. In fact, it could be argued that oxygen is the most important element in biological gardening. Aerobic soils are richly supplied with oxygen while anaerobic soils

Stimulate™

What: This is a soluble powder involving equal amounts of fulvic acid and kelp, two of the most powerful biological inputs. These natural materials offer a huge range of benefits for both the soil and plant.

Why: Fulvic acid is a growth promoter that boosts photosynthesis, promotes root growth and promotes cell division. It is also the most powerful known bacterial stimulant to encourage nitrogen fixation, phosphate solubilisation and nutrient delivery. Kelp contains all of the minerals from the ocean in a perfect balance. Like fulvic acid it is also a chelating agent which increases mineral response and it contains four growth promoting compounds that are required for every stage of the crop cycle. Kelp has also been shown to reduce the need for toxic chemicals in the soil and on the plant.

How: Dissolve 2 teaspoons in 5 litres of water for foliar feeding. Dissolve 1 tablespoon in a 10 litre watering can and apply to ten square meters.

Where: Stimulate™ can be sprayed onto fruit trees to encourage a good fruiting response. It can be also be used to treat seedlings or seed to ensure a powerful kick start. All indoor plants, natives, ornamentals, lawns, gardens and fruit trees will exhibit a healthy flourish when treated with Stimulate.™

When: Apply at planting time with all seedlings. Use Stimulate™ to counter any environmental stress including frost, drought, hail and wind damage. It can be used every two weeks for best results with flower and vegetable gardens.



PACKAGING

500 g

Product Code: HGLFST



lack this element. Earthworms create pathways for oxygen to enter the soil and calcium opens up (floculates) the soil to let it breath. Gypsum can break up heavy clay soils to sponsor better oxygen intake, while compost can improve your soil to create a highly desirable crumb structure. Light tillage with a fork can also help aerate soils.

i Water (H₂O) - Much More Than Hydration

Plant tissue comprises 80% to 90% water but water does more than hydrate the plant. It is now understood that there is a huge difference between "living water" and "dead" water that has been stored in dams and pumped for miles through networks of straight pipes. Enlivened water comes from the ebb and flow and swirling motion of a natural stream and it has a series of measurable parameters that differ greatly from the processed alternative. There are a number of devices available that are designed to create "living" water for your garden and the most researched of these is the Grander system from Austria. NTS offers a revolutionary device called Aquavate™ which features a similar energising capacity to the European alternative. However, the Aquavate™ technology also includes a series of high powered, rare earth magnets which serve to neutralize hard water and remove clogging residues from pipes and appliances. This system also physically vortexes the water as it passes through the stainless steel cylinder and the end result is water that significantly promotes plant health and vitality. An Aquavate™ unit requires no maintenance and will continue activating your water indefinitely.





E Sulfur (S) – Soil Health and Your Health

Soil: Sulfur is essential for our detoxification systems and in a world with 74,000 registered chemicals we need all of the sulfur we can get. Sulfur is stored in humus, so in soils with low organic matter we need to add sulfur each season. Nutri-Store Gold™ contains luxury levels of sulfur, and cow manure is also a good sulfur source. If you have a heavy clay soil then gypsum should be used. It is the sulfur component of this material that bonds with the soil tightening minerals to create leachable compounds. You will also be delivering good levels of sulfur to your garden.

In Plants & Pets: Sulfur imparts flavour to fruit and vegetables and it is the main component of strong smelling onions and garlic. It is sulfur that makes members of the allium family so protective for our health. Two essential amino acids are sulfur dependant and this mineral offers a big boost to all root crops (particularly potatoes). Your pets will also benefit from sulfur. One of the most effective treatments for ticks and fleas involves a raw egg and a tablespoon of coconut oil fed to the dog each day (eggs are a very rich source of sulfur) Alternatively, you can feed dogs elemental sulfur every two or three days at rates of one half teaspoon for small dogs and a whole teaspoon for a large dog. You don't need to poison your pet with toxic chemicals to prevent parasites!

Managing Micronutrients

E Iron (Fe)

Plants: Carrier of oxygen for the essential production of chlorophyll.

