

SUPERthrive[®]

Product Catalog



SUPERthrive®

A Heritage of American Ingenuity

Started in a three-car-garage in 1939, SUPERthrive has had a fabulous journey few products can match – all thanks to the creativity and passion of its founder, Dr. John Thomson.

Dr. Thomson studied Biochemistry at the University of Southern California, where he became fascinated by the renowned Dr. Fritz Went's new discoveries in biochemical processes that aid in plant development. These discoveries inspired Dr. Thomson to create a product dedicated to plant wellness, eventually earning SUPERthrive the World's Fair Gold Medal in Science and Industry 1940.



As a true old-time salesman, Dr. Thomson spread word of SUPERthrive traveling nursery to nursery until his passing in 2011.



*SUPER*thrive®

1940 WORLD'S FAIR *Gold Medal*

The *Original* Vitamin Solution

A One-of-a-Kind, Proprietary Formula



SUPERthrive® benefits:

- All-purpose; beneficial to all plant types including vegetables & flowers
- Natural & non-toxic
- Improves plant vigor
- Revives stressed plants
- Reduces transplant shock
- Helps with all stages of plant growth

SUPERthrive® is not a fertilizer, it's a vitamin-based formula. Just as the human body needs a full range of nutrients and will suffer from an inferior diet, plants need more to thrive than the nitrogen, potassium & potash found in most fertilizer products.

Dr. Thomson's proprietary, all natural, vitamin formula contains kelp, Vitamin B1 and 36 additional ingredients. The addition of SUPERthrive's vitamin formula helps plants to perform at their best.

SUPERthrive[®]

1940 WORLD'S FAIR *Gold Medal*

The *Original* Vitamin Solution

A One-of-a-Kind, Proprietary Formula

Many sizes available!



A young tomato plant with several green, lobed leaves is being held by a pair of hands. The hands are positioned over a dark, rich soil. The background is a soft, out-of-focus green, suggesting a garden or greenhouse setting. The overall lighting is bright and natural, highlighting the vibrant green of the plant and the texture of the soil.

SUPERthrive[®]

Organic Plant Food and Fertilizer

SUPERthrive®

Organic Plant Food and Fertilizer



STFOOD32-8

SUPERthrive Organic 4-4-4 All-Purpose Fertilizer contains all the macro-nutrients plants need throughout the growing season. This premium-grade granular fertilizer is made from 100% organic ingredients, including Mycorrhizae that help expand the surface area of roots for better nutrient and water uptake.



STSOLID-4



SUPERthrive[®]

Nutrient Family

Complete, Easy To Use & Cost Effective

Based on research, including tissue analyses of a large variety of plants, SUPERthrive's N-P-K ratios for our complete and supplemental solutions are formulated to satisfy all varieties of plants' nutritional requirements at all stages of their growth cycles. Our nutrient formulas are available in retail and commercial sizes.

SUPERthrive's nutritionally complete formulas contain all 16 mineral elements essential for optimum plant growth. The omission of any one essential element will result in abnormal growth, premature death, and/or failure to complete a full life cycle.



SUPERthrive's highly concentrated solutions result in vigorous growth, blooming and, higher yields. Stronger, healthier plants have a marked resistance to pests and disease which can reduce or even eliminate the need for pesticides and fungicides. SUPERthrive nutrients also promote a healthier growing environment without the inconvenient re-entry periods associated with the use of hazardous pesticides and fungicides.

In time, even the best soil becomes depleted as plants take up available minerals. Adding incomplete fertilizers may keep your plants alive, but only a complete, balanced product with all the essential elements will produce the maximum yields every grower wants. No other producer has a nutrient or fertilizer product that has ALL the essential macro and micro minerals in a single or multi-part liquid concentrate.





Foliage-Pro™ 9-3-6

Foliage-Pro™ 9-3-6 is a complete nutrition formula that has all 6 essential macronutrients and all 10 essential micronutrients required by plants for optimum growth in any medium. The N-P-K (3-1-2) ratio is recommended by the National Rose Society, the University of Florida and a number of other plant specialists and organizations. This N-P-K ratio is the ideal ratio for most plants

including, but not limited to; roses, tropicals, legumes, and cannabis. Foliage-Pro™ is complete and balanced and, like all our complete formulas, the minerals in Foliage-Pro™ are ideal for phosphorous sensitive plants. It supplies a high nitrate to ammoniacal nitrogen ratio which promotes shorter internodal spacing resulting in stronger stems. The immediate availability to the plant, with our exclusive complete solutions, gives the grower optimum control with timing in a feeding schedule. Foliage-Pro, and all other SUPERthrive products, are urea free and are formulated to eliminate salt build-up when used at recommended rates. Foliage-Pro should primarily be used as a root drench but may be applied as a foliar spray at lower concentrations for a quick fix of many mineral deficiencies. SUPERthrive has the only complete, one-part nutrient formulas on the market today.

