



Bringing nature and technology together

**Product catalogue
2018**

eurohydro.com



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Mineral Nutrients

At GHE we manufacture some of the cleanest, best balanced and best performing nutrients on earth. Our mineral range delivers controllable and efficient growth and performance in both hydroponics and soil. Use our mineral range for optimum performance and reliability in self-watering systems and drip irrigation, for superior nutrient solution stability, and maximum yields.

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Specialist Nutrients And Additives

The GHE specialist and additive range gives you powerful new ways to control and enhance your grow, from boosters to dedicated nutrients to pH management. These products work in harmony with the rest of the GHE range in hydroponics and soil based culture, and many can be used with other brands.

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General Organics

General Organics is our dedicated range of 100% organic liquid nutrients and additives. Legally certified and carefully developed for commercial performance, the G.O. range works together or as standalone products, giving easier and more reliable access to 100% organic growing than ever before.

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Growing Systems And Substrates

GHE systems are made from 100% recycled UV stabilised plastic for root protection, sustainability and long service life. They are easy to setup, and easy to use. Our coconut coir substrates are clean, light, and exceptionally well stabilised for reliable performance. GHE has over 20 years of experience building some of the world's most efficient and effective hydroponic systems; from single plant culture to commercial scale installations, and pure hydro to organics with coco and smart pots - we have it covered.

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William Texier, Noucetta Kehdi, co-founders of GHE and Lawrence Brooke, founder of General Hydroponics USA.

Foreword

HISTORY

General Hydroponics Europe - GHE- was founded in France, in 1994 by William Texier and Noucetta (Marie) Kehdi, having gained international recognition for their hydroponic farm, the White Owl WaterFarm, where they grew crops that were served by Michelin starred restaurants in the San Francisco Bay area in the early 1990's.

William innovated from the beginning, developing new products and methods by combining the power of hydroponic technology with the qualities and ecological sensitivities of organic / Bio methods that have now become so important. Together William and Noucetta pioneered new methods of modern farming by using only the purest fertilizer ingredients, many of them food grade, and combining them with the most pure organic / Bio ingredients available.

TECHNOLOGY

New products unique to modern farming led to a new way of thinking about nutrient solutions. William and Noucetta knew that all life is symbiotic and they formulated products to enable living nutrient solutions. This is a new category of farming technology where plants and their environment are carefully integrated into a wholistic living system.

This is more than hydroponic and more than Organic or Bio, it is a hybrid bringing the best from both worlds together: pesticides are not necessary when plants share the environment with beneficial organisms which protect and defend the plants. Harsh chemical ingredients as used by most modern commercial farmers cannot be used in a living system. Only pure and compatible ingredients and formulation methods will enable the living system

of symbiotic cultivation. To describe and explain this new method of culture William and Noucetta coined the phrase "Bioponic", a concept now being explored around the world, and a field in which GHE remains a leader.

GROWER NEEDS

Today GHE products can be found nourishing wholesome crops providing food, medicine and flowers world-wide. At GHE products are formulated to meet the specialized needs of growers in all kinds of environments who cultivate plants for their personal and local needs.

The primary design criteria for products unique to GHE is to make wholesome, sustainable and environmentally sensitive products for growers. All products are formulated to local standards where water, light, temperature, humidity and natural considerations make unique microenvironments ranging from the deserts of the Middle East to the forests of the Arctic in Siberia.

Each unique environment forms a unique marketplace with greatly varying customer needs and plant needs.

GHE is at the forefront of modern agriculture. Respected and known in academic circles world-wide, William and Noucetta travel and teach extensively. They have written and published numerous articles and books which today are part of the curriculum for students of agriculture world-wide. William's book, *Hydroponics for Everybody*, is now available in 7 languages and provides growers a wealth of information and knowledge about how to grow plants for their personal and family needs.

Lawrence Brooke

Introduction and news

Welcome to our new catalogue! In the following pages, you will find our full range of world renowned hydroponic systems and nutrients, and information on how to use them.

We have brought innovative new products to our range, and have many more in the pipeline onwards as we continue our research and development to bring you even better ways to grow.

- **We have unified the General Organics Thrive formula with Sevia™**, the heart of our patented Bioponic™ (bare root organic hydroponics) technology. To make our Organic and Bioponic ranges more straightforward, we are releasing new, improved, dedicated feed charts for **G.O. Thrive in Bioponics™**, Soil and soilless substrate culture*.
- **Also coming soon from GHE: new innovations in booster technology and a revolutionary Organic Calcium**, again for Organic culture in coco coir, or for non - GHE nutrient users.
- **We will still never make a PK though:** “PKs” as included in many hydroponic ranges today, began as a way to grow flowering plants with high nitrogen food intended for lawns. We take a totally different approach with our nutrients and tailor the ratios very carefully to give your plants what they need at different stages of growth by varying the mix between nutrients - not buying additional bottles of additive. On

top of this, PK additives can shock plants and cause premature ripening, amongst other problems. So, whilst we could easily make and sell a PK, we won't. Ever. We grow our business by delivering better, healthier plants through precise nutrition, not through spin.

As we continue to introduce the latest improvements to our formulas, and develop our products through research and customer feedback, some things will change, but others will always be guaranteed when you choose GHE:

- We only use the **highest quality, often food grade ingredients** in our products
- We **guarantee our moulded plastic systems for LIFE** - unique in our industry
- We are **100% independently owned, based in France, and always will be**

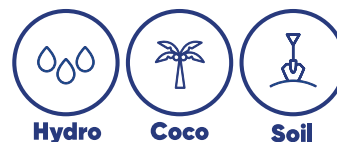
* G.O. Thrive is still available with Sevia label on request.

Mineral Magic

Mineral Magic is back with a more concentrated formula and a new label.

The tests and analyses we have performed are very positive and even better than the previous version.





Flora Series®

FloraMicro - FloraGro - FloraBloom

The original 3-part advanced nutrient system for hydroponics, coco and soil

3-part "Building Block" nutrient system: GHE Flora Series gives the best possible balance between concentration and flexibility

Why buy grow nutrients, bloom nutrients, a Calcium Magnesium Supplement and a PK, when you can **grow from start to finish with just three bottles!**

Flora Series nutrients allow you to perfectly match the changing needs of your plants by varying the mix as your grow progresses: more FloraGro during growth, and more FloraBloom for flowering and fruiting: simple and incredibly effective by design.

Used by the most prestigious research laboratories and universities, including NASA, the Flora Series is an evolving system that we constantly update in line with the latest scientific discoveries, and improve through exhaustive testing in-house and with our partners in professional horticulture (see more on our pedigree in real-world food production and research on page 50).


Many nutrients claim to include everything that your plant needs for healthy growth, but unlike most competitors, the Flora Series includes not just the primary and secondary nutrients necessary for basic plant nutrition, but a full range of micro and sub-micronutrients as well – and we chelate every possible element for enhanced uptake and stability. This is why the Flora Series delivers such impressive and reliable results in specialist markets where enhanced flavour, aroma, potency, and essential oil production are vital.

The Flora Series is available with hard or soft water formulations of FloraMicro to ensure that calcium levels in your nutrient solution remain optimal preventing the lockout / deficiency problems that universal nutrients can provoke.



Available in :

0,5 L • 1 L • 5 L • 10 L • 60 L • 1000 L



**TRIPACK
FLORA SERIES**

Your starting kit contains:
3 x 1/2 L Flora Series plus free
pH Test Kit and Dry pH Down.

FloraMicro® : Available in Hard or Soft water composition, FloraMicro is the foundation of the "building-block" system, providing micro and sub-micro nutrients and some complementary macro-nutrients. Use FloraMicro as directed all the way through growth and bloom.

FloraGro® : Stimulates structural and vegetative growth, builds strong roots and provides the majority of the nitrogen, potassium and secondary minerals in Flora Series. Use higher levels in growth, and lower levels in flowering.

FloraBloom® : Provides the forms of phosphorus and potassium that your plants need to increase root formation and health during growth, and help fulfil their genetic potential to the maximum during flowering and fruiting. Use lower levels in growth, and higher levels in flowering.

HOW TO USE:

- Shake well before each use: GHE Flora Series® nutrients are very concentrated.
- Add each part to water separately, mix well, and rinse measuring equipment in between parts and after use.
- To ensure the best results in your area, Flora Series is available in both hard water and soft water versions: more than 70 mg/L calcium, use FloraMicro hard water formulation, with less (or if using reverse osmosis, use FloraMicro soft water).

USE WITH:

- Works with all plants and substrates, in hydroponics, soil and outdoor gardening.
- After nutrients, the biggest boost advantage you can give any grow is using a high quality Fulvic acid: **GHE Diamond Nectar is the best.** (p. 26)
- **FloraKleen®**: not just for lock-out problems and harvest: FloraKleen® optimises substrate health and mineral availability in even the best run grow.
- **Use General Organics Seaweed** just before flowering to activate and boost blooming.
- For the last 10 days use **Ripen** alone for increased flower production.
- **GHE BM®** brings beneficial microbial life to your rootzone, **SubCulture®** adds increased protection and added performance, especially in high temperatures.



Hydro



Coco



1st roots



1st true leaves



Growing



Preflowering



Flowering

Ripen® FloraKleen®

Ripening

Cleaning

	1st roots	1st true leaves	Growing	Preflowering	Flowering	Ripening	Cleaning
FloraGro	0,5mL/L	1mL/L	1,8mL/L	2mL/L	0,8mL/L	-	-
FloraMicro	0,5mL/L	1mL/L	1,2mL/L	2mL/L	1,6mL/L	-	-
FloraBloom	0,5mL/L	1mL/L	0,6mL/L	1,5mL/L	2,4mL/L	-	-
EC (mS)	0,3 - 0,6	0,8 - 1,2	1,3 - 1,8	1,8 - 2,0	1,4 - 2,2	1,4 - 2,6	-



Soil



1st roots



1st true leaves



Growing



Preflowering



Flowering

Ripen® FloraKleen®

Ripening

Cleaning

	1st roots	1st true leaves	Growing	Preflowering	Flowering	Ripening	Cleaning
FloraGro	0,2mL/L	0,6mL/L	1,5mL/L	1,5mL/L	0,7mL/L	-	-
FloraMicro	0,2mL/L	0,6mL/L	1mL/L	1,5mL/L	1,4mL/L	-	-
FloraBloom	0,2mL/L	0,6mL/L	0,5mL/L	1mL/L	2,1mL/L	-	-
EC (mS)	0,2 - 0,5	0,6 - 1,0	1,1 - 1,6	1,4 - 1,8	1,3 - 1,7	1,3 - 2,0	-

EC levels are for guidance. Water EC varies so dosages will change, and plant needs change depending on species, strain, climate etc. Start where we recommend, but don't be afraid to gently vary dosages to adapt to your plant's needs.

EC is measured after pH adjustment (pH 5.5. to 6.5), addition of nutrients and supplements.

Cleaning: regular use of FloraKleen prevents salt build ups in both substrate and systems.

Ripening: in the period before harvest use GHE Ripen for bigger yields and flavour.

GHE supplement feed charts: see p. 57.