People: Central element in haemoglobin and essential in the function of hundreds of enzymes and proteins.

E Manganese (Mn)

Soil: More available in low pH soils and can be tied up in soils with high calcium or phosphorus.

Plants: Strongly supports seed germination, fruiting and ripening. Important for nitrogen metabolism.

People: Found in mitochondria and is a key component in energy metabolism.

Animals: Needed for normal growth and bone formation. Essential in reproductive health.

E Boron (B) Boost

Soil: Humus is the boron storehouse, so if you don't have good levels of organic matter you will probably have boron deficient soils. Calcium is the "trucker of all minerals" and boron is the "steering wheel" so calcium will not do its work as well when boron is lacking.

Micro-Force™ Home Pack

What: A complete production kit for the home brewing of microbes to enhance plant growth and soil health. Contains a beneficial blend of soil bacteria and fungi.

Why: A highly fertile soil can contain many thousands of species of bacteria, fungi, protozoa, beneficial nematodes and algae. This is commonly referred to as the Soil Foodweb and is the essence of biological and organic gardening. As part of their normal life cycle, soil microbes are able to fix atmospheric nitrogen, increase phosphorous availability, produce vitamins and hormones needed by the plants and increase breakdown of cellulose to name a few benefits.

How: Using similar principles to brewing beer or cider, our Life-Force® Microbe Brewer™ consists of a 15L bucket, double outlet aerator, pipes and air stones. Using our specially formulated microbes, microbe food and sterile warm water, brews generally take 24 hours to mature and will remain stable for up to one week, although it's best to brew and use quickly to maximise the benefits of the live culture.

Where: As beneficial microbes are needed throughout the garden, Micro-Force™ microbes can be applied to all veggie beds, orchard trees, undercover plants, ornamentals and indoor plants. Micro-Force™ can also be added to compost heaps.

When: Two applications, four to six weeks apart in both Spring and Autumn will encourage beneficial microbe activity. Regular fertilising with SeaChange™, Total Cover™ and Instant Humus™ will feed soil microbes.



PACKAGING

20 g Micro-Force™ Microbes™
300 mL Life-Force® Liquid
Microbe Food

Product Code: HGLFMF



Plants: Calcium can operate to full effect only if boron is present. Boron is also very important during the reproductive stage as it regulates flowering, pollination and the fruit to flower ratio. This is particularly important in fruit trees. A foliar spray of Total Cover™ just before flowering will supply boron and all other minerals at this critical time.

Deficiency Symptoms: Hollow stems in broccoli, woody texture in strawberries, flower and fruit drop in the orchard and poor seed set are all symptoms of boron deficiency. You may also see die back on passionfruit and grapevines.

People: This mineral also impacts calcium metabolism in humans. Boron influences the release of calcium into the blood and the absorption of calcium into our bones. Boron deficiency has also been strongly linked to arthritis and it is important in red blood cell development.

Animals: Boron has been used for over 30 years for the treatment of osteoporosis and osteoarthritis in farm animals and could also be used to treat these problems in pets.

i Good Soil Bugs – Make them feel at home.

Often referred to as The Soil Foodweb, a healthy, living soil will be teeming with microbes, both beneficial and pathogenic. Including species of bacteria, fungi, algae, nematodes, protozoa, arthropods and earthworms, soil microbes are all vital in maintaining a healthy soil structure.

Often we'll hear of a garden that is receiving the best of



Life-Force® Microbe Brewer™

What: Part two of the NTS complete production kit for the home brewing of microbes to enhance plant growth and soil health. The pack includes a 15 litre bucket with lid, double outlet aerator, air stones and pipes.

Why: Brewing the Micro-Force™ increases the potential numbers of microbes to one billion per millilitre of brew. This substantial increase maximises the opportunity for these microbes to colonise your soils.

