

VitaFlora (VITAFLOA™) **Liquid Fertilizer and Soil Conditioner**

SMART PLANT FOOD TECHNOLOGY

VitaFlora™ - PLANT FOOD REVOLUTION

After 16 years of research, clinical and field trials VITAFLOA™ LIQUID Fertilizer & Soil Conditioner was introduced onto the market of Australia 15 years ago causing a revolution in plant nutrition.

Through effective use of ALL available nutrients (Applied in VITAFLOA™ and already existing in soil) VITAFLOA™ minimizes leaching loss thus reducing environmental damage. VITAFLOA™ not only stimulates development of the root system, growth of the plant, flowering and fruiting but also balances the pH of the water applied to the root zone or foliage of the plant, which further promotes the availability and uptake of ALL nutrients required by the plant.

During the process, complex chemical reactions take place which result in a product that automatically maintains pH at a range between 5.5 and 6.5 value. This is quite a unique feature and today there is no such propriety made complete fertilizer brand that yields this characteristic. But what's more is that VITAFLOA™ may be applied at extremely high EC levels without any harm to the plants. This is another unique feature of the product. The nutrient salts are buffered in solution or in the soil and are released controlled to the plants as and when needed by them. The nutrients will not be leached which is of significant environmental importance. Less nutrients are needed and because of the possibility of high EC applications this is of significant importance for fruit, grapevines and vegetable growers who require a high EC level to enhance taste and sugar content.

LIQUID FERTILIZER AND SOIL CONDITIONER

This product has been developed after 15 years of research and development, including seven years of intensive trials. Presently the product is being used in large quantities and with excellent results by vegetable, flower and fruit growers as well as home gardeners in the Pacific.

The product is a complete fertilizer and soil-conditioner suitable for both commercial and domestic markets.

Commercial markets include: amenity turf (sporting grounds, golf courses, parks etc.), nursery stock, hydroponic operations, interior landscaping, field crops such as vegetables, fruits, vines, cereal crops and pastures.

Domestic markets include: vegetable, flower and shrub gardens and allotments, indoor plants, fruit trees, lawns and soil-less cultivations.

CHARACTERISTICS

- Can be applied in both horticulture and agriculture.
- Minimizes leaching loss because of high buffering and uptake capacity, reducing environmental damage.
- Automatically maintains pH at between 5.5-6.5, in both soil and hydroponics.
- Can be applied at EC levels of up to 12 milisiemens without the risk of damaging plants.
- Smart Technology increases growth by up to 35%.
- Acts as a liquid controlled release fertilizer.
- Is contained in one solution instead of the present A and B mixes, eliminating the need for intricate management.
- Is very concentrated and highly soluble, leaves no precipitation thus no drip blockage.
- May be applied as a foliar feed at all times of the day without burning plant tissue.
- Can be used as a pre-germination solution causing plants to emerge 1 day sooner than other fertilizers.
- Reduces the vegetative stage with up to 30%.

PLANT STIMULANT and pH CONTROL

The product is revolutionary fertilizer and is in fact a unique and balanced plant food stimulating root system development, growth, flowering and fruiting. More importantly it balances the pH level in the water applied to the root zone or foliage of the plant which further promotes the availability and uptake of all nutrients required by the plant. The greatest problem of plant nutrition in horticulture, be it in hydroponics, peat substrates or in soil, is pH control. A near neutral pH renders plants more resistant to pests and diseases and promotes better overall performance. Proper pH control is especially beneficial for situations where natural conditions are not optimal. When added to water with a high pH value (up to 7.5-8) the pH of the water will automatically buffer back to 5.5 to 6.5, the optimum value at which plants can best take up nutrients applied to the root zone and foliage. This equally occurs when pH is low. Other forms of organic nutrients which may not otherwise be available because of too low or too high pH values are also buffered and made available.