FloraDuo®

FloraDuo Grow - FloraDuo Bloom

Highly concentrated, true 2-part nutrient system for hydroponics, coco and soil

The ultimate in 2-part nutrients: inspired by the top selling Flora Series, FloraDuo delivers the best balance between performance and ease of use - and some unique benefits...

FloraDuo is not a "classic" mineral nutrient: beginning with the aim of making a simplified Flora Series that still packed the same punch, legendary General Hydroponics and NASA chemist Cal Hermann created this powerful 2-part formula, and along the way added several important bonuses for fast growing plants with marked differences between growth and flowering needs:

- FloraDuo uses several mineral types so your plants always have access to the elements they need, in the right form through growth and flowering.
- The formula includes bio-activators which improve overall plant health, resistance to pathogens and nutrient uptake.
- FloraDuo acts to reduce internode length - **without PGRs** (Plants Growth Regulators)! At GHE we use only the most highly purified ingredients. Combined with the understanding of nutrient composition we have developed through our extensive research, this allows us to achieve explosive growth and reduced stretch without potentially dangerous additives such as synthetic PGRs.

And when we say "2-part" we mean it: using FloraDuo means two bottles from start to finish not four as you need with most 2-part "A+B" style nutrients which use two parts for grow and two for bloom.

With FloraDuo you start with equal amounts of Grow and Bloom during rooting or early development, in vegetative growth more Grow than Bloom, and in flowering and fruiting; more Bloom than Grow. It's that simple.



TRIPACK FLORADUO

Your starting kit contains:
2 x 1/2 L FloraDuo and 1/2 L
Ripen plus free pH Test Kit and
pH Down Dry.

Available in :

0,5 L • 1 L • 5 L • 10 L • 60 L • 1000 L

HOW TO USE:

- Shake well before each use, add each part to water separately, mix thoroughly, and always rinse measuring equipment.
- GHE FloraDuo® is very concentrated: a maximum of just 5ml/L in water is required. See the main GHE FloraDuo® feed chart here.
- To ensure the best results in your area, FloraDuo Grow is available in both hard water and soft water versions: more than 70 mg/L calcium, use FloraDuo Grow, hard water formulation, with less or if using reverse osmosis, use FloraDuo Grow, soft water.

USE WITH:

- Works with all plants and substrates, in hydroponics, soil and outdoor gardening.
- After nutrients, the biggest boost advantage can give any grow is using a high quality Fulvic acid: **GHE Diamond nectar is the best.** (p.26)
- **GHE BM®** brings beneficial microbial life to your rootzone, **SubCulture®** adds increased protection and added performance, especially in high temperatures.
- **General Organics additives:** The General Organics range includes high quality Organic additives to fine tune and enhance your grow, including **Seaweed**, a powerful pre-flowering activator.
- **FloraKleen®:** Not just for lock-out problems and end of harvest; FloraKleen® rejuvenates old substrate and tired soil both of which can be difficult to handle with fruiting plants that can't be repotted, and can give mother plants a new lease of life.
- For the last 10 days use **Ripen** for increased flower production.

	Hydro	Coco							
			1st roots	1st true leaves	Growing	Preflowering	Flowering	Ripening	Cleaning
FloraDuo Grow			0,5mL/L	1,5mL/L	3mL/L	3mL/L	1,5mL/L	-	-
FloraDuo Bloom			0,5mL/L	1mL/L	1mL/L	2,5mL/L	3mL/L	-	-
EC (mS)			0,3 - 0,6	0,8 - 1,2	1,3 - 1,8	1,8 - 2,0	1,4 - 2,2	1,4 - 2,6	-

	Soil								
		1st roots	1st true leaves	Growing	Preflowering	Flowering	Ripening	Cleaning	
FloraDuo Grow		0,3mL/L	1mL/L	2,5mL/L	2mL/L	1mL/L	-	-	
FloraDuo Bloom		0,3mL/L	0,5mL/L	0,5mL/L	2mL/L	3mL/L	-	-	
EC (mS)		0,2 - 0,5	0,6 - 1,0	1,1 - 1,6	1,4 - 1,8	1,3 - 1,7	1,3 - 2,0	-	

EC levels are for guidance. Water EC varies so dosages will change, and plant needs change depending on species, strain, climate etc. Start where we recommend, but don't be afraid to gently vary dosages to adapt to your plant's needs.

EC is measured after pH adjustment (pH 5.5. to 6.5), addition of nutrients and supplements.

Cleaning: regular use of FloraKleen prevents salt build ups in both substrate and systems.

Ripening: in the period before harvest use GHE Ripen for bigger yields and flavour.

GHE supplement feed charts : see p. 57.

FloraCoco®

FloraCoco Grow - FloraCoco Bloom

*Highly concentrated 2-part nutrient system for coconut coir
Say goodbye to Calcium Magnesium Supplement forever!*

Uniquely amongst leading brands, GHE FloraCoco doesn't need additives for success from seed to bloom: other coco specific 2-part nutrients require additional Cal/Mag and PK boosters, as well as 2 bottles of "grow" and 2 bottles of "bloom" nutrients. Not so with FloraCoco®: two bottles are all you need!

FloraCoco® is exceptionally rich in calcium and magnesium, but it also contains the full range of other elements that a plant needs for healthy vigorous growth, followed by bountiful flowering and fruiting. This includes the trace microelements which give your final product all the aroma and flavour that your plant is capable of developing.

As with most of our nutrients you use both FloraCoco Grow and Bloom throughout the lifecycle of your plants; you simply change the ratio between the two as your plants progress: there is no second set of bottles to buy when you go from grow to bloom.



TRIPACK FLORACOCO

Your starting kit contains:
2 x 1/2 L FloraCoco and 1/2 L
Ripen plus free pH Test Kit and
pH Down Dry.

Available in : **0,5 L • 1 L • 5 L • 10 L • 60 L • 1000 L**

HOW TO USE :

- Shake well before each use, add each part to water separately, mix thoroughly, and always rinse measuring equipment.
- GHE FloraCoco® is very concentrated: a maximum of just 4.5ml/L in water is required. See the main GHE FloraCoco® feed chart here.






USE WITH:

- Works with all plants, optimized for Coco coir substrate.
- After nutrients, the biggest boost advantage you can give any grow is using a high quality Fulvic acid: **GHE Diamond Nectar is the best.** (p. 26)
- **GHE BM®** brings beneficial microbial life to your rootzone, **SubCulture®** adds increased protection and added performance, especially in high temperatures.
- **General Organics additives:** The General Organics range includes high quality Organic additives to fine tune and enhance your grow.
- **FloraKleen®:** Not just for lock-out problems and end of harvest; FloraKleen® rejuvenates old substrate and tired soil both of which can be difficult to handle with fruiting plants that can't be re-potted, and can give mother plants a new lease of life.
- For the last 10 days use **Ripen** for increased flower production.

*For best results, use FloraCoco with
super clean GHE CocoTek or CocoTek PX*



Coco

						Ripen® FloraKleen®	
	1st roots	1st true leaves	Growing	Preflowering	Flowering	Ripening	Cleaning
FloraCoco Grow	0,5mL/L	1mL/L	2,5mL/L	3mL/L	1,5mL/L	-	-
FloraCoco Bloom	0,5mL/L	1mL/L	1mL/L	2mL/L	3mL/L	-	-
EC (mS)	0,3 - 0,6	0,8 - 1,2	1,3 - 1,8	1,8 - 2,0	1,4 - 2,2	1,4 - 2,6	-

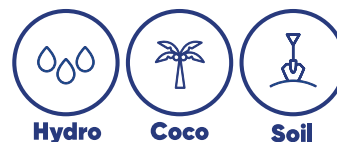
EC levels are for guidance. Water EC varies so dosages will change, and plant needs change depending on species, strain, climate etc. Start where we recommend, but don't be afraid to gently vary dosages to adapt to your plant's needs.

EC is measured after pH adjustment (pH 5.5. to 6.5), addition of nutrients and supplements.

Cleaning: regular use of FloraKleen prevents salt build ups in both substrate and systems.

Ripening: in the period before harvest use GHE Ripen for bigger yields and flavour.

GHE supplement feed charts: see p. 57.



FloraNova®

FloraNova Grow - FloraNova Bloom

Super concentrated 1-part hybrid liquid nutrient for hydroponics, coco and soil

The most highly concentrated true 1-part liquid nutrient on the market

FloraNova represents a breakthrough in fertilizer technology giving users the strength of a dry concentrate and the ease of a liquid, in a TRUE 1-part formulation: one bottle for Growth, one bottle for Bloom - no need for extra Calcium Magnesium Supplement / PK / Trace element additives to ensure healthy growth.

Our unique formulation of highly purified minerals and natural additives including humic extracts, is concentrated using patented technology: a very small amount of FloraNova goes a very long way and works well with any plant type.



TRIPACK FLORANOVA

Your starting kit contains:
2 x 473 ml FloraNova and
1/2 L Ripen plus free pH Test Kit
and pH Down Dry.

Available in:

473 ml • 946 ml • 3.79 L

HOW TO USE :

- Shake vigorously before each use and mix well with water.
- GHE FloraNova® is very concentrated: a maximum of just 2.5ml/L in water is required.
- See the main GHE FloraNova feed chart here.

USE WITH:

- Works with all plants and substrates, in hydroponics, soil and outdoor gardening.
- After nutrients, the biggest boost advantage you can give any grow is using a high quality Fulvic acid: **GHE Diamond Nectar is the best.** (p. 26)
- **GHE BM®** brings beneficial microbial life to your rootzone, **SubCulture®** adds increased protection and added performance, especially in high temperatures. Both work exceptionally well with FloraNova's hybrid organic technology.
- **General Organics additives:** The General Organics range includes high quality Organic additives to fine tune and enhance your grow.
- **FloraKleen®:** Not just for lock-out problems and end of harvest; FloraKleen® rejuvenates old substrate and tired soil both of which can be difficult to handle with fruiting plants that can't be repotted, and can give mother plants a new lease of life.
- During the last 10 days, use **Ripen** for increased flower production.



Hydro



Coco



1st roots



1st true leaves



Growing



Pretlowering



Flowering

Ripen® FloraKleen®

Ripening

Cleaning

FloraNova Grow

0,3mL/L

1mL/L

1,5mL/L

1mL/L

-

-

-

FloraNova Bloom

-

-

-

1mL/L

2,5mL/L

-

-

EC (mS)

0,3 - 0,6

0,8 - 1,2

1,3 - 1,8

1,8 - 2,0

1,4 - 2,2

1,4 - 2,6

-



Soil



1st roots



1st true leaves



Growing



Pretlowering



Flowering

Ripen® FloraKleen®

Ripening

Cleaning

FloraNova Grow

0,1mL/L

0,8mL/L

1,2mL/L

0,8mL/L

-

-

-

FloraNova Bloom

-

-

-

0,8mL/L

2mL/L

-

-

EC (mS)

0,2 - 0,5

0,6 - 1,0

1,1 - 1,6

1,4 - 1,8

1,3 - 1,7

1,3 - 2,0

-

EC levels are for guidance. Water EC varies so dosages will change, and plant needs change depending on species, strain, climate etc. Start where we recommend, but don't be afraid to gently vary dosages to adapt to your plant's needs.