How: 15 litres of water should be sterilised with chlorine or bleach according to the bottle directions. Stir then connect pipes to stones and pump then place stones in the bucket to aerate the sterilised water for 30 minutes to disperse chlorine or bleach. Water temperature should be between 25 to 30 degrees Celsius. Put half of the microbe powder and half of the liquid microbe food in the sterile, warm water, cover the bucket and continue to aerate for 24 hours. Resultant brew will be frothy and have an odour that should not be too unpleasant. Dilute 1 litre of brewed Micro-Force™ to 10 litres of water and 20 mL of SeaChange™ to give the microbes a little extra food before applying to the soil.

When: Spring and Autumn are ideal times to apply microbes because of the milder temperatures. The extreme heat of Summer in most parts of the country is too harsh for the microbes. Winter in the tropics and even subtropics is ideal but too cold in much of the southern areas.



everything but still not thriving, something is not quite right. The problem could be a lack of beneficial soil microbes. How can this happen? There are a number of reasons for a lack of microbes including indiscriminate use of fungicides, biocides, herbicides, nematicides or fumigated landscaping soils and high salt fertilisers.

Microbe brewing is easier than beer brewing. In just 24 hours under ideal conditions you can brew billions of microbes that will help bring your soils to life. As with all garden inputs, wear gloves and breathing mask to ensure you don't breathe the microbes into your lungs.

Once you've brewed and applied your microbes help create a comfy microbe home with regular composting, adding minerals such as NTS Soft Rock™ phosphate and feeding the soil with kelp, fish, aloe, molasses, humic acid and fulvic acid.

E Molybdenum (Mo)

Plants: Supports nitrogen-fixation and nitrate conversion into plant proteins.

E Copper (Cu)

Soil: Copper deficiencies can appear in boggy soils high in carbon (peat), as well as sandy soils where large quantities of nitrogen has been added.

Plants: Protein nutrient and essential for chlorophyll production, sugar synthesis, seed and root metabolism.



CONTENTS:

1 x 20 litre bucket with lid.
1 x dual outlet aerator & air stones/pipes.

Product Code: HGLFCTB



Vita-Guard™

What: Life-Force® Vita-Guard™ is the key to chemical free home gardening and involves the unique application of traditional chinese herbal medicine to improve plant health.

Why: Non-toxic plant extracts can also be combined with foliar fertilisers to offer a valuable chemical free option for bio-balancing in the home garden.

How: Foliar application. Dilute at 10 mL to 1 litre of water and fully wet the plant to the point of run-off.

Where: In the vegetable, ornamental gardens and fruit orchards.

When: Useful to build vitality in young plants and every three weeks during the growing season. Do not apply in the 2 weeks prior to flowering or during flowering.



People: Needed for iron transportation and the formation of haemoglobin.

E Think Zinc (Zn)

Soil: If you have over applied phosphorus using chook manure pellets over the years, then you have probably induced a zinc deficiency. The answer is to use a product like Total Cover™ as a foliar spray to bypass the soil-based lockup. Zinc is important in the soil for the health of beneficial microorganisms, particularly nitrogen fixers.

Plants: Zinc is often called the “energy micronutrient”.

People: Essential for the proper functioning of reproductive organs and for the immune system.



PACKAGING

1 L

Product Code: HGLFVG



Backyard Organic Range

Backyard Boost™

What: For those looking for a general purpose Certified Organic liquid fertiliser look no further than Backyard Boost™. A moderate analysis all-purpose fertiliser, Backyard Boost™ is ideal for vegetable, fruit or flower production. Many soils lack the nutrients required to produce and maintain healthy plants, trees and lawns. Backyard Boost™ offers a wide range of nutrients in a concentrated liquid which is suitable for all gardens.

Why: Foliar fertiliser is an ideal opportunity to deliver nutrients directly into the plants. Calcium is a sluggish mineral, particularly in winter so a foliar feed will get this vital mineral directly into all parts of the plant.

How: Dilute one capful (15 mL) of Backyard Boost™ into 5 L of water and apply mix to soil and foliage.

Where: Backyard Boost™ is ideal for your vegetable garden, orchard and flower beds.