BALANCED PHYSIOLOGICAL PROCESS

The product is best utilized when applied to both root system and foliage of the plant. This combined use promotes synergy between the rhizo- and phyllosphere, ensuring all physiological processes in the plant are well balanced. When taken up by the plant in osmosis the products special organic compounds automatically increase the capability of the cell walls to keep higher pressure inside of the cell- The protoplasm (nucleus and cytoplasm) also absorbs some compounds that characteristically increase internal pressure. Cell division then takes place and cell walls are reinforced. What is more, the product regulates all available nutrients in the surrounding environment without changes to its own role.

- **INCREASED YIELDS AND REDUCED VEGETATIVE PERIOD.** The product increases plant yields between 30% and 40% and reduces the vegetative period up to 33%.
- **REDUCED PRODUCTION COSTS.** Application of the product is a simple process requiring little management expertise. In combination with its other properties it dramatically reduces production costs and increases profitability.
- **NO RESIDUAL SALTS.** Unlike solid fertilizers which leave large amounts of residual matter in the growing media (both soil and soil-less media) the contents of the product are completely dissolved and taken up by plants.

MINIMAL LEACHING

Last but not least due to its extremely high buffering and uptake capacity, virtually no leaching occurs. This unique property of the products' organochemical compounds renders it of high environmental standard. This is of crucial importance to the continuation of safe and lasting natural resource management.

FERTILIZERS AND NUTRIENTS

The six external factors: Air, light, temperature, water, support and nutrients are generally recognized as the control of plant growth. The role of additional nutrients, supplied in the form of fertilizers, is to inject extra quantities of the essential plant elements into the cycle of plant growth to maintain or raise the level of plant yield. High production depends on ALL essential elements being present in perfect proportions. The most fundamental statements ever made, when considering use of any plant food or fertilizer, is Von Liebig's Law of the Minimum:

The yield of a plant is limited by a deficiency of any ONE essential element, even though ALL OTHERS are present in adequate amounts.

Essential Elements are classified depending on plants' needs:

Large Amounts	Small Amounts
MACRO or MAJOR	MICRO or TRACE
Carbon	Iron
Hydrogen	Copper
Oxygen	Zinc
Nitrogen	Boron
Phosphorus	Manganese
Potassium	Chlorine
Calcium	Molybdenum
Magnesium	Sodium
Sulphur	Cobalt
	Vanadium
	Silicon

90 to 95% of the dry matter of ALL plants are made of Carbon, Hydrogen and Oxygen which are obtained from the Carbon Dioxide in the atmosphere and water.

The remaining elements are obtained through the root system and they make up the other 5 to 10% of the plant. They are supplied by the weathering of soil minerals and organic matter breakdown or must be supplied as outside source – FERTILISERS.

Plant nutrient deficiencies occur and plant growth may be slowed down because of:

- ***Low natural fertility***
- ***Leaching of nutrients***
- ***Erosion***

Plant nutrients are present but in insufficient quantity or in incorrect proportions

Removal of nutrients in harvested crops or by grazing animals (pasture)

Higher demands through the introduction of improved soil cultivation, use of pesticides, hybrid varieties, irrigation systems etc.

CONCLUSION

Carbon, Hydrogen and Oxygen are obtained by the plant from the air and water in the growing medium and atmosphere. They make up 90 to 95% of the plants. The other Essential Elements are supplied by the weathering of soil materials and organic matter breakdown or by application of plant food or fertilisers. They make up only 5 to 10% of the plants.

If any of the essential elements is deficient, growth of the plant will be reduced even though ALL others are in ample supply.

Nutrient availability is affected by the acidity or alkalinity – pH – of the growing medium.

Excessive quantity of the nutrient elements may be harmful to plants – nutrient toxicity. Nutrients must be absorbed in diluted solutions, in the right EC level.