EC is measured after pH adjustment (pH 5.5. to 6.5), addition of nutrients and supplements.

Cleaning: regular use of FloraKleen prevents salt build ups in both substrate and systems.

Ripening: in the period before harvest use GHE Ripen for bigger yields and flavour.

GHE supplement feed charts: see p. 57.

Maxi Series®

MaxiGro - MaxiBloom

*pH-buffered, ultra-concentrated dry powder nutrients
For hydroponics, coco and soil*

1-part nutrient in dry powder form

Using two mineral-based 1-part formulations, one for grow, one for bloom, Maxi Series is our most concentrated product ever.

MaxiGro and MaxiBloom, are standalone, water-soluble formulas made with high quality primary, secondary and micronutrients in the right concentrations to give maximum aroma and production in even the softest water. Both are also pH-buffered, which means nutrient solution pH will hold its value once your pH target is met. The dry powder format makes Maxi Series highly portable, easily stored, which makes it a popular choice for outdoor gardeners.

MaxiGro and MaxiBloom can be used for all types of plants and with a variety of water qualities. Whether you're working in coco coir, hydroponics, soilless or soil, the Maxi Series gives you all the flexibility and transportability you need.



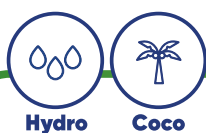
Available in: **1 kg pouches**

HOW TO USE:

- Mix well with water and apply.
- GHE Maxi Series nutrients are very concentrated: a maximum of under 2 g/L in water is required. See the main GHE Maxi Series feed chart [here](#).
- Ensure that Maxi Series powder is stored in a dry, airtight container after opening to avoid caking.

USE WITH:

- Works with all plants and substrates, in hydroponics, soil and outdoor gardening.
- After nutrients, the biggest boost advantage you can give any grow is using a high quality Fulvic acid: **GHE Diamond Nectar is the best.** (p. 26)
- **GHE BM**® brings beneficial microbial life to your rootzone, **SubCulture**® adds increased protection and added performance, especially in high temperatures.
- **General Organics additives:** The General Organics range includes high quality Organic additives to fine tune and enhance your grow.
- **FloraKleen**®: Not just for lock-out problems and end of harvest; FloraKleen® rejuvenates old substrate and tired soil both of which can be difficult to handle with fruiting plants that can't be repotted, and can give mother plants a new lease of life.
- During the last 10 days, use **Ripen** for increased flower production.



Hydro

Coco



Ripen *FloraKleen*®

1st roots

1st true leaves

Growing

Preflowering

Flowering

Ripening

Cleaning

MaxiGro

0,3g/L

0,7g/L

1,2g/L

0,8g/L

-

-

-

MaxiBloom

-

-

-

0,8g/L

1,8g/L

-

-

EC (mS)

0,3 - 0,6

0,8 - 1, 2

1,3 - 1,8

1,8 - 2,0

1,4 - 2,2

1,4 - 2,6

-



Soil



Ripen *FloraKleen*®

1st roots

1st true leaves

Growing

Preflowering

Flowering

Ripening

Cleaning

MaxiGro

0,2g/L

0,7g/L

0,9g/L

0,6g/L

-

-

-

MaxiBloom

-

-

-

0,6g/L

1,3g/L

-

-

EC (mS)

0,2 - 0,5

0,6 - 1,0

1,1 - 1,6

1,4 - 1,8

1,3 - 1,7

1,3 - 2,0

-

EC levels are for guidance. Water EC varies so dosages will change, and plant needs change depending on species, strain, climate etc. Start where we recommend, but don't be afraid to gently vary dosages to adapt to your plant's needs.

EC is measured after pH adjustment (pH 5.5. to 6.5), addition of nutrients and supplements.

Cleaning: regular use of FloraKleen prevents salt build ups in both substrate and systems.

Ripening: in the period before harvest use GHE Ripen for bigger yields and flavour.

GHE supplement feed charts: see p. 57.

FloraMato®

FloraMato the ideal solution for continuous production.

Adding ease of use to Flora Series performance for continuously producing plants

FloraMato takes the foundation of our flagship 3-part nutrient system, FloraMicro®, and offers a custom blended partner with optimised mineral ratios for continuously fruiting plants. In short, it turns our bestselling 3-part system into a tailored 2-part for plants with specific needs.

FloraMato provides a bespoke blend of the essential and extra minerals needed by plants like chillies, tomatoes, cucumbers, peppers, beans, melons, strawberries etc.

FloraMato enhances flavours, increases yields and improves nutritional value in the same way the Flora Series does, and it is made with the same pH buffered ultra-pure mineral ingredients. Designed for hydroponics, FloraMato is particularly efficient in drip systems and automatic irrigation although it can also be used in coco and soil.



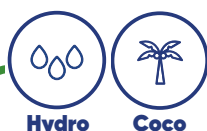
Available in : **0,5 L • 1 L • 5 L • 10 L • 1000 L**

HOW TO USE :

- Shake well before each use: GHE Flora Series® nutrients and FloraMato are very concentrated: a maximum of just 3ml/L in water is required, and much less for young plants or in soil - see the main FloraMato® feed chart here for details.
- Add each part to water separately, mix well, and rinse measuring equipment in between parts and after use.
- To ensure the best results in your area when using the FloraMato system, FloraMicro is available in both hard water and soft water versions: more than 70 mg/L calcium, use FloraMicro hard water formulation, with less (or if using reverse osmosis, use FloraMicro soft water).

USE WITH:

- **FloraMicro®**: part of our flagship Flora Series® nutrient system - a highly concentrated mix of chelated micro-elements. It also includes primary and secondary elements as well as pH stabilisers which help keep your solution pH in the acceptable range. Normally FloraMicro is used with two other components - FloraMato® offers a fast and easy way to tailor Flora Series performance to continuously fruiting crops. FloraMicro is available in soft and hard water formulas.
- After nutrients, the biggest boost advantage you can give any grow is using a high quality Fulvic acid: **GHE Diamond Nectar is the best.** (p.26)
- **FloraKleen®**: Not just for lock-out problems and end of harvest; FloraKleen® rejuvenates old substrate and tired soil both of which can be difficult to handle with fruiting plants that can't be re-potted, and can give mother plants a new lease of life.
- **GHE BM®** brings beneficial microbial life to your rootzone, **SubCulture®** adds increased protection and added performance, especially in high temperatures.



Hydro

Coco



FloraKleen®

1st roots

1st true leaves

Growing

Flowering

Fruiting

Ripening

Cleaning

FloraMato

0,4mL/L

1mL/L

2mL/L

2mL/L

2mL/L

2,5mL/L

-

FloraMicro

0,4mL/L

1mL/L

3mL/L

2mL/L

3mL/L

3,5mL/L

-

EC (mS)

0,3 - 0,6

0,7 - 1,2

1,7 - 2,0

1,3 - 1,8

1,7 - 2,0

2,1 - 2,6

-



Soil



FloraKleen®

1st roots

1st true leaves

Growing

Flowering

Fruiting

Ripening

Cleaning

FloraMato

0,3mL/L

0,8mL/L

1,5mL/L

2mL/L

1,5mL/L

2mL/L

-

FloraMicro

0,3mL/L

0,8mL/L

2,5mL/L

2mL/L

2,5mL/L

3mL/L

-

EC (mS)

0,2 - 0,5

0,5 - 1,0

1,3 - 1,8

1,3 - 1,8

1,3 - 1,8

1,7 - 2,0

-

EC levels are for guidance. Water EC varies so dosages will change, and plant needs change depending on species, strain, climate etc. Start where we recommend, but don't be afraid to gently vary dosages to adapt to your plant's needs.

EC is measured after pH adjustment (pH 5.5. to 6.5), addition of nutrients and supplements.

Cleaning: regular use of FloraKleen prevents salt build ups in both substrate and systems.

GHE supplement feed charts: see p. 57.

Late flowering nutrient / forcing solution

The industry standard way to end a grow - Ripen® is our best-selling product for a good reason!

Ripen® is a complete late flowering nutrient/stimulant requiring no additional boosters. It increases flowering and production of active principles, and eliminates nutrient excess.

Ripen® acts in 3 ways:

- It sends the plant a strong signal that it is coming to the end of its life; this prompts the plant to accelerate the ripening process.
- It forces the plant to strengthen its defences and thus increase essential oil and active principle production.
- It delivers all the mineral salts the plants need in a form that is easy to assimilate: in case of a previous accumulation of nitrate or microelements, this helps metabolize residues, which improves taste.

As a “forcing solution“, Ripen® can be used in any circumstance where you need to control or enhance ripening, and at the end of every flowering/fruiting cycle of annual flowers and fruits to maximise yield and flavour intensity.

Outdoors, Ripen® enables you to quickly harvest a crop before it is spoiled by cold and damp weather. Indoors, it helps you harmonise the end of the grow cycle by speeding up the ripening of the slowest plants or varieties. And in case of a severe infestation of fungi or insects, it can allow you to accelerate the natural cycle and recover something out of a crop that would otherwise be completely lost.



TRIPACK STARTING KIT

1/2 L Ripen is added in the FloraDuo, FloraNova and FloraCoco Tripacks

Available in:

0.5 L • 1 L • 5 L • 10 L • 1000 L

HOW TO USE:

- **In hydroponics:** Replace old nutrient solution with pH adjusted water add up to 5ml/L of Ripen to match or slightly exceed your previous EC (up to 2.6) and mix well. Run for 10 days, or as needed, then use FloraKleen to finish or harvest your crop directly.
- **In soil:** Apply in pH adjusted water at up to 4ml/L to match or slightly exceed your previous EC (up to 2.0). Apply until leaf yellowing occurs and / or ripening is satisfactory. This can take from 10 to 20 days. Then use FloraKleen to finish or harvest your crop directly.

* Expert growers can use Ripen to manipulate water stress to maximise active principal concentration, and minimise splitting in soft fruit culture: target EC 2.6mS in hydro and target EC 2.0mS in soil.

USE WITH:

- After any GHE or other nutrient: always use Ripen alone!
- **FloraKleen** helps Ripen work to its full potential. By rinsing residues of nitrogen and other salts out of your substrate, Ripen can get to work more effectively mobilizing nitrates and improving taste in your final crop. When you're done, instead of a 10-day flush with water after Ripen, try 2 days with FloraKleen® - growers around the world have, because in commercial production, 8 days per harvest is a big bonus!

	Hydro	Coco	1st roots	1st true leaves	Growing	Preflowering	Flowering	Ripen	FloraKleen
Ripen	-	-	-	-	-	-	-	5mL/L	-
EC (mS)								1,4 - 2,6	

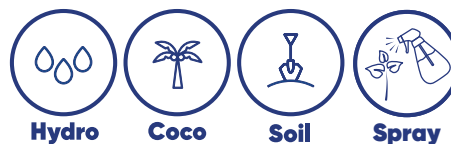
	Soil	1st roots	1st true leaves	Growing	Preflowering	Flowering	Ripen	FloraKleen
Ripen	-	-	-	-	-	-	4mL/L	-
EC (mS)							1,3 - 2,0	

EC levels are for guidance. Water EC varies so dosages will change, and plant needs change depending on species, strain, climate etc. Start where we recommend, but don't be afraid to gently vary dosages to adapt to your plant's needs.