Analysis

Total Nitrogen (N)	9.0%*	Chlorine (Cl)	0.006%
Ammoniacal (NH ₄)	2.9%*	Cobalt (Co)	0.0005%*
Nitrate (NO ₃)	6.1%*	Copper (Cu)	0.05%*
Phosphorus (P ₂ O ₅)	3.0%*	Iron (Fe).....	0.1%*
Potassium (K ₂ O)	6.0%*	Manganese (Mn)	0.05%*
Calcium (Ca)	2.0%*	Molybdenum (Mo)	0.0009%*
Magnesium (Mg)	0.5%*	Nickel (Ni)	0.0001%
Sulfur (S)	0.05%	Sodium (Na).. ..	0.05%
Boron (B)	0.01%	Zinc (Zn)	0.05%*

*Nutrients guaranteed in all states

Available Sizes

8 oz. | 32 oz. | 1 gal. | 5 gal. | 55 gal.



Grow™ 7-9-5

GROW™ 7-9-5, is an all-purpose, nutritionally complete formula that is used to promote both foliage and bloom growth. The N-P-K ratio of GROW™ will promote healthy leaf and stem growth for your vegetables, fruit trees, houseplants and landscape. As with all our complete solutions, GROW™ is ideal for poor, rocky soils, hydroponics and container grown plants. It is a rapid cure for nutrient

deficiencies and helps replenish lost minerals in poor and depleted soils. GROW™ is a complete formula for all gardeners who desire a slightly higher phosphorus to nitrogen ratio.

Analysis

Total Nitrogen (N)	7.0%*	Chlorine (Cl)	0.1%*
Ammoniacal (NH ₄)	2.6%*	Cobalt (Co)	0.0015%*
Nitrate (NO ₃)	4.4%*	Copper (Cu)	0.05%*
Phosphorus (P ₂ O ₅)	9.0%*	Iron (Fe)	0.1%*
Potassium (K ₂ O)	5.0%	*Manganese (Mn)	0.05%*
Calcium (Ca)	2.0%*	Molybdenum (Mo)	0.0009%*
Magnesium (Mg)	0.5%*	Nickel (Ni)	0.0001%
Sulfur (S)	0.05%	Sodium (Na)	0.1%*
Boron (B)	0.02%*	Zinc (Zn)	0.05%*

*Nutrients guaranteed in all states

Available Sizes

8 oz. | 32 oz. | 1 gal. | 5 gal. | 55 gal.





Bloom™ 3-12-6

BLOOM™ 3-12-6 is a low nitrogen, high phosphorus formula containing all 6 essential macronutrients and all 10 essential micronutrients. BLOOM is specifically formulated to encourage the development of large fruit and vegetables, while providing complete plant nutrition. It is ideal for tomatoes, all fruits, all vegetables, herbs, flowering plants and cannabis. Apply BLOOM before flower buds appear, to help initiate and sustain flowering. When applied, the nutrients in BLOOM are immediately available, giving your plants the ability to access the nutrients they need in critical stages of production.

Apply BLOOM before flower buds appear, to help initiate and sustain flowering. When applied, the nutrients in BLOOM are immediately available, giving your plants the ability to access the nutrients they need in critical stages of production.

Analysis

Total Nitrogen (N)	3.0%*	Chlorine (Cl).	0.1%*
Ammoniacal (NH ₄)	0.7%*	Cobalt (Co).	0.0015%*
Nitrate (NO ₃)	2.3%*	Copper (Cu).	0.05%*
Phosphorus (P ₂ O ₅)	12.0%*	Iron (Fe).	0.1%*
Potassium (K ₂ O)	6.0%*	Manganese (Mn).	0.05%*
Calcium (Ca)	2.0%*	Molybdenum (Mo)	0.0009%*
Magnesium (Mg)	0.5%*	Nickel (Ni)	0.0001%
Sulfur (S)	0.09%	Sodium (Na)	0.1%*
Boron (B)	0.02%*	Zinc (Zn)	0.05%*

*Nutrients guaranteed in all states

Available Sizes

8 oz. | 32 oz. | 1 gal. | 5 gal. | 55 gal.

Bonsai-Pro™ 7-9-5



Bonsai-Pro™ 7-9-5: Bonsai trees, like all other plants, require N-P-K plus all the other macro and micro nutritional elements to survive. While normal trees are able to broaden their root systems, bonsai are planted in small pots and benefit from frequent, applications of Bonsai-Pro at rates of not more than ½ tsp. per gallon. Bonsai-Pro offers balanced growth throughout the plant's life, which can be affected by temperature, light, soil, pruning, watering, and root structure.

Analysis

Total Nitrogen (N)	7.0%*	Chlorine (Cl)	0.1%*
Ammoniacal (NH ₄)	2.6%*	Cobalt (Co)	0.0015%*
Nitrate (NO ₃)	4.4%*	Copper (Cu)	0.05%*
Phosphorus (P ₂ O ₅)	9.0%*	Iron (Fe)	0.1%*
Potassium (K ₂ O)	5.0%*	Manganese (Mn)	0.05%*
Calcium (Ca)	2.0%*	Molybdenum (Mo)	0.0009%*
Magnesium (Mg)	0.5%*	Nickel (Ni)	0.0001%
Sulfur (S)	0.05%	Sodium (Na)	0.1%*
Boron (B)	0.02%*	Zinc (Zn)	0.05%*

*Nutrients guaranteed in all states

Available Sizes

8 oz.