Plants absorb nutrients in relative proportions. If growing medium supplies nutrients in adequate proportions such medium is balanced nutrient medium, if, however, the absorption is unbalanced, nutrient deficiency is created, e.g. excessive quantity of calcium may interfere with phosphorous or boron or may cause a reduction in the availability of Iron, Manganese or Zinc.

The total quantity of nutrient elements in growing medium is not available to the plant.

Every single nutrient element passes through a series of changes in the plant and growing medium.

FOLIAR SPRAYING

Deficiency and Supplemental Feeding

Two factors which may interfere with the uptake and utilisation of nutrients through root system of the plants are soil and the weather conditions.

SOIL CONDITIONS:

- Inadequate pH will reduce availability of nutrients
- Not enough soil water to make fertilisers soluble
- Excessive soil water may cause leaching and fixation
- Low soil temperature may stop nutrient uptake

WEATHER CONDITIONS:

- Wet weather may cause excessive soil water
- Dry weather may cause high soil temperature and not enough soil water
- Cold weather may reduce soil temperature

FOLIAR SPRAYING AS AN EFFICIENT SUPPLEMENT TO SOIL FERTILISERS, CAN BYPASS THESE CRITICAL FACTORS.

NUTRITIONAL DEFICIENCIES

Leaf chlorosis, blossom drop or reduced growth is visual signs of nutritional deficiencies. More accurate proof of unavailability or shortage of nutrients supplied by the root system is plant tissue analysis. Nutritional deficiencies and other stress problems associated with root nutrient uptake are corrected with foliar spraying as an efficient application of plant nutrients.

NUTRITIONAL SUPPLEMENT

Foliar spraying is not a substitute for soil fertilisation, however foliar spraying is a supplement, not a replacement for regular soil fertilising programmes. All nutrients are capable of being absorbed by parts of a plant above ground: leaves, branches, buds, fruit, flowers and stems. At a particular stage, (bud formation, flowering, fruit stem and fruit maturation) demand for nutrients is enormous, the root system simply cannot supply all the nutrients required, that is when foliar spraying shows its full crop benefits.

HOW FOLIAR SPRAYING WORKS

Passage of all substances occur through: Stomata, (small openings in the underside of the leaf) Cuticle (membrane of waterproof – external waxy layer) and Ectodestomata (small strands occurring in the outer cell wall to the Cuticle). Once the chemical compounds of foliar spray has entered plant cells, various chemical, biological and biochemical processes occur to promote transport of newly formed substances in parts of the plant where they are needed for future reactions.

VITAFLORA™ - Perfect foliar spray

VITAFLORA™ is best utilised when applied to both the root system and the foliage of the plant, as this combined use promotes synergy between the root system and above ground parts, thus ensuring all processes in the plant are perfectly balanced.

VITAFLORA™ serves as a buffering agent and through lowering the pH of the spraying dilutions ensuring highest possible efficiency of pesticides and readily absorption of nutritional spray. Preparation of spraying dilutions is a very simple process because of the fact that VITAFLORA™ is 100% water soluble and prepared dilution does not have any sediment. Run-off from foliar spraying is immediately available for the root system of the plant which minimises any loss of spraying dilution.

But what is more, VITAFLORA™ can be applied with the latest ULV techniques allowing spraying of particles less than 20 microns small which insures almost complete uptake of all elements within 20 minutes!

AVOID ANY EXTERNAL AND INTERNAL STRESS PROBLEMS,

USE VITAFLORA™ IN COMBINED ROOT SYSTEM AND FOLIAR APPLICATION.