EC is measured after pH adjustment (pH 5.5. to 6.5), addition of nutrients and supplements.

Cleaning: regular use of FloraKleen prevents salt build ups in both substrate and systems.

Essentials®



A comprehensive mix of micro and sub-micro elements for specialist applications

Don't use GHE nutrients but need quality micronutrients? Doing Aquaponics and looking for ways of balancing nutrition? We have the solution...

GHE Essentials® is a unique product: a comprehensive range of concentrated micronutrients in chelated form, plus essential sub-micro elements and an organic buffer. It is used as a complement to the nutritive solution in soil and water culture, as well as in foliar spray in situations where metal addition to water can pose problems such as Aquaponics

Whilst primary and secondary elements are always included in plant nutrients, some micro and sub-micro nutrients are not, despite laboratory tests demonstrating an important overall improvement in plant health and resistance to pests when those elements are added. If you are using GHE nutrients then you are already providing this full spectrum, but if not, Essentials gives you an effective way to complement your current regime.

All the elements included in GHE Essentials® comply with the European regulation on organic agriculture, and as in our other nutrients, all possible elements in Essentials are chelated for superior stability and performance.



Available in: **0.5 L • 1 L • 5 L • 10 L**

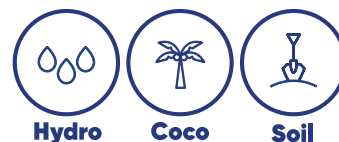
HOW TO USE:

- Dilute to use as a foliar spray or add to water or nutrient solution.
- **DO NOT USE WITH GHE NUTRIENTS** - they already contain a full trace element spectrum.
- Solution: 5 ml/L in Hydroponics, 3 ml/L in soil
- Foliar spray: 5 ml/L

USE WITH:

- Non - GHE nutrients, in hydroponics and outdoor gardening.

Calcium Magnesium Supplement



*Highly bioavailable,
concentrated Calcium / Magnesium blend*

Proper Calcium and Magnesium availability is vital to optimize nutrition in fast growing plants. It helps prevent secondary nutrient deficiencies, supports growth and fruiting, and prevents blossom end rot and tip-burn in many particularly intensive crops such as tomatoes and lettuce.

GHE Calcium Magnesium Supplement provides concentrated Calcium and Magnesium in a highly bioavailable, clean and soluble form that will not clog drippers. It can be used alongside most nutrient regimes.

GHE Calcium Magnesium Supplement can also help counter Calcium sequestration when growing in coco coir using Organic nutrients, or when expanding compressed coco bales.



Available in: **0.5 L • 1 L • 5 L • 10 L**

Manufactured by Terra Aquatica

HOW TO USE:

- **Warning:** Do not use with GHE soft water formulations, FloraCoco, or FloraNova: they already contain enough calcium for even R.O. water systems.
- Also, all GHE coco coir products are pre-rinsed and stabilised; you can grow right from the bag without treatment.

For all other situations:

- Use 1.5 ml per litre for most applications and high demand crops.
- With Reverse Osmosis, add 2 ml per litre before adding nutrient solution.
- When growing in Coconut Coir, using prepared soil or soilless mixes, or expanding compressed coco, use 1 to 1.5 ml per litre to wet (to saturation) the media, and then add to nutrient solution at the same rate for the first two weeks. Continuous use may be helpful for fast growing annuals.

USE WITH:

- Non - GHE nutrients, in hydroponics and outdoor gardening.
- **General Organics Thrive** as needed, if growing in coco-coir, especially non-GHE brand.

eurohydro.com



Growth activators and boosters

Certified organic activators



The industry standard in boosters, in highly concentrated form.

Through our research on organic stimulators we have found an extraordinary line of products that we are proud to include in our range. The GHE Boosters® were developed by independent researchers, and our tests, as well as those conducted by several of our clients, were dazzling!

Combining plant nutrition and protection, the GHE Boosters® are organic activators which are authorised for use in organic cultivation. They contain amino acids and oligo-saccharins which stimulate plant growth and flowering, strengthen immune systems and increase resistance to disease and climatic conditions, in particular to cold.

GHE Boosters® are conformed to European regulation CE N° 834/2007 on organic agriculture, manufactured naturally and totally biodegradable.

GHE Boosters® are available in: 30 ml • 60 ml • 250 ml • 0.5 L • 1L • 5 L

G.H. Roots®

Super concentrated root booster

G.H. Roots drastically increases rootlet growth, root development and root cap hardening. The net result is bigger, healthier root mass, better resistance to mould and fungus (including damping off in cuttings etc), and healthier more vigorous plants, from cuttings through to maturity.

HOW TO USE :

G.H.Roots® is very powerful: for best results, use on cuttings, seeds and re-potted plants for 15 days, then switch to Diamond Nectar to stimulate abundant fine root hair growth.

Add to water or nutrient solution, or if needed, dilute to use as a foliar spray:

- **Solution:** 2 ml/10L (two drops per litre)
- **Foliar spray:** 0.1 ml/L
- See feed charts p. 57

USE WITH :

- All plants, in hydroponics and outdoor gardening.



G.H. Bloom®



Hydro



Coco



Soil



Bioponics



Spray

Super concentrated flowering booster

G.H. Bloom® increases flowering and growth by up to 20%!

G.H. Bloom® works in several different ways, boosting Calcium absorption, increasing leaf size, activating microbial life and stimulating your plant's immune system to boost harvest quantities and quality.

HOW TO USE:

During flowering / fruiting only. Add to water or nutrient solution, or if needed, dilute to use as a foliar spray, but do not spray open flowers.

- **Solution:** 2 ml/10L (two drops per litre)
- **Foliar spray:** 0.1 ml/L
- See feed charts p. 57

USE WITH:

- All plants, in hydroponics and outdoor gardening.



VGAGIC™

G.H. Protect®

Super concentrated protection from insects and pathogens

Our highly concentrated plant tonic and regenerator G.H. Protect®, strengthens and increases plant defence systems by laying a protective and repellent coat on the surface of leaves.

HOW TO USE:

Add to pure water to create a foliar spray for use at any time, but do not spray open flowers, and rinse well before eating crops that have been sprayed recently. **Do not apply more than 3 times in a cycle.**

- **Foliar spray:** 5 ml/L
- See feed charts p. 57

USE WITH:

- All plants, in hydroponics and outdoor gardening.



VGAGIC™

Unique, high performance rinse and soil conditioner for all substrates and systems.

From rejuvenating houseplants to maximising yields and potential in commercial hydroponics, FloraKleen is one of the most powerful tools available to gardeners!

Eventually, every growing system will develop fertilizer residue as a natural part of the growing process. This accumulation results in salt build-up that can block drippers, cause unsightly accumulations on the top of soil or substrate, and will eventually cause your plants undue stress and even root damage. With the highly concentrated nutrients available today, and high EC levels running in many systems, nutrient lockout can also be an invisible limit on your grow; FloraKleen® solves all these problems and more:

- Dissolves accumulated fertiliser salts
- Corrects nutrient balance
- Treats nutrient lock out
- Nourishes microbial life and refreshes soil and coco coir
- Maximises final stage growth (especially with Ripen)

Specifically developed to dissolve mineral salts, **FloraKleen®** releases nutrient bonds between minerals and substrate and allows you to rinse excess residue. This release also helps plants make the most of remaining fertilizers, especially in the crucial week just before harvest.

Unlike other “flushes” and finishing products on the market, FloraKleen® is not an acid, isn’t enzyme based, and does not dump magnesium or other mineral additives into your system - this makes it uniquely flexible: with FloraKleen® you can give your system, and your plants, a clean slate at any time and at any stage of the growth process.

No matter what type of growing system you’re using - indoors or outdoors, soilless or hydroponic, pots or garden beds, FloraKleen® is easy to use: just mix with pH adjusted water and apply.



Available in:

0.5 L • 1 L • 5 L • 10 L

HOW TO USE :

In recirculating hydroponic systems:

- **To reset and refresh before changing nutrients (inc. before Ripen):** Add 1.5 to 3 ml / L of FloraKleen to your existing nutrient solution and circulate for 24 hours before draining and replacing with fresh nutrient solution. Use the lower dosage for young or fragile plants, and the higher dosage for established plants / close to harvest.
- **After nutrient burn or lock-out:** Drain old nutrient solution, add 1.5 to 3 ml / L of FloraKleen to pH adjusted water (you don't need to use a full tank, just enough to circulate freely and run the system). Circulate for 24 hours before draining and adding new, fresh nutrient solution. Use the lower dosage for young or fragile plants, and the higher dosage for established plants.
- **As a final rinse (after Ripen):** Drain old nutrient solution, add 1.5 to 3 ml / L of FloraKleen to pH adjusted water (you don't need to use a full tank, just enough to circulate freely and run the system). Circulate for the last two days before harvest to increase sugar levels in your crop instead of losing aroma and medicinal content with a long water flush..

In potting soil & soilless mixes inc. Coco Coir:

- To reset and refresh before changing nutrients (inc. before Ripen), and after nutrient burn or lock-out: Every fifteen days (or when needed after lock out etc): fill a watering can with fresh pH adjusted water and add 1.5 to 3 ml / L of FloraKleen. Drench until there is runoff from the bottom of the pot. Resume your regular fertiliser schedule with the next watering. Use the lower dosage for young or fragile plants, and the higher dosage for established plants.
- As a final rinse / after Ripen: Use 3 ml / L of FloraKleen instead of nutrients during the last two days before harvest to increase the sugars level in your crop instead of losing aroma and medicinal content with a long water flush.

NB: FloraKleen can be used at any stage of growth or flowering but do not use FloraKleen more than once every two weeks.

USE WITH :

- All nutrients and substrates, but above all: **Ripen**.
- **FloraKleen®** helps Ripen work to its full potential. By rinsing residues of nitrogen and other salts out of your substrate, Ripen can get to work more effectively mobilizing nitrates and improving taste in your final crop.
- When you're done, instead of a 10-day flush with water after Ripen, try 2 with FloraKleen® - growers around the world have, because in commercial production, 8 days per harvest is a big bonus!

FloraKleen® gives you control over your substrate,

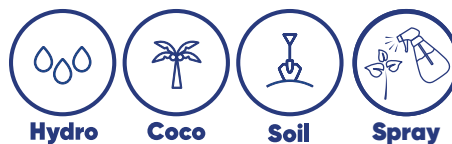
Ripen® gives you control over your plants.

Using Ripen instead of a two week water "flush" means stronger taste, more active principles, and up to 10% more yield.

Ripen is an extremely effective way to eliminate nutrient excesses in your crops.

More info p. 18





Diamond Nectar®

Ultra-pure, 100% natural bio-stimulator

The biggest boost you can give your plants after nutrients is a high quality Fulvic acid, and Diamond Nectar® is the best in the world

Soluble Humates contain a myriad of natural plant growth promoting compounds plus nutrient enhancing ingredients. Of these, Fulvic acid are the substances that do the real heavy lifting by making minerals more easily absorbed by plants, making nutrients more effective.