Orchid-Pro™ 7-8-6



Orchid-Pro™ 7-8-6 is a well-balanced, professional formulation containing all essential macro and micro nutrients for use on all types of orchids. It provides the right balance of nutrients for healthy growth and flowering. Urea free, Orchid Pro may be used for orchid growth in both indoor and outdoor settings as well as with direct or indirect lighting. Orchid-Pro may be used with Pro-TeKt to quickly acclimate the plant to a new medium or environment.

Analysis

Total Nitrogen (N)	7.0%*	Chlorine (Cl)	0.1%*
Ammoniacal (NH ₄)	2.6%*	Cobalt (Co)	0.0015%*
Nitrate (NO ₃)	4.4%*	Copper (Cu)	0.05%*
Phosphorus (P ₂ O ₅)	8.0%*	Iron (Fe)	0.1%*
Potassium (K ₂ O)	6.0%*	Manganese (Mn)	0.05%*
Calcium (Ca)	2.0%*	Molybdenum (Mo)	0.0009%*
Magnesium (Mg)	0.5%*	Nickel (Ni)	0.0001%
Sulfur (S)	0.05%	Sodium (Na)	0.1%*
Boron (B)	0.02%*	Zinc (Zn)	0.05%*

*Nutrients guaranteed in all states

Available Sizes

8 oz.



ProTeKt™

0-0-3

Pro-TeKt® 0-0-3 The Silicon Solution® is a supplement that supplies soluble silicon and potassium to build stronger plant cell walls. In hydroponics, Pro-TeKt is a replacement for the silica normally found in all soils (typically 5 – 10 ppm), though those natural levels provide only slight benefits to plants.

Plants supplied regularly with Pro-TeKt at 50 – 100 ppm of silicate, experience increased rates of growth with darker green leaves. Silicon adds mechanical strength and supports plants' natural protection against insects and fungal infection. Additionally, plants supplied with soluble silicon become more tolerant to drought, heat, and cold stresses. Silicon is deposited in the epidermis and cell walls creating a mechanically stronger plant that can support the weight of dense flowers, fruits and vegetables.

Pro-TeKt increases the plant's rate of growth and photosynthesis by increasing levels of RuBisCo and chlorophyll under a wide range of lighting conditions. Pro-TeKt can be used as a surfactant and to raise pH. SUPERthrive argues that silicon provided by Pro-TeKt The Silicon Solution is a 17th mineral element essential for plants. In addition to all the many benefits, Pro-TeKt's ability to make water wetter, makes it an ideal compliment to all our complete and supplemental formulas. Pro-TeKt, used in tandem with our KLN Concentrate™ (rooting formula), dramatically improves success rates for rooting, transplanting and cloning processes.

Analysis

Potassium (K₂O) 3.7%* Silicate (SiO₂) 7.8%

*Nutrients guaranteed in all states

Available Sizes

8 oz. | 32 oz. | 1 gal. | 5 gal. | 55 gal.



Mag-Pro™ 2-15-4

Mag-Pro® 2-15-4 is a supplement high in phosphorus, magnesium and sulfur. This unique plant supplement is used with in conjunction with any of our complete nutrition formulas as a blossom, scent and flavor booster to help initiate flowering and develop large, vibrant, fragrant flowers. The nutrients in Mag-Pro are immediately available, giving your plant the ability to access the nutrients they need at the

critical times of flower formation to ensure massive growth and enhanced aromas. Growers using reverse osmosis, rain or de-ionized water will benefit from the addition of Mag-Pro throughout their plants' growth cycle. Mag-Pro is THE blossom booster for growers looking to maximize the beauty and value of their crop and is highly recommended for tomatoes, peppers, roses and cannabis.

Analysis

Total Nitrogen (N)	2.0%*	Phosphorus (P ₂ O ₅)	15.0%*
Ammoniacal (NH ₄)	1.1%*	Potassium (K ₂ O)	4.0%*
Nitrate (NO ₃)	0.9%*	Magnesium (Mg)	2.0%*
		Sulfur (S)	1.5%*

*Nutrients guaranteed in all states

Available Sizes

8 oz. | 32 oz. | 1 gal. | 5 gal. | 55 gal.



PURE **Neem Oil**

Organic Leaf Polish

Neem Oil: SUPERthrive's pure, organic, cold pressed Neem Oil comes directly from the seeds of the Indian neem tree. In India, products from the neem tree have been used for thousands of years for a variety of applications including their horticultural and medicinal benefits. Neem Oil leaf polish should be applied early or late in the day as hot sunlight may cause leaf burn. Neem Oil may be

drenched directly into soil and applied as a foliar spray. Pro-TeKt or a mild liquid dish-washing soap should be used as surfactants to emulsify Neem Oil so it can be sprayed on plants or drenched in the soil. Warm or hot water will facilitate getting Neem Oil into suspension for a spray or drench.