TURF AND FERTILISERS

- As with all other plants, good turf depends on six external factors: air, light, temperature, water, support and nutrients.
- The role of additional nutrients, supplied in the form of fertilisers, is to inject extra quantities of essential plant elements into the cycle of lawn growth to maintain or raise the condition wanted.
- VITAFLOA™ - Liquid Fertiliser and Soil Conditioner has the characteristics of a complete plant food with several unique features:
 - VITAFLOA™ minimises leaching loss through effective use of ALL available nutrients because of high buffering capacity, thus reducing environmental impact.
 - VITAFLOA™ reinforces cell walls and allows maximum element uptake at very high EC levels, even in the pre-emergent state of the lawn, increasing growth by up to 40%.
- Applications may be as high as EC 12mS/cm (1 litre of VITAFLOA™ diluted in 50 litres of water), at an application rate of only twice a year, although 6 mS/cm (1 litre of VITAFLOA™ diluted in 100 litres of water) is recommended.

APPLICATION OF VITAFLOA™ - MINIMAL COST

Two application methods are possible:

- **WATERING:** Prior to watering check moisture, and if it is dry apply plain water in one good soaking. Dilute 1 litre of VITAFLOA™ in 100 litres of water and water turf thoroughly. 1 litre of VITAFLOA™ diluted in 100 litres of water will cover 100 square metres of turf. Continue normal watering after 6 to 8 hours. Repeat the application at 4 to 6 month intervals.
- **FOLIAR SPRAYING:** Dilute 4 to 6 litres of VITAFLOA™ in 400 litres of water and spray over 1 Hectare (10,000 square metres). Ensure HEAVY foliar cover. Always apply in the late afternoon or early in the morning. Continue with normal watering after 6 to 8 hours. Repeat the application every two weeks.

VITAFLOA™ saves time and money, and contributes to excellent turf while minimising environmental impact.

VITAFLOA™ FOR PROPAGATORS

Nano Growth Technologies Pty.Ltd. wishes to advise propagators that using VITAFLOA™ fertiliser at a rate of 1:200, (5mls per litre of water) is having excellent results on the propagation of plants from cuttings.

Apply this solution as a fine spray over cuttings. We recommend that the feed be applied late in the afternoon. If using mist for propagation we recommend that the mist be turned off for up to 6 hours after application of VITAFLOA™. (Employ at a time clock to achieve this). Apply VITAFLOA™ to the cuttings every 7 days for the duration of the propagation period.

We also recommend that VITAFLOA™ be applied to stock plants as a foliar feed @ 1:200 at 7 day intervals 4-5 weeks before taking the cuttings.

N.B. If using a fungicide on the cuttings we recommend that the fungicide be added to the VITAFLOA™ solution and the mixture be applied to the cuttings as a fine spray. When VITAFLOA™ is applied to water, it automatically adjusts the pH level at which plants can best take up and utilise nutrients.

VITAFLOA™ is ideal for use as a root feed for newly potted plants as well as advanced plants.

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COMPLETE FERTILISATION PROGRAMME

OTHER INDUSTRIAL CROPS: *Sugar cane, Cotton, Peanuts, Tobacco, Herbs.*

BASE APPLICATION (Application before sowing): Incorporate into the soil 25 litres of VITAFLOA™ with 250 litres of water over 1 hectare (10 litres of VITAFLOA™ with 100 litres of water over 1 acre).

IMPORTANT: Avoid contact of any dilution with eyes, skin, open cuts or sores. Avoid contact of any dilution with metals. If contact should occur rinse well with water to minimise corrosion.

FOLIAR SPRAYING (Application to the foliage): Dilute 4 litres of VITAFLOA™ in 800 litres of water and spray over 1 hectare (1.5 litres of VITAFLOA™ in 300 litres of water over 1 acre).

Ensure complete foliage cover.

Repeat not less than fortnightly.

IMPORTANT: Do not apply in hot sunlight.

COMPLETE FERTILISATION PROGRAMME

OILSEEDS: *Linseed, Rapeseed (Canola), Safflower, Soybean, Sunflower.*

BASE APPLICATION (Application before sowing): Incorporate into the soil 25 litres of VITAFLOA™ with 250 litres of water over 1 hectare (10 litres of VITAFLOA™ with 100 litres of water over 1 acre).