We analysed and tested many different Leonardite sources from around the world to give our proprietary, pH balanced, Fulvic acid the maximum agronomic benefits to deliver:

- Better root development
- earlier harvests
- healthier, disease resistant plants
- enhanced quality of flavour and fragrance
- increased essential oil production
- significantly higher yields.

No matter what concentration a product claims, it's the quality and composition of the Fulvic acid that counts - and this is why Diamond Nectar outperforms the competition.



Available in: **0.5 L • 1 L • 5 L • 10 L • 1000 L**

HOW TO USE:

Add to every watering or feeding or use as a foliar spray up to early flowering/fruiting. To improve germination, soak seeds in diluted Diamond Nectar solution.

- **Solution:** 2 ml /L
- **Foliar spray:** 3 ml /L
- See feed charts p. 57

USE WITH:

- All GHE and other brand nutrients and substrates, mineral and organic, in hydroponics and outdoor gardening.

High quality dry *Trichoderma harzianum* culture

A vital part of Organic growing, and every commercial gardener's secret weapon

BM® is our brand of *Trichoderma harzianum*: the first beneficial microbial inoculant to become standard in the commercial greenhouse industry.

Trichoderma lives in soil, coco or other similar substrates breaking down organic matter and releasing minerals. This process of decomposition and nutrient release is fundamental to Organic, Organic Hydroponic, and Bioponics, and Aquaponics gardening. As it grows and establishes colonies, *Trichoderma* also releases a range of plant growth stimulating compounds and substances that inhibit or kill pathogens in the soil which might otherwise harm your plants - as the latest research has been demonstrating.

It's this range of benefits, for young plants in particular, that has led to *Trichoderma* becoming a standard in the industry.

As with all GHE products, our *Trichoderma* brand is of the highest quality - all strains and cultures are not equal, and some are significantly less viable than others. We are proud to say that our beneficial microorganism products, bacteria and fungi, are amongst the highest quality on the market.



*BM meets European regulation
2008/113/CE on organic agriculture.
It is registered under: BBA Nr LS 004987-65-00.*

Available in: **5 g • 10 g • 25 g • 50 g • 100 g • 250 g • 1000 g**

HOW TO USE:

As with all aerobic microorganisms, the better the oxygen supply, and the more stable pH, temperature and humidity are; the healthier and more effective BM will be.

- **As a drench when sowing seeds, and as an additive to water/nutrient for seedlings, young, and adult plants:** add 1g for every 15 to 20 litres of water or nutrient solution every 6 to 8 weeks.
- **For adult plants, in soil or coco:** add 10g for every 150 to 200 litres of water or nutrient solution every 6 to 8 weeks; just add to your water/nutrient system, or water directly onto substrate.
- **In pure, bare root hydroponics and bioponics:** When plants are young and have small root systems, BM needs a base to regroup and reproduce: to provide this use a commercially available biofilter unit, or suspend a 3 to 5L plastic basket filled with 80% clay pebbles and 20% coco coir under falling water in your tank, e.g. under the return of our AeroFlo systems.

USE WITH:

- All GHE nutrients and substrates, in hydroponics and outdoor gardening.
- **General Organics Thrive®** and other organic nutrients work particularly well with GHE BM®
- See feed charts p. 39

SubCulture®

Highly effective biological root protector Trichoderma + ultimate protection from root zone problems in hot weather

Root protection is a major concern for all gardeners: in soil where root access is difficult, and in hydroponics where the root zone access is easy, but roots are left relatively exposed to pathogens. And given how much effort we put into building a healthy root mass, it's common sense to protect that investment: Pythium, Fusarium, Verticillium and other fungal and bacterial pathogens can wreak havoc in hydroponic systems, especially in hot weather, where mould is more of an aerial pathogen, problems can develop practically overnight.

There are several "solutions" available on the market, from UV sterilisation to commercial fungicides from the garden centre, but they all have drawbacks: from expense, complexity and dubious results, to toxicity and dangers to health from fungicides.

Happily, there is a highly effective solution with no such risks attached: SubCulture.

To create the most effective protection possible, we tested all the strains currently used as "beneficials" and isolated the most effective, and fastest acting combination (too many strains and there is a fight to get established and provide protection: that's no use with fast growing crops).

SubCulture's well-balanced mix of beneficial microorganisms gets to work right away and will protect the entire root mass of your plants from pathogenic fungi by forming a protective barrier that inhibits pathogen growth, propagation, and survival. This gives you the most resilient protection against root pathogens available. And thanks to the same high-quality Trichoderma as our BM mix, SubCulture also decomposes unwanted organic matter debris in nutrient solution transforming this potential source of disease into a supplement of minerals readily available to your plants.

Available in:

10g • 25g • 50g • 100g • 250g • 500g • 1 kg



GHE Subculture meets European regulation 2008/113/CE on organic agriculture.



HOW TO USE:

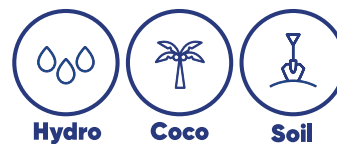
SubCulture is a natural, 100% organic protector, and so works best as a preventative. As with all aerobic microorganisms, the better the oxygen supply, and the more stable pH, temperature and humidity are, the healthier and more effective Subculture will be.

- **As a drench when sowing seeds, and as an additive to water/nutrient for seedlings, young, and adult plants:** add 1g for every 15 to 20 litres of water or nutrient solution every 6 to 8 weeks.
- **For adult plants, in soil or coco:** add 10g for every 150 to 200 litres of water or nutrient solution every 6 to 8 weeks; just add to your water/nutrient system, or water directly onto substrate.
- **In pure, bare root hydroponics and bioponics: When plants are young and have small root systems, SubCulture needs a base to regroup and reproduce:** to provide this use a commercially available biofilter unit, or suspend a 3 to 5L plastic basket filled with 80% clay pebbles and 20% coco coir under falling water in your tank, e.g. under the return of our AeroFlo systems.

USE WITH:

- All GHE nutrients and substrates, in hydroponics and outdoor gardening.
- **General Organics Thrive®** and other organic nutrients work particularly well with GHE SubCulture®
See feed charts p. 39





pH Management:

There is no such thing as an ideal pH. High values help cation uptake and low values help anion uptake: every fixed pH is a compromise. The usual safe range recommendation is from 5.5 to 6.5. Our advice is to stay on the low side: from 5.5 to 6.2.

pH Down

Premium pH management and buffering for hydroponics, coco and soil.

Not just a simple acid: GHE pH Down makes a real contribution to nutrient solution stability

To make GHE pH Down we carefully blend three acids commonly used alone in hydroponics to give you all the benefits of each - without the disadvantages.

GHE pH Down uses nitric and phosphoric acids to do the initial heavy lifting of altering your water pH, and the blend of both means no disturbance to your N/K ratios throughout grow and bloom - and no residue on the surface of your tank from using phosphoric alone in hard water areas. Then, with its own special characteristics, organic citric acid takes over to buffer pH changes over time, keeping your nutrient solution more stable, and helping handle calcium excesses in hard water areas.



Available in:

0.5 L • 1 L • 5 L • 10 L • 60 L

HOW TO USE:

Warning: Always wear appropriate protection when handling strong acids.

- **To adjust pH:** Add to water or nutritive solution as required. Re-test pH and adjust as necessary.

pH Up

Premium pH management and silica source for hydroponics, coco and soil.

Control pH and boost silica levels at the same time

Whilst raising pH level may seem crazy to growers in hard water areas, it's a real issue with very soft water or when using reverse osmosis. GHE pH Up allows that adjustment, and offers a good source of available silicate - which is often deficient in Hydroponics, due to its very low solubility. Proper silicate levels make a big contribution to plant health and so we include it in products whenever we can.

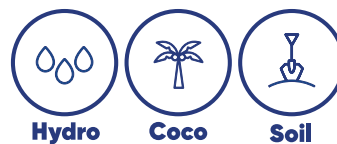


Available in: **0.5 L • 1 L • 5 L • 10 L**

HOW TO USE:

Warning: Always wear appropriate protection when handling strong alkalis.

- **To adjust pH:** Add to water or nutritive solution as required. Re-test pH and adjust as necessary.



Dry pH Down

Unique dry powder pH management solution for hydroponics, coco and soil.

The only dry powder pH adjuster on the market today

A unique product in the industry: inert when dry, GHE Dry pH Down becomes a potent acid when mixed with water.

pH regulation is an essential practice for all growers: it makes mineral salts available and stabilizes chelates, but for shops who offer mail order, sending liquid acids by post can be a risky matter - sometimes restricted by postal authorities. GHE Dry pH Down avoids these problems making shipping and transport much easier.

As well as adjusting pH regulation, GHE Dry pH Down can be used (at high concentration) to clean and disinfect lines and systems, at low concentration use as a foliar spray to clean pesticide residue from leaves, and finally, it also gives a nutritive boost to plants by providing:

- Nitrates, in a form that supports growth without compromising flowering.
- Phosphates for strong flowering, root health, lush foliage and harmonious growth.



Available in:

25 g • 50 g • 100 g • 250 g • 500 g • 1 kg

HOW TO USE:

Warning: Always wear appropriate protection when handling acids.

- **To adjust pH:** Add 1 gram per 5 or 6 litres of water and mix well. Test pH and adjust accordingly more or less pH Down or fresh water.
- **To clean lines and systems:** Add 1 gram per litre of water, let system run overnight, then rinse well with water.
- **As a foliar cleaner:** Use 1 gram per 10 litres of water.

pH test kit

Classic liquid pH testing

Fast, reliable, accurate pH testing without batteries

Our liquid pH tester is perfect for easy testing and as a backup to your digital meter. Covering a wide range, from 4.0 to 8.5, our kit gives up to 500 tests with 30 ml.

Available in: **30 ml • 60 ml**



HOW TO USE:

- Simply fill the supplied test tube halfway with nutrient solution, add two drops of pH Test Indicator, shake and compare the resulting colour with the chart to read your pH level.

What is Bioponics™

“Organic” hydroponics?



Bioponics

“Organic” gardening or farming means different things in many countries. To many consumers it means food grown without unnecessary chemicals or pesticides: we achieve that with all our nutrient ranges and systems when used properly.

To us, ‘organic’ means nutrients that nourish a healthy microbial ecosystem that breaks down nutrients to feed your plants. And of course, our organic products contain only high-quality ingredients meeting European regulation 834/2007 on organic agriculture.

Originally, and to many regulators, « Organic » meant food produced in healthy soil. In most countries, as soon as you grow out of soil, you cannot get an organic certification for your production. The US is the only country up to now to rule, in November 2017, that growing in hydroponics with organic nutrients gives you access to the « organic » label. So currently, if you live anywhere else, even if you use a certified organic nutrients, your hydroponically grown crop will not be accepted as « organic ». So why even try soil-less organic growing?

In short, because as with mineral hydroponics; growing without substrate in recirculating systems saves water and increases productivity and yields dramatically, and growing organically can significantly increase the ratio of fruit to vegetative growth, meaning for example, more tomatoes from smaller, less leafy plants.