Analysis

100% Pure Organic Cold Pressed Neem Oil

Available Sizes

8 oz. | 32 oz. | 1 gal. | 5 gal. | 55 gal.





ZYME™

Enzyme Cleanser

ZYME™ is a blend of proprietary enzymes. ZYME is designed to cleanse your plants roots, soil, media and hydroponic systems of plant exudates, bio-film, sludge, slime and algae. ZYME works in conjunction with mycorrhizae and beneficial bacteria to break down nutrients, organics, sweeteners, carbohydrates and dead plant material.

This clears the pores of the roots allowing for vigorous nutrient uptake into the plant. It is naturally brewed with certified organic and food grade ingredients. ZYME is 100% pure enzymes with no bacteria, oils, detergents, soaps, surfactants, chlorine, hydrogen peroxide, colloidal silver or harsh chemicals that can hurt your plants or microbes.

Analysis

A Proprietary Blend of Enzymes and Microbes

Available Sizes

8 oz. | 32 oz. | 1 gal. | 5 gal.

FLUSH™

Dynamic Cleaning Solution



Dyna-FLUSH is a concentrated organic acid complex, that acts as a metabolite to clear out excess mineral compounds stored within the plant's root zone. This will force your plants to trans-locate remaining nutrients found within the plant to where they can be used up. Compatible with All Soil and Soilless Potting Mixes.

Dyna-FLUSH was developed for use with soil and soil-less mixes such as peat, Vermiculite, Rockwool, coco coir, and others. It will not harm the microbiology of these media.

Available Sizes

8 oz.

pH-Up™ and pH-Down™



pH is a measure of acidity or alkalinity. pH of 7.0 is considered neutral. A lower pH is considered acidic and a higher pH is considered alkaline. pH is measured on a logarithmic scale from 1 to 14. That means that a pH of 4 is ten times as acidic as a pH of 5 and pH of 3 is 100 times as acidic as pH of 5. On the other end of the scale, a pH of 10 is ten times as alkaline as a pH of 9 and 100 times as alkaline as pH of 8.

For growing in soil, the pH range should be 6.0 to 6.5. In hydroponics, pH should be maintained between 5.5 and 6.5. When the proper pH is achieved, the nutrients become more available to the plant. pH levels that are too low or too high can result in the release of, or tying up of minerals in soils that can lead to toxic or deficient levels of some mineral elements. If pH is too low, raise using SUPERthrive pH-Up or Pro-TeKt®. If pH is too high, lower the pH using SUPERthrive pH-DOWN.

pH Up Analysis

Soluble Potash (K_2O)5.0%

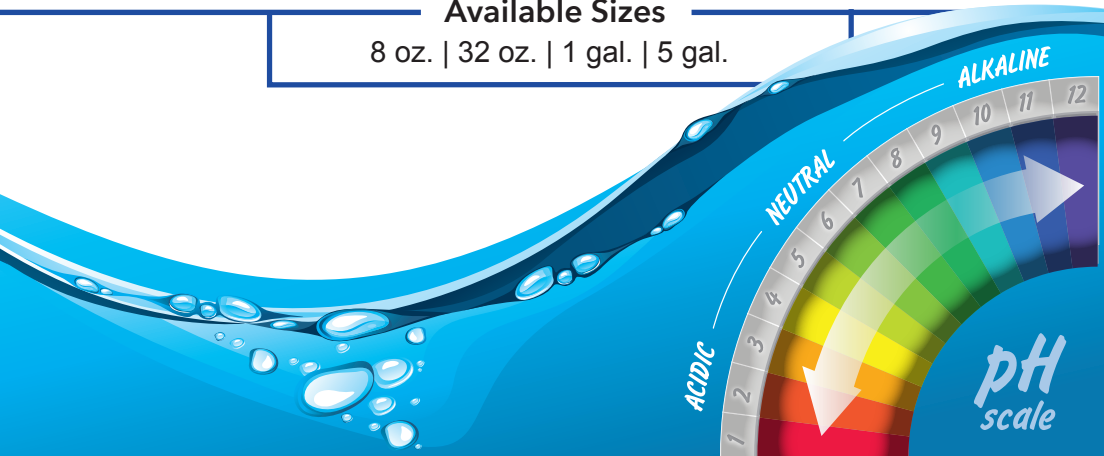
pH Down Analysis

Nitrogen (N) 1.0%

Phosphorus (P_2O_5)5.0%

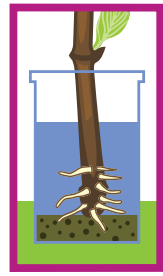
Available Sizes

8 oz. | 32 oz. | 1 gal. | 5 gal.