When: Ideally, repeat weekly for vegetables and monthly for fruit trees, ornamentals and lawns. Alternate with Backyard Blooms™ for vegetables, fruit and flowers.

Backyard Blooms™

What: A high analysis potassium liquid fertiliser, Backyard Blooms™ is the perfect companion product for Backyard Boost™. Enhances photosynthesis for optimum plant health.

Why: Plants and trees that bear fruit, flowers and vegetables require potassium. A lack of potassium can reduce the quality, quantity and health of produce. Backyard Blooms™ offers a highly available form of potassium which plants and trees can easily access.

How: Dilute one capful (15 mL) of Backyard Blooms™ into 5L of water and apply mix to soil and foliage.

Where: Backyard Blooms™ is ideal for your vegetable garden, orchard and flower beds.

When: Ideally, repeat weekly for vegetables and monthly for fruit trees, ornamentals and lawns. Alternate with Backyard Boost™ for vegetables, fruit and flowers.

Backyard Box™ (Twin Pack) (Code: LFBYBX)

1 L Backyard Boost™ & 1 L Backyard Blooms™
(Code: LFBYB) (Code: LFBYBL)



Monthly Fertiliser Calendar

Crops			
January			
February			
March			
April			
May			
June			
July			
August			
September			
October			
November			
December			



The Life-Force®

Vegetable Vitality System

Step 1

Apply Nutri-Store Gold™ at 2 kg per 10 m² of garden bed. Now add one heaped table-spoon of Life-Force Instant Humus™ to a watering can full of water and apply to 10 m².

Nutri-Store Gold™ is a composted fertiliser featuring a complete blend of major and micro-nutrients along with soil life promotants.

Life-Force® Instant Humus™ is soluble humate granules. Humic acid is an organic humus concentrate which promotes plant growth and also feeds soil life.



Step 2

Dip seedlings in a 1:500 dilution of Life-Force® Stimulate™ i.e. a ½ tsp per litre of water. If you are planting seeds then generously water the seed bed with the diluted solution of Life-Force® Stimulate™ immediately after planting.

Life-Force® Stimulate™ is a combination of soluble fulvic acid powder and soluble kelp powder. Both of these natural plant and soil foods are renowned for their capacity to kickstart seedlings and improve seed germination and plant establishment.



Five Steps to Nutrient-Rich Food!

Step 3

Life-Force® Micro-Force™ is a blend of soil microbes and microbial food sufficient to make 2 x 15 L of microbe concentrate in a bucket overnight. These microbes promote a highly productive, disease-suppressive soil. Immediately after planting apply this brewed concentrate at 1:10 (i.e. 1 L into 10 L of water) as a soil drench.

Also include Life-Force® SeaChange™ in the same watering can at 1:100 (i.e. 100 mL into 10 L of water). Life-Force® SeaChange™ is a biostimulant which feeds the newly introduced workforce and entices earthworms into your garden.



Step 4

Foliar spray 1 week with Life-Force® Total Cover™, diluted at 1:100, alternating every other week with Life-Force® Trio™ (at 1:100).

Life-Force® Total Cover™ is a high performance blend of minerals and plant growth promoters. It includes luxury levels of selenium which is seriously deficient in Australian soils and produce.

Life-Force® TRIO™ involves high concentrations of liquid calcium, magnesium and boron.

Together these two products offer full season, complete plant nutrition. (You can substitute Life-Force® Total Cover™ for Life-Force® Backyard Boost™ (Organic)).



Step 5

Foliar spray Life-Force® Vita-Guard™ once every 3 weeks to avoid the requirement for toxic chemicals.

Life-Force® Vita-Guard™ is a unique botanical and herbal formulation designed to maximise plant vitality.

Important note: The five step, Life-Force® Vegetable Vitality System will deliver superb, nutrient dense vegetables with forgotten flavours and extended shelf-life. This is the ideal approach but even adopting 1 or 2 of these steps will dramatically improve your garden.



Nutri-Tech Solutions is the manufacturer of the Life-Force® Home Garden Range.



Life-Force® Home Garden Range

Your Closest Distributor:

V.1 0611

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