For many years researchers from several countries have looked for an efficient way to achieve real organic hydroponics: but whilst creating organics that can be used in soil is straightforward (manure works fine), reproducing the well-nourished but balanced microbial ecosystem found in the best organic soil, in flowing water, is not.

Then, in 2004 William Texier, GHE co-founder, developed BioSevia (now General Organics Thrive), a revolutionary ‘liquid earth’ which, when combined with the right beneficial microorganisms*, brings the activity of the humus layer of natural soil to a nutrient solution, and the first such product to perform in recirculating, substrate-free hydroponics.

The concept was and is fundamentally different to conventional hydroponics in approach and management, so William patented the system under the name “Bioponics” - patent N° 05.11569 - 15/11/05. As opposed to hydroponics, in Bioponics, as in nature, biological life is doing the work, not the water. This is why the General Organics Thrive bioponic and soil/hydroponic feed charts (p. 35) are so different: organics in soil requires no new techniques for even a novice gardener, but bioponics, whilst not complex, needs a different approach.

*(see BM/Subculture p. 28)

How to manage Bioponics ?

Managing bioponics needs much more attention than traditional hydroponic growing methods. Not in terms of time spent, but in terms of “visual attention and examination”. Bioponics is managed by eye as much as with pH and EC parameters, although these do still remain important references. Here are a few basic principles for success when growing bioponically with General Organics Thrive.

Beneficial microorganisms

Bioponics works through a symbiotic relationship between you, microorganisms and your plants. In free water, without the buffering capacity of soil, life is hard to impossible for ‘beneficials’, and even when established on roots and substrate their activity and health can be affected by rapid changes in environment e.g. in temperature, pH, conductivity, lack of oxygen or humidity: avoiding rapid swings is the key to success in Bioponics.

Adding beneficials (we recommend BM or SubCulture (p. 28) can be done easily by sprinkling directly onto humid substrates such as rockwool, coco or perlite, or adding directly to the nutrient solution in recirculating systems and repeat every 6 to 8 weeks, and again after the second week in totally substrate-free systems. See product pages for dosages. However, in systems where there is no substrate at all, especially early on, it is necessary to provide supplemental microbial habitat. This is done with a device called a biofilter. Its job is not to clean your nutrient solution, but to provide a base for beneficials to reproduce and from which they can colonize your plants and system. For more details see “General Organics Thrive *HOW TO USE*” on page 35.

pH level

G.O. Thrive has an almost neutral pH and will not affect nutrient solution pH on addition. During growth, pH is more difficult to stabilise than in mineral hydroponics because arbitrary organic regulations prohibit the use of some extremely efficient buffers. This means nutrient solution pH will tend to rise. But the pH doesn’t have the same importance in bioponics. It can rise to 7.5 with no problem. Over 7.5 it must be driven slowly down to 6.0, but progressively, over a period of five to six days. To do so, use GHE’s liquid pH Down, as it contains organic buffers which work well in bioponics. (NB: GHE pH Down is not an organic product).

Dilute pH regulator before use and add slowly, little by little. Pour it into the reservoir, far away from the pump (or switch the pump off) to avoid plant stress due to a rapid change in pH levels. Never use: chlorhydric or acetic acids (vinegar, etc).

A significant drop in pH means the death of a large quantity of micro-organisms has occurred. In this case it is important to find the cause, treat it, and replenish micro organisms.

Conductivity

This is the most different part of the bioponic process because organic molecules don't carry electric charges and so aren't shown by EC meters. And when you dilute G.O. Thrive in water, only a small fraction is immediately dissolved and transformed into ions, resulting in very little conductivity.

On day one, with a dose of 1.5 ml/L added to normal tap water, you will obtain an EC reading of around 0.6 to 0.7 mS. This low conductivity is generally enough.

After this period, only add nutrient when your EC goes under 0.8. and respect the dosages indicated on the feed charts.

Keep your conductivity under 1.0 and above 0.8.

If possible keep using this dosage without replacing the nutrient solution to maintain all the benefits of the environment you have created. When nutritive elements are liberated, others will be absorbed by the plant, and conductivity will tend to remain in balance around the same values. When the stock of organic matter becomes insufficient, EC will drop and it is time to add more nutrient.

This seems simple, but to obtain the best results, it is important to anticipate this drop in EC, and ensure the constant availability of organic matter. Do not add too much nutrient at once as the breakdown of molecules happens according to room temperature. In fact, micro-organisms act at radically different rates depending on nutrient solution temperature (ideally 18°C to 21°C). If there is too much organic matter in the solution, a rise in temperature could increase activity and conductivity to a level that will harm your plant. It is not always easy to find the correct balance. This is where the grower's eye makes all the difference!

Filtration







Filtration is very important, especially in hot weather conditions, and when working with bare roots that hang directly in the nutritive solution. It is necessary to filter the largest particles out of your nutrient solution as they could asphyxiate the roots, particularly in hot weather. It is always better to have only easily assimilated ions in the root zone. With G.O. Thrive, a simple foam filter on the pump input is enough. G.O. Thrive will not clog the filter, but still, thorough and regular filter maintenance is required: rinse once a week for best results and make sure you stop your system whilst cleaning.

Finally, whatever species or variety you are growing, the overall environment must be adapted to the plant, independently from the growing method you use. No system or nutrient can deliver results if lighting, airflow, temperature, humidity and pest / pathogen management are not adapted to the needs of your crops. Ensuring environment is well managed is an essential step in any cultivation project.

Our professional pedigree

At GHE we do things differently: with 30 years of experience successfully producing all types of crops on commercial scales all around the world we sell proven systems and concepts, backed by decades of commercial results. We also work with our commercial partners to develop and improve our systems and products, and so when you buy a GHE or General Organics product, you can be sure that you are buying a product with a real-world pedigree of performance.

Read more about Bioponics on William Texier book (info p. 58).

<div>  Thrive/Sevia </div>							
							
	1st roots	1st true leaves	Growing	Pretlowering	Flowering	Ripening	Cleaning
Grow	0,3mL/L	0,5mL/L	2mL/L	1mL/L	-	-	-
Bloom	0,3mL/L	0,5mL/L	-	1mL/L	2mL/L	2mL/L	-
EC (mS)	<0,8	<1,2	<1,2	<1,2	<1,2	<1,2	-

EC levels are for guidance. Water EC varies so dosages will change, and plant needs change depending on species, strain, climate etc. Start where we recommend, but don't be afraid to gently vary dosages to adapt to your plant's needs.

EC is measured after pH adjustment (pH 5.5. to 6.5), addition of nutrients and supplements.



More forgiving for beginners and capable of yielding incredible performances for advanced growers, Organic culture will always offer certain advantages in almost any setting. Whilst many of our GHE products are Organic and Vegan, General Organics is our dedicated range of 100% organic liquid nutrients and additives. G.O products work together and as standalone treatments giving you easier access to 100% organic growing with GHE than ever before.

Available in 0.5L, 1L, 5L and 10L sizes, all products in the General Organics range meet EU regulations on Organic Agriculture (CE No. 834/2007).

General Organics Nutrients:

With a pedigree dating back to 2004, General Organics Thrive has been in commercial use around the world for years, including by our commercial partners Les Sourciers. General Organics Thrive is a practical and incredibly effective way to feed your plants organically, for hobby growers and professionals alike.

G.O. Thrive® G.O. Thrive Grow - G.O. Thrive Bloom

**Highly concentrated, fully Organic,
1-part liquid nutrient.**

*The first and only complete certified organic nutrient
for all substrates*

The General Organics Thrive formulas are specifically designed to meet the needs of all plants throughout growth, flowering and fruiting.

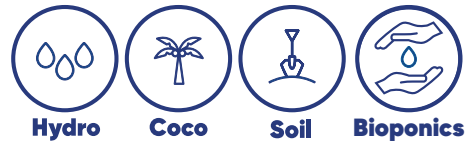
We base our formulations on ecological principles that maintain respect for the environment whilst providing plants with balanced, effective nutrition. Thrive actively improves the root environment by feeding **microbes that live in harmony with your plant**. This provides the essential nutrition and environment to deliver healthy vegetative growth, flowering and fruiting.

Thrive is ideal for every type of plant and will work wonders as a standalone product: when we say "complete" we mean it: you don't need additional elements for a successful, bountiful grow, in most water*.

General Organics Thrive is perfectly soluble and well adapted to automatic and drip irrigation systems, or hand watering in conventional gardening. It is also the only nutrient certified for Bioponics (bare root recirculating organic hydroponics p. 33).

To improve performance even further, and to give gardeners more flexibility to optimize their grows, the General Organics line also includes a range of complementary organic additives and we also sell the high quality beneficial microbes you need to make organic gardening work without rich soil.





HOW TO USE :

- General Organics Thrive is very concentrated: a maximum of 2 ml/L in water is enough in soil or hydroponics.
- Shake bottles well before each use, add each part to water separately, mix thoroughly, and always rinse measuring equipment.
- **Please note:** G.O. Thrive (and all organic feed) must be broken down by microbes to be made accessible to plants. For a colony big enough to do this, especially early on in a plant's life, a biofiltering system working 24/24h must be added to the tank in both drain to waste and recirculating systems.
- Biofiltering systems can be purchased in your local shop, or made by suspending a plastic basket (3 to 5 L) filled with 60% clay pebbles and 40% coco over your tank and running water through it continuously. If using our AeroFlo system this can be done under the return pipe. Do not immerse filter systems in the tank as high oxygen levels are vital for rapid growth of beneficial microorganisms.

USE WITH :

- **GHE BM[®] or SubCulture[®]:** The presence of beneficial microorganisms is vital to making organic culture (see page 27-28 for more details) work effectively. They provide demand driven supply of nutrients to your plants, as well as protection and other benefits.
- **General Organics additives:** The General Organics range includes high quality Organic additives to fine tune and enhance your plants in harmony with G.O.Thrive.
- Works with all plants and most substrates, in hydroponics, bioponics, and outdoor gardening.
- *NB: If growing in soft water, or coco coir, you may need to add extra Calcium/Magnesium: we recommend using **GHE Calcium Magnesium Supplement**

N.B. : G.O. Thrive is still available with Sevia label on request.

We have unified the General Organics Thrive formula with Sevia™, the heart of our patented Bioponic™ (bare root organic hydroponics) technology. To make our Organic and Bioponic ranges more straightforward.



	1st roots	1st true leaves	Growing	Preflowering	Flowering	Ripening	Cleaning
G.O. Thrive Grow	0,25mL/L	0,5mL/L	2mL/L	1mL/L	-	-	-
G.O. Thrive Bloom	0,25mL/L	0,5mL/L	-	1mL/L	2mL/L	2mL/L	-



Hydro



Coco



Soil



Bioponics



Spray



**GENERAL
ORGANICS®**



General Organics supplements: Root plus, Bud, Seaweed, Urtica and Diamond Black

The G.O supplement range brings defined benefits to any grow: organic, mineral or hybrid.