K-L-N

Rooting Concentrate



K-L-N Rooting Concentrate™ is a root stimulating solution containing both (IBA) Indole-3-butyric acid and (NAA) 1-Naphthaleneacetic acid hormones, plus the right amount of essential minerals to produce vigorous root development in all plants. Use it for propagating cuttings and as a transplanting drench for newly potted plants. Drench or mist your plants for an explosion of new root growth. Professional growers around the country recognize and highly recommend K-L-N to speed up propagation of cuttings in all growing media. See label or website (product and FAQ's) for more information.

Analysis

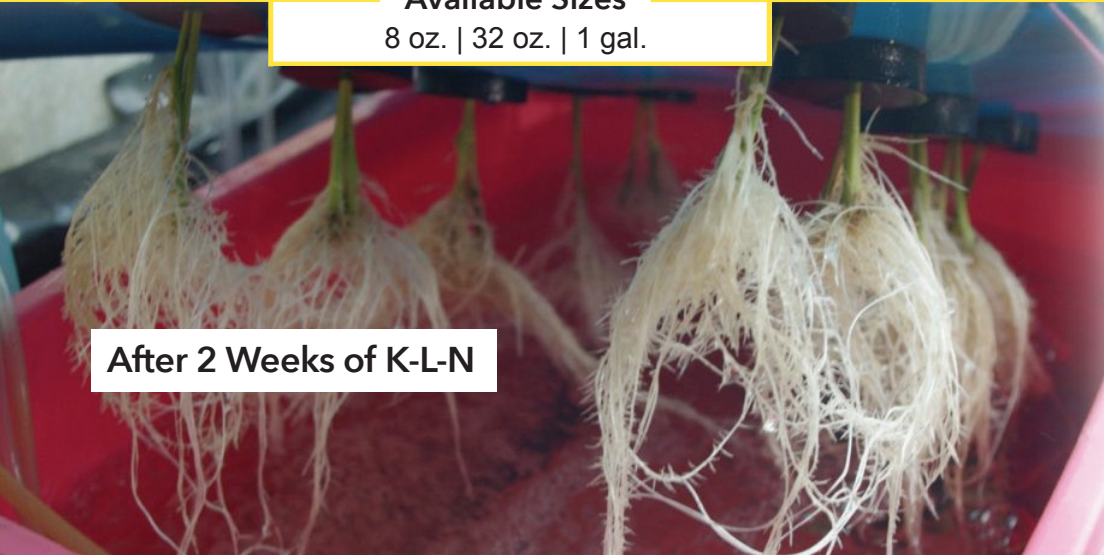
Indole-3-butyric acid (IBA) 0.07%
1-Naphthaleneacetic acid (NAA)....0.10%

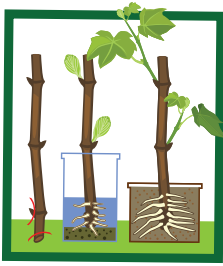
Other Ingredients 99.83%

Available Sizes

8 oz. | 32 oz. | 1 gal.

After 2 Weeks of K-L-N





Root-Gel®



Root-Gel® is a unique gel used to promote root formation in even the most hard-to-root cuttings. It contains both IBA and NAA hormones plus the right amount of essential minerals in a water soluble gel to get cuttings off to a great start. Root-Gel applies quickly, easily and thoroughly, surrounding the cutting with a thick coating of protective nutrient gel. Dip or apply gel and place in rooting or growing medium. After

the coated cutting is inserted into your growing medium, the Root-Gel spreads into the surrounding medium to serve as a temporary root system for the cutting. Root-Gel is recommended for higher success rates on hard to root cuttings including cannabis sativa.

Analysis

Indole-3-butyric acid (IBA) 0.216%
1-Naphthaleneacetic acid (NAA)... 0.027%

Other Ingredients 99.757%

Available Sizes

2 oz. | 4 oz. | 8 oz.





Quality - Purity - Safety



While our nutrients are designed to meet the demanding requirements of hydroponics or growing without soil, SUPERthrive produces superior results in hydroponic, aeroponic, aquaponic, and soil based media for all plants. SUPERthrive products eliminate harmful salt build-up and can even be safely used in aquaria when properly diluted (1 tsp/10 gal). SUPERthrive's single part nutrient solutions are easy to mix and use via injectors or other application methods.

We source only the finest technical grade natural elements from the richest deposits around the world, and formulate them into complete one part concentrated solutions. In addition to our high purity standards, SUPERthrive nutrients are free of harmful PGR's. Our goal is to provide all growers, from beginner to professional, with pure and complete nutrient solutions and supplements that are suitable for use in all growing media.



What Our Customers Say



“This year we trialed Pro-TeKt on our crop of ornamental Hydrangeas for the Garfield Park Conservatory in Chicago and were very pleased. There were significant visual improvements in the quality of our finished product. Specifically, a dramatic reduction in powdery mildew which we had problems controlling in previous years with other products.”

“Awesome results! I used 5 ml/ gal of water with the K-L-N Concentrate™ and the recommended amount of Pro-TeKt. I saw white root tips as early as 7-9 days from my initial cut from the mother plant. In 4 more days, roots almost doubled in size. Thank you so much for the tip and all the help!”