IMPORTANT: Avoid contact of any dilution with eyes, skin, open cuts or sores. Avoid contact of any dilution with metals. If contact should occur rinse well with water to minimise corrosion.

FOLIAR SPRAYING (Application to the foliage): Dilute 4 litres of VITAFLOA™ in 800 litres of water and spray over 1 hectare (1.5 litres of VITAFLOA™ in 300 litres of water over 1 acre).

Ensure complete foliage cover.

Repeat no less than fortnightly.

IMPORTANT: Do not apply in hot sunlight.

COMPLETE FERTILISATION PROGRAMME

PASTURES AND GRASSES: *Lucernes, Medics, Vetch, Clovers, Seradella, Cocksfoot, Fescues etc.*

BASE APPLICATION (Application before sowing): Incorporate into the soil 25 litres of VITAFLOA™ with 250 litres of water over 1 hectare (10 litres of VITAFLOA™ with 100 litres of water over 1 acre).

IMPORTANT: Avoid contact of any dilution with eyes, skin, open cuts or sores. Avoid contact of any dilution with metals. If contact should occur rinse well with water to minimise corrosion.

FOLIAR SPRAYING (Application to the foliage): Dilute 4 litres of VITAFLOA™ in 400 litres of water and spray over 1 hectare (1.5 litres of VITAFLOA™ in 150 litres of water over 1 acre).

Ensure complete foliage cover.

Repeat not less than fortnightly.

IMPORTANT: Do not apply in hot sunlight.

COMPLETE FERTILISATION PROGRAMME

CEREALS FOR GRAIN: *Barley, Canary seed, Grain sorghum, Maize, Oats, Millet, Rice, Rye, Triticale, Wheat.*

BASE APPLICATION (Application before sowing): Incorporate into the soil 25 litres of VITAFLOA™ with 250 litres of water over 1 hectare (10 litres of VITAFLOA™ with 100 litres of water over 1 Acre).

IMPORTANT: Avoid contact of any dilution with eyes, skin, open cuts, or sores. Avoid contact of any dilution with metals. If contact should occur rinse well to minimise corrosion.

FOLIAR SPRAYING (Application to the foliage): Dilute 4 litres of VITAFLOA™ in 800 litres of water and spray over 1 hectare (1.5 litres of VITAFLOA™ in 300 litres of water over 1 acre).

Ensure complete foliage cover.

Repeat not less than fortnightly.

IMPORTANT: Do not apply in hot sunlight.

SUMMARY

- VITAFLOA™ is a revolutionary new fertiliser.
- VITAFLOA™ is the result of 15 years of scientific research, clinical & field trials
- VITAFLOA™ is a unique and perfectly balanced complete plant food in one concentrated solution.
- VITAFLOA™ stimulates development of the root system, growth of the plant, flowering and fruiting.
- VITAFLOA™ balances the pH level in the water applied to the root zone or foliage of the plant, which further promotes the availability and uptake of all nutrients required by the plant.
- VITAFLOA™ is easy to use. Follow instructions on label.
- VITAFLOA™ allows maximum element uptake at very high concentration increasing growth by up to 40%.
- VITAFLOA™ minimises leaching loss through effective quick use of all available nutrients, thus reducing environmental damage.
- VITAFLOA™ is applied in same concentration to the foliage as into the root zone of the plant. One product, two uses.
- VITAFLOA™ is best utilised when applied to both the root system and the foliage of the plant.
- VITAFLOA™ is being used by a number of commercial growers on seedlings, ornamental plants, fruit trees, vines, turf and many other crops.
- VITAFLOA™ is the best used on plants in the morning if applying to the root zone and when foliar spraying apply late afternoon when it is cooler and the evaporation rate is at its lowest.
- VITAFLOA™ is non toxic and safe to use on your plants.
- VITAFLOA™ is economical to use.

VITAFLOA™ SMART PLANTFOOD TECHNOLOGY