Ranging from powerful boosters to wide spectrum enhancers, General Organics supplements can be applied in nutrient solution or as a foliar spray giving all growers access to the benefits of organics.

G.O supplements meet EU regulations on Organic Agriculture (CE No. 834/2007).

G.O. Root Plus®

100% Organic root and growth booster

Boost root development and support strong vegetative growth, naturally

G.O. Root Plus is a natural root growth supplement that helps plants establish healthy and vibrant root systems. It contains vitamins, enzymes, organic and humic acids that stimulate root mass through completely natural means - not by using synthetic PGRs.

General Organics: Root Plus is an outstanding additive for seedlings and cuttings, helping young plants develop strong and healthy root systems, and for mature plants it will reinforce and maintain health by improving nutrient uptake.

You can also significantly increase germination success rates and improve the health of young seedlings by using General Organics Root Plus® in solution to soak your seeds before planting.

Available in: **0.5 L • 1 L • 5 L • 10 L**



HOW TO USE:

- G.O. Root Plus® is very powerful: for best results, use on cuttings, seeds and re-potted plants for 15 days, then switch to Diamond Nectar to stimulate abundant root hair growth.
- During rooting and vegetative stages only. Dilute to use as a foliar spray or add to water or nutrient solution:
- Solution: 3 to 5 ml/L
- Foliar spray: 3 ml/L

USE WITH:

- All plants, nutrients, and substrates, in hydroponics and outdoor gardening.

eurohydro.com

G.O. Bud[®]

100% Organic bloom and fruiting booster

Boost explosive flowering and fruiting, naturally

G.O. Bud is a powerful bloom stimulator that generates explosive flowering and massive fruit production. It increases metabolic activity and mineral uptake by utilizing bio-stimulants and organic transport enhancers - not synthetic PGRs. This induces abundant, dense, floral clusters during the crucial flowering and fruiting phases. The results are spectacular flowering and more flavourful fruits.

G.O. Bud works naturally and allows plants to express the best of their genetic potential.

For all plants during the flowering phase of plant growth.

Available in: **0.5 L • 1 L • 5 L • 10 L**



HOW TO USE:

During flowering / fruiting only. Dilute to use as a foliar spray or add to water or nutrient solution:

- Solution: 3 to 5ml/L
- Foliar spray: 3 ml/L

USE WITH:

- All flowering plants, nutrients, and substrates, in hydroponics and outdoor gardening.

G.O. Seaweed[®]

100% pure cold-pressed seaweed extract

Powerful pre-flowering activator, from the purest source on the planet

G.O. Seaweed is a 100% natural plant and soil vitality enhancer that encourages prolific root and foliage growth as well as an increase in flowering sites, and larger flowers and fruits.

Seaweed will promote vigorous, healthy growth in synergy with any feeding regime, in soil, coco or hydroponics.

Marine plants of many types have long been recognised as powerful plant boosters and stress relieving agents, but one species, *Ascomphyllum nodosum*, stands out as the most effective. And so, to deliver as many active elements as possible in G.O. Seaweed[®], including high quality organic nitrogen, we cold-press *Ascomphyllum* from the purest waters on the planet, and add nothing else.

G.O. Seaweed[®] is particularly effective as a pre-flowering activator/booster.

Available in: **0.5 L • 1 L • 5 L • 10 L**



HOW TO USE:

Dilute to use as a foliar spray or add to water or nutrient solution.

As a general tonic and organic nitrogen source: Use when needed

As a pre-flowering activator to increase number of flowering sites: apply from 1 week before flowering begins. See the feed chart for details p. 39.

- Solution: 5ml/L
- Foliar spray: 3 ml/L

USE WITH:

- All plants, nutrients, and substrates, in hydroponics and outdoor gardening.

G.O. Urtica®

Pure liquid nettle brew

Treatment for chlorosis, Organic silica source, general health tonic and adaptable pest deterrent: Urtica is an Organic all rounder

G.O. Urtica stimulates plant growth, fights leaf chlorosis and mineral deficiencies, and improves pest resistance.

Urtica is a high-quality nettle brew like those gardeners have been using for hundreds if not thousands of years. Made by fermenting nettles in water, General Organics Urtica offers exceptional protection and nutrition for your plants.

Nettles are exceptionally rich in silica and iron, and contain high levels of nitrogen, potassium, magnesium, micro elements, enzymes and trace minerals, and, as with kelp emulsion, nettle tea also stimulates a plant's immune system, improving its resistance to insect and disease attacks.

Available in: **0.5 L • 1 L • 5 L • 10 L**



HOW TO USE:

- Dilute to use as a foliar spray or add to water or nutrient solution. Use in growth and early flowering, or when needed.
- Solution: 30ml /L
- Foliar spray: 20 ml/L

Veganic™

USE WITH:

- All plants, nutrients, and substrates, in hydroponics and outdoor gardening.
- Especially effective as a natural treatment for chlorosis.

G.O. Diamond Black®

Fully organic, wide spectrum ligno-humates from recycled wood.

High quality ultra-pure Humics from a totally renewable source.

G.O. Diamond Black is an excellent source of Humates derived from a new, natural, sustainable source: sawdust!

This new technology provides a clean product, free of residues, and of course uses a totally sustainable supply.

Containing nothing but pure ligno-humate organic compounds with an exceptionally high percentage of plant-active humates, Diamond Black® improves nutrient absorption, stimulates microbial activity, promotes open soil structure, increases nutrient retention and reduces water usage. Additionally, Diamond Black can be utilized as a powerful additive for making compost.

Available in: **0.5 L • 1 L • 5 L • 10 L**



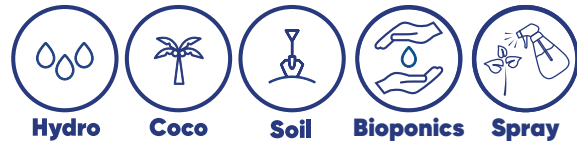
HOW TO USE:

- Dilute to use as a foliar spray or add to water or nutrient solution every time.
- Solution: 4ml /L

Veganic™

USE WITH:

- All plants, nutrients, and substrates, in hydroponics and outdoor gardening.



General Organics Supplements application



							<i>FloraKleen[®]</i>
	1st roots	1st true leaves	Growing	Preflowering	Flowering	Ripening	Cleaning
G.O. Root Plus	5mL/L	3mL/L	-	-	-	-	-
G.O. Diamond Black	3mL/L	4mL/L	4mL/L	4mL/L	-	-	-
G.O. Seaweed	-	5mL/L	5mL/L	5mL/L	5mL/L	-	-
G.O. Urtica	-	30mL/L	30mL/L	30mL/L	-	-	-
G.O. Bud	-	-	-	5mL/L	5mL/L	5mL/L	-
BM or Subculture	0,1g/L	-	0,1g/L	-	-	-	-



Hydroponics: In recirculating hydroponic systems, substitute Diamond Black for Diamond Nectar (see "GHE Supplements application table p 57"). EC levels are for guidance. Water EC varies so dosages will change, and plant needs change depending on species, strain, climate etc. Start where we recommend, but don't be afraid to gently vary dosages to adapt to your plant's needs.



						Ripen[®]	
	1st roots	1st true leaves	Growing	Preflowering	Flowering	Ripening	Cleaning
G.O. Root plus	3mL/L	3mL/L	-	-	-	-	-
G.O. Seaweed	-	3mL/L	3mL/L	3mL/L	-	-	-
G.O. Urtica	-	20mL/L	20mL/L	20mL/L	-	-	-
G.O. Bud	-	-	-	3mL/L	-	-	-

Foliar application: all GHE nutrients and GHE and G.O supplements can be applied as foliar sprays when needed, but avoid use during flowering. Always keep EC of your foliar solutions under 0.6mS.

AquaFarm® and WaterFarm®

Easy to use hydroponics for beginners, professionals, and everyone in-between

The ORIGINAL home hydroponics unit. Often copied, never equalled.

Invented more than 30 years ago in California by GH USA founder Lawrence Brooke, and still our best-selling home hydroponic system today, the AquaFarm, and smaller format Waterfarm, have grown hundreds of thousands of healthy, happy and often huge plants around the world.

The AquaFarm® owes its longevity and success to the mix of performance and ease of use that the system offers. Quick to set up in any space from greenhouses to kitchens and balconies, AquaFarms® and Waterfarms® can be used to grow decorative and culinary plants of all sizes, from basil and other herbs to small trees.

Both systems work by using air to draw nutrient solution up from the reservoir, and dripping it back down through the clay pebble substrate and roots. This simple, reliable design is incredibly effective at delivering perfectly oxygenated nutrient solution to plants - exactly what is needed for optimal growth and flowering, and two-part construction offers easy reservoir and root access, which can be difficult or impossible in many systems.

Now in version 3, boasting a range of improvements to component design, the AquaFarm and WaterFarm are:

- Roto-molded in France from super tough and durable recycled plastic.
- UV and light shielded for root protection.
- Versatile, adaptable and **expandable**.
- **Very low electricity consumption: less than 2 Watt.**



AquaFarm
45L, 46cm x 46cm x 43cm



WaterFarm
15L, 30,5 cm x 30,5 cm x 37 cm

AeroFarm®

Easy to use aeroponics, for beginners, professionals, and everyone in-between

Based on the industry leading AquaFarm, the AeroFarm offers easy, substrate free hydroponic growing on small to medium scales.

With the same easy access 45L reservoir as the AquaFarm®, the AeroFarm® offers many similar benefits, but thanks to the use of sprayers and net pots to hold your plants the AeroFarm® needs no substrate beyond a few recycled clay pebbles.

AeroFarms® can grow from 1 to 5 plants, and are available in 2" and 3" pot sizes, they are all:

- Roto-molded in France from super tough and durable recycled plastic.
- UV and light shielded for root protection.
- Versatile, adaptable and reliable.

If you already own an AquaFarm® and want to try substrate free growing, a conversion kit is also available.



45L, 30.5cm x 30.5cm x 37cm

ACS WaterPack®

Active Circulation System for WaterFarms

Highly efficient, easy to use, expandable recirculation system

The ACS system allows you to install a proper hydroponic system in small spaces, and to tailor size to your needs. The entire system runs off one air compressor, and our innovative T-connector design means that nutrient solution is fully circulated in just thirty minutes!

Made out of the same high-quality plastic as our market leading AquaFarms, and with the same easy access 45L reservoir the ACS WaterPack® has a flip top reservoir lid for easy filling and emptying, and direct access to the nutrient solution.

- Roto-molded in France from super tough and durable recycled plastic.
- UV and light shielded for root protection.
- Versatile, adaptable and reliable.

The ACS Waterpack comes with 4 WaterFarm units as standard, and works best with one plant per pot. Expansion parts are available to add more WaterFarms if you wish, and you can also use the ACS controller with other brands of pot.



Ref. AC01001

The WATERPACK ACS includes a free set of Flora Series Draining Kit (available separately)

ACS Controller®

The ACS controller works with almost any re-circulating modular hydroponic system delivering full nutrient solution re-circulation in under 30 minutes, without complex electronics and pumping systems. The key to the system's efficiency is our revolutionary T-Piece design which forces solution to recirculate through each module, as opposed to mostly flowing past with limited exchange as happens with a normal t-connector. The circulation is provided in the most elegant way by a small air pump that circulates the solution between each pot. This, plus the simplicity and reliability of the controller design make the GHE ACS controller the best choice for always on, recirculating modular hydroponic control."