“I have taken some of my biggest and best yields using SUPERthrive’s full line of products. I also like that it seems to like a bit lower pH which is a lot easier to balance than trying to keep it right at 6.5 - 7.0. And it only costs about half as much as the so-called ”professional” products.”

“At Annie’s Annuals we love SUPERthrive products! We use the GROW 7-9-5 on all of our nursery stock and it provides the complete nutrition that the plants need to keep them looking happy, healthy, and green! Our customers love the vigorous growth and the chubby root systems that this product helps to maintain. The K-L-N Concentrate improves the rooting time, promotes root growth, and helps the plants settle in after being transplanted. We have always been pleased with the outstanding products that SUPERthrive offers and the amazing customer service we are provided.”



Award Winning African Violets in Delaware

What is Plant Nutrition?

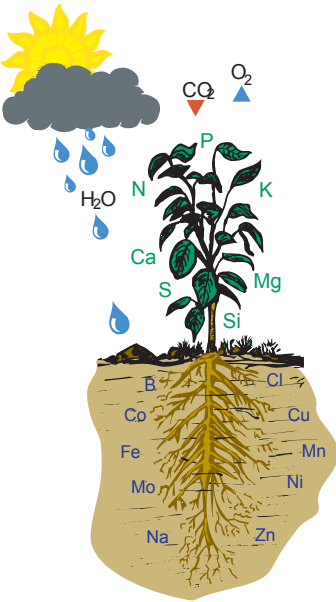
Plants use inorganic minerals for nutrition. Complex interactions involving decomposition of rocks, organic matter, animals and microbes break down to form inorganic nutrient ions in soil water. Roots absorb these mineral ions if they are readily available. They can be 'tied up' by other elements or by alkaline or acidic soils. Soil microbes also assist in ion uptake.

Why Doesn't My Soil Have What it Takes?

Even in the best of growing conditions this uptake of ions may be limited. Soils and potting mixes do not have all the minerals required year after year. Potting mixes contain few plant essential minerals. They are often sterilized and so may lack microbes to break down organic matter. Within months plants have used the available supply, and mineral nutrients must be replenished in the growing media.

The Elements of Complete Plant Nutrition

Complete nutrition produces superior plant growth. Why choose anything less for your plants? There are 20 elements necessary for plant growth. Air and water supply carbon, hydrogen, and oxygen. Seven macronutrients are required by plants in large amounts. Ten micronutrients are required in much lower amounts. Eliminate any of these elements, and plants will display abnormal growth, deficiencies, or may not reproduce. The following is a list of the minerals that are crucial for all plants and an explanation of their roles in plant growth.



Macronutrients

Nitrogen - (N): Part of proteins, hormones, chlorophyll, vitamins and enzymes. Promotes stem and leaf growth. Too much can delay fruiting. Deficiency (Def.): reduced yields, yellowing of leaves, stunted growth.

Potassium - (K): Formation of sugars, carbohydrates, proteins, cell division. Adjusts water balance; improves stem rigidity, cold hardiness; enhances flavor, color and oil content of fruits; important for leafy crops. Def.: spotted, curled, or burned look to leaves; lower yields.

Calcium - (Ca): Activates enzymes; structural part of cell walls; influences water movement; cell growth and division. Required for uptake of nitrogen and other minerals. Leached by watering. Immobile - requires a constant supply for growth. Def.: stunting of new growth in stems, flowers, roots; black spots on leaves and fruit; yellowing leaf margins.

Magnesium - (Mg): Critical part of chlorophyll; functioning of enzymes for carbohydrates; sugars and fats; fruit and nut formation; germination of seeds. Def.: yellowing between veins of older leaves; chlorosis; leaves droop. Leached by watering. Foliar spray to correct deficiencies.

Silicon - (Si): Component of cell walls; creates mechanical barrier to piercing - sucking insects and fungi. Foliar sprays reduce populations of aphids on some plants. Enhances leaf presentations; increases fertility; improves heat, drought and cold tolerance, and reduces transpiration. Def.: wilting, poor fruit and flower set, increased susceptibility to insects and disease.

Phosphorus - (P): Seed germination, photosynthesis, protein formation, overall growth and metabolism, flower and fruit formation. Def.; purple stems and leaves, retarded growth and maturity; poor flowering and fruiting. Apply close to roots. Large amounts without zinc cause zinc deficiency. Low pH <4 ties-up phosphates in organic soils. Too much can be toxic.

Sulfur - (S): Part of amino acids, proteins, vitamins, enzymes. Essential for chlorophyll. Imparts flavor to many vegetables. Def.: light green leaves. Leached by watering. water supplies may contain sulfur.

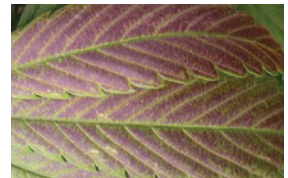
*Silicon is a 7th macronutrient for many plants and a micronutrient for others.



Nitrogen Deficiency



Calcium Deficiency



Phosphorus Deficiency

The ABCs or NPKs of “The Nutrition Solution”



Dyna-Gro is more than a fertilizer. SUPERthrive is a complete nutrient solution - The Nutrition Solution - the only formulas containing all the mineral elements essential for plant growth in one easy to use liquid concentrate. Ordinary fertilizers are incomplete. Many contain N-P-K and few, if any, of the other essential minerals required for complete nutrition. Hydroponic and soilless media require buying different fertilizers to meet those requirements. SUPERthrive formulas contain all the essential minerals for plant growth in one, balanced, liquid concentrate. Plants take up inorganic minerals and water through leaves and roots to manufacture (via photosynthesis) organic

compounds which become leaves, stems, roots, flowers and fruit. Plants **do not** take up any organic compounds! The manufacturing site is the chlorophyll molecule. Given all the right ingredients, plants produce the food, flowers and trees upon which we depend!

Micronutrients

Iron - (Fe): Enzyme functions; catalyst for synthesis of chlorophyll; essential for new growth. Def.: pale leaves, yellowing of leaves and veins. Leached by water and held in lower parts of soil. High pH soils may have iron present but unavailable to plants.

Manganese - (Mn): Enzyme activity for photosynthesis, respiration, and nitrogen metabolism. Def.: young leaves pale with green veins similar to iron def.; advanced stages are white, leaves are shed. Brown, black, or gray spots appear next to veins. Plants in neutral or alkaline soils often show def. Acidic soils may increase uptake causing toxicity.

Boron - (B): Affects at least 16 functions: flowering, pollen germination, fruiting, cell division, water relationships, movement of hormones, cell wall formation, membrane integrity, calcium uptake, movement of sugar. Immobile, easily leached. Def.: terminal bud dies, causing rosette of thick, curled, brittle leaves or brown, discolored, cracked, fruits, tubers and roots.

Zinc - (Zn): Functional part of enzymes including auxins (growth hormones), carbohydrate metabolism, protein synthesis, stem growth. Def.: mottled leaves, irregular yellow areas. Zinc deficiency leads to iron deficiency. Occurs in on eroded soils; least available at pH of 5.5 - 7.0. Lower pH can cause availability to the point of toxicity.

Chlorine - (Cl): Involved in osmosis (movement of water or solutes in cells), ionic balance necessary to take up mineral elements and photosynthesis. Def.: wilting, stubby roots, yellowing, bronzing. Scents in some plants may be decreased. Leached by watering.

Sodium - (Na): Improves nitrogen metabolism in many plants, involved in osmotic (water movement) and ionic balance in plants. Def.: yellowing of leaves and leaf tip burn, may inhibit flower formation.

Copper - (Cu): Found in roots, necessary for nitrogen metabolism; component of enzymes - may be part of enzyme systems that use carbohydrates and proteins. Def.: die back of shoot tips; terminal leaves develop brown spots. Bound tightly in organic matter. May be deficient in highly organic soils. Not readily lost from soil but may be unavailable. Too much can be toxic.

Molybdenum - (Mo): Structural part of the enzyme that reduces nitrates to ammonia; without it, synthesis of proteins is blocked, plant growth ceases. Required by nitrogen fixing bacteria. Def.: pale leaves with rolled, cupped margins. Seeds may not form; nitrogen def. may occur if plants are lacking Mo.

Cobalt - (Co): Required by nitrogen fixing bacteria, formation of B12 vitamin, formation of DNA. Will extend life of cut flowers such as roses. Def.: may cause nitrogen deficiency.

Nickel - (Ni): Recently recognized as an essential element. Required for the urease enzyme to break down urea into usable nitrogen and for iron absorption. Seeds need nickel to germinate.

*The above is the approximate order of importance of these minerals for the majority of plants. Silicon ranges from the most important to the least important, more widely variant than the other macronutrients.



Zinc Deficiency



Iron Deficiency



Magnesium Deficiency

SUPERthrive 1 part solutions are more complete than the leading multi-part systems!



All 16 Essential Mineral Elements for Proper Plant Nutrition



SUPERthrive®
Foliage-Pro ® 9-3-6



General Hydroponics®
Flora Series
2 part growth ratio



Advanced Nutrients
Comnoisseur Grow A & B
2 part growth ratio



Miracle-Gro®
All Purpose 15-30-15



Jack's Classic®
Houseplant 15-30-15

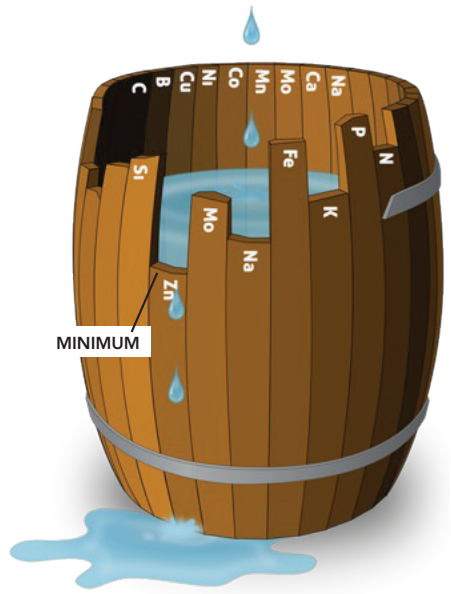
Mineral Element	%	%	%	%	%
Nitrogen	9	3.5	2.5	15	15
Ammoniacal Nitrogen	2.9	0.22	0.05	5.8	2.85
Nitrate Nitrogen	6.1	3.23	2.25	0.0	1.52
Urea Nitrogen	None	None	0.25	9.2	10.63
Phosphorus	3	0.5	1	30	30
Potassium	6	3.5	3.5	15	15
Calcium	2	2.5	1.75	Missing	Missing
Magnesium	0.5	0.25	0.45	Missing	Missing
Sulfur	0.05	Missing	0.75	Missing	Missing
Boron	0.01	Missing	Missing	0.02	0.02
Chlorine	0.006	Missing	Missing	Missing	Missing
Cobalt	0.0005	0.0025	Missing	Missing	Missing
Copper	0.05	Missing	Missing	0.007	0.05
Iron	0.1	0.05	Missing	0.15	0.1
Manganese	0.05	0.025	0.025	0.05	0.05
Molybdenum	0.0009	0.003	0.00015	0.0005	0.0009
Nickel	0.0001	0.0004	0.0004	Missing	Missing
Sodium	0.05	Missing	Missing	Missing	Missing
Zinc	0.05	0.006	0.009	0.06	0.05
Total Mineral Content	23.87	10.34	10	60.29	60.27

** Percentages based on manufacturer's listing **

? = Not Listed

Liebig's Law of the Minimum

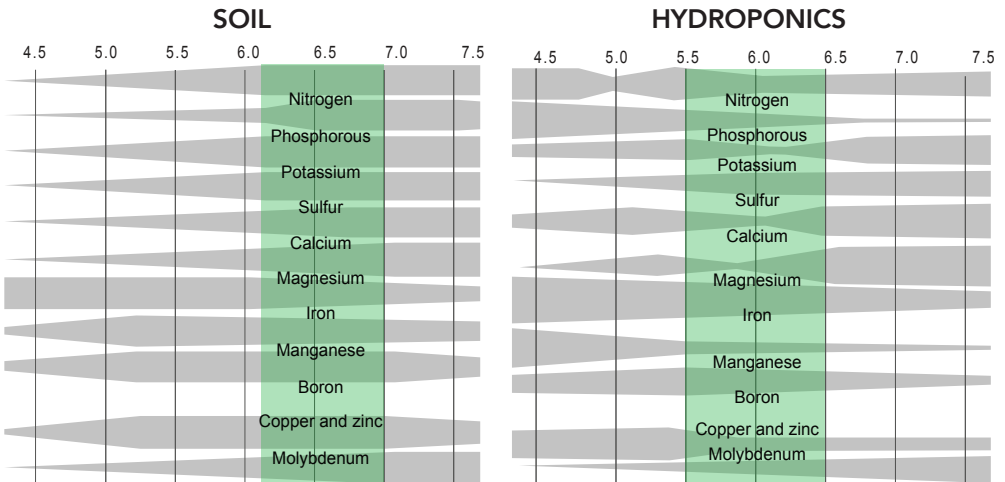
Many growers have learned that there is more to plant nutrition than NPK. Justus von Liebig formulated "Liebig's Law of the Minimum" in the 1840's. He showed that plant growth is always limited by the lowest level of each essential mineral element. This concept is often illustrated by a barrel with staves of different lengths, each of which represents an essential mineral element. You can only fill the barrel to the level of the lowest stave. For example, a plant can only use nitrogen to the extent of the lowest level of each other essential mineral element. Feeding at 200 ppm N with a fertilizer that contains no calcium, magnesium or sulfur (all macro-nutrients) means that most of the NPK cannot be used by the plant. This necessitates leaching of the unused salts to avoid a salt build-up, not practical in ebb-flood growing. Because SUPERthrive Nutrition Solutions are complete, they can be applied at much lower rates while achieving much better growth. This is shown by the results at Oglesby Plant Labs where switching from Peters/Miracle Gro Excel at 200 ppm N to SUPERthrive at 100 ppm N resulted in getting plants off the bench in 1/3 less time.



Quick Tips

- Always dilute Pro-TeKt first
- Never mix concentrates. Always dilute one before adding the other
- SUPERthrive nutrients contain a sufficient calcium, therefore cal-mag is not needed
- Maintain a pH of 5.5-6.5 in hydroponics & 6.2-6.8 in soil
- Clean reservoir every 2-3 weeks or when changing nutrients

PH RANGE NUTRIENT UPTAKE AND AVAILABILITY



Available Sizes



8 OZ



4 OZ



1 GAL



1 QT



8 OZ



55
GALLON



15
GALLON



5
GALLON

SUPERthrive®



SUPERthrive®
202 S. Washington Street
Norton, Massachusetts 02766
United States of America

Phone: 800-441-8482
Fax: 818-766-8482