To build your own ACS systems, you will need the following parts. Sold separately.



Ref. RA32008



Ref. TU01005

HOW TO USE THEM:

- Follow included instructions to set up system, add nutrient solution, washed clay pebbles, install plants from a hydroponic propagator such as our Rainforest72 (p. 46), and grow!



Lifetime Guarantee is for reasonable use only and applies to moulded plastic systems made in France by GHE, and excluding ancillary components, motors etc.

AeroFlo®

The best performing, most efficient, most dynamic and most flexible hydroponic system available.

Used by scientific expeditions, and commercial growers around the world, the AeroFlo® is THE substrate free commercial system.

Ranging from 10 to 120 plants per unit, and with an unlimited number of units available, AeroFlo® systems are truly the most flexible way to produce plants hydroponically. Working on the principle of distributing oxygenated water optimally along the length of the unit, the AeroFlo® concept offers the advantages of what has become known as “Aeroponics”, without the downsides of water heating, and extreme susceptibility to pH fluctuations.

AeroFlo® systems run from one simple water pump in the reservoir which lifts water to the growth tube, where it is injected at carefully calculated intervals. The nutrient solution then falls back down the downpipe, perfectly oxygenating the nutrient reservoir as it does so: no complex controllers, or multiple air pumps - AeroFlo® Systems are incredibly easy to set up and run so you can focus on plant management, not system maintenance.

These advantages, including the incredible performance of plants in the system, are why the AeroFlo® is our best-selling commercial system worldwide, and the system of choice of our commercial partners, Les Sourciers, Les Aeromates, Hydroleb, and more.

AeroFlo10



AeroFlo14



AeroFlo20



AeroFlo28



AeroFlo40



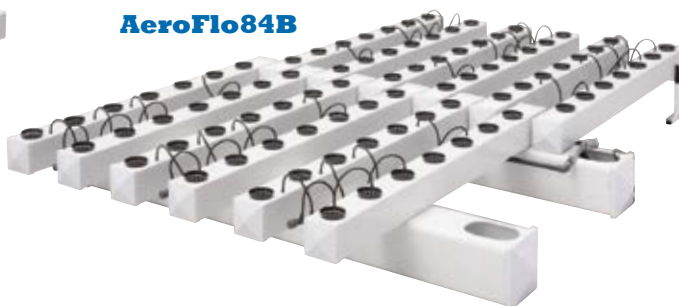
AeroFlo60



AeroFlo56B



AeroFlo84B



AeroFlo80



AeroFlo120



AEROFLO include a free set of *Flora Series*

HOW TO USE THEM:

- Follow included instructions to set up system, add nutrient solution, washed clay pebbles, install plants from a hydroponic propagator such as our Rainforest72 (p. 46), and grow!

AeroFlo 10

10 plants - 0.5 m²

L = 110, D = 50, H = 50 cm
Volume of reservoir: 45 L

AeroFlo 14

14 plants - 0.75 m²

L = 160, D = 50, H = 50 cm
Volume of reservoir: 45 L

AeroFlo 20

20 plants - 0.9 m²

L = 130, D = 73, H = 47 cm
Volume of reservoir: 70 L

AeroFlo 28

28 plants - 1.2 m²

L = 180, D = 73, H = 47 cm
Volume of reservoir: 70 L

AeroFlo 40

40 plants - 2.35 m²

L = 224 - D = 105 - H = 57 cm
Volume of reservoir: 200 L

AeroFlo 56B

56 plants - 4.06 m²

L = 282, D = 146, H = 32 cm
Volume of reservoir: 100 L

AeroFlo 60

60 plants - 3.25 m²

L = 325, D = 105, H = 57 cm
Volume of reservoir: 200 L

AeroFlo 80

80 plants - 4.30 m²

L = 410 - D = 105 - H = 57 cm
Volume of reservoir : 200 L

AeroFlo 84B

84 plants - 5.65 m²

L = 282, D = 200, H = 32 cm
Volume of reservoir: 130 L

AeroFlo 120

120 plants - 6.695 m²

L = 325 - D = 210 - H = 57 cm
Volume of reservoir: 400 L



For your commercial production projects, standard and made-to-measure see p. 50.
Also open www.hydroponicmicrofarm.com or contact sales@eurohydro.com

Ebb&Grow®

The easiest way to discover Hydroponic growing, now with GHE quality construction

Perfect for balconies, small gardens and indoor use, the Ebb&Grow® lets you grow plants in pots, but with the added advantages of hydroponics.

- 100L reservoir capacity
- Super sturdy construction
- Power consumption just 6.5 Watts
- Grow in any pots, with coco, clay pebbles or soil.
- Produce more, more easily, without wires, tubes and complicated systems.

Want to grow hydroponic herbs and vegetables at home, work or school, but put off by the complexity of the systems? The Ebb&Grow® means you can use any pot you like, almost any substrate (**although we recommend CocoTekPX**), and move plants around at will. Herbs in the front and tomatoes and chillies in the back? No problem. All salads this month and cut flowers from pots next? No problem. All our hydroponics systems are flexible, but the Ebb&Grow® really is the most adaptable system we have ever made, and with no risk of leakage or overflow, easy disassembly and cleaning, it can be used anywhere that space is available.

The GHE Ebb&Grow® is an “ebb and flood” design: a simple timer (not included) runs a pump intermittently to bring nutrient solution up to the growing table, where it flushes spent air from the roots of your plants, waters and feeds them, then pulls fresh air in as the water drains back down to the reservoir.

The system can hold up to thirty-two 15 cm plastic pots, twenty-two 1 gallon (3.75L) fabric pots, or as many larger pots as you can fit on its 88 cm square growing surface, and with a height of just 38 cm low ceilings are not a problem.

Made from the same ultra-durable, UV blocking, 100% recycled plastic, as with all GHE manufactured systems, the moulded plastic parts of the Ebb&Grow® are guaranteed for life* - unique in the hydroponics industry.



The EBB&GROW include a free set of Flora Series 1/2L.



**95x95 cm exterior
88x88 cm interior - 38 cm high
Effective volume : 100 L**

HOW TO USE :

- Follow included instructions to set up system, add nutrient solution, put your pots on the table and grow!



** Lifetime Guarantee is for reasonable use only and applies to moulded plastic systems made in France by GHE, and excluding ancillary components, motors etc.*

RainForest2®

The latest generation of aeroponic modules

Three options to grow small to medium plants from cutting to maturity in one unit

- Go from cuttings to adult plants in the same unit
- No need for heavy substrate
- Large reservoir capacity helps stabilise pH
- AquaFarm style level tube allows easy direct access to nutrient solution for testing.
- Covers available with different sized growth sites for maximum flexibility

The 2nd Generation RainForest series allows you to grow in 2, 3 or 6-inch pots allowing a variety of different plant sizes to be grown with optimum spacing. The smaller the pot, the more the unit can house: 36 for the 2" model, 18 for the 3" version, and 6 for the 6" RainForest2.



RF2 6 pots

66 cm hexagonal x 43 cm
Effective volume: 65 L



**RAINFORESTS2 and
ECOGROWERS include
a free set of Flora Series**



RF2 36 pots



RF2 18 pots

EcoGrower®

Reliable, effective and efficient drip feed modules

An easy way to grow small to medium plants from cuttings to maturity in one unit

- Go from cuttings to adult plants in the same unit, without heavy substrates
- Large reservoir capacity helps stabilise pH
- AquaFarm style level tube allows easy direct access to nutrient solution for testing.
- Available with six 6" grow sites

Based on the same solid base unit as the RainForest2, the EcoGrower uses a simple air pump to send water and oxygen through the dripper system, where it is delivered to your plants before dripping back down through re-usable clay pebble substrate to the reservoir, before re-circulating.



66 cm hexagonal x 43 cm
Effective volume: 65 L

HOW TO USE THEM:

- Follow included instructions to set up system, add nutrient solution, install plants from a hydroponic propagator (p. 46), or use cuttings or seeds directly, and grow!

RainForest72[®] propagator

The latest generation of aeroponic propagation modules

Multiple aeroponic growth sites in one compact unit

The RainForest72 uses the Vortex motor from the original Aeroponic RainForest range to deliver perfectly oxygenated nutrient solution to up to 72 cuttings, without the need for protective covers.

Used by some of the world's biggest labs including Los Alamos and the Argonne National Laboratory in the USA, the RainForest72 delivers the most dramatic growth rates of any system they have tested.

- Propagate 72 plants on a 67 cm footprint.
- Large 70L reservoir capacity helps stabilise pH
- Made in France from 100% recycled, UV stabilised and barriered plastic.
- Guaranteed for life! *



72 cuttings
L = 67 cm, D = 67 cm, H = 31 cm
Effective volume: 70 L

CuttingBoard[®] propagator

Compact aeroponic propagator

The best choice for small projects and a key instrument for plant collectors.

Like the RainForest72, the CuttingBoard is an ideal system to get a vigorous and healthy root mass, that will easily adapt to the different environments into which they will be transplanted, be it in hydroponics or in soil. It is a key system for small projects and a practical instrument for all.



27 cuttings
L = 66 cm, D = 30 cm, H = 14 cm
Effective volume: 13 L

HOW TO USE THEM :

- Follow included instructions to set up system, add nutrient solution, install cuttings directly into clay pebbles in the net pots, and grow!



** Lifetime Guarantee is for reasonable use only and applies to moulded plastic systems made in France by GHE, and excluding ancillary components, motors etc.*

CocoTek® - CocoTek PX®

100% natural, superior quality coconut coir substrates

High quality, ultra-clean substrates from a totally renewable organic source: the ease of soil growing with added performance.

The CocoTek range is derived from premium quality coconut coir processed to give you one of the cleanest, lightest, best performing coco coir substrates on the market today - safe to use straight from the bag with no rinsing needed.

Guaranteed pathogen, weed and pest free, CocoTek is available in two formats:

- **CocoTek - 100% pure coconut coir.**
- **CocoTek PX - 75/25 coco/perlite mix.**

The optimised drainage and root zone oxygenation offered by CocoTek PX is ideal for use in the GHE Ebb & Grow system, self-watering pots and dripper systems, and all CocoTek products can be used as soil replacement in traditional hand watering contexts.

CocoTek coir can be reused up to 3 times if needed, and makes a superb garden and agricultural soil improver, especially in clay soils.



Available in: **50 L bags.**

HOW TO USE:

- Use as you would soil, but remember to add nutrients every watering as CocoTek is a neutral substrate.

USE WITH:

- All pot based systems, in hydroponics and outdoor gardening.
- GHE FloraCoco nutrients for superior performance in all Coco, with no need for Calcium Magnesium Supplement or PKs
- General Organics additives including Seaweed as a pre-flowering activator.
- G.O. Thrive + GHE Calcium Magnesium Supplement
- GHE beneficials, BM and SubCulture add protection and root health to any coco grow.

Grorox®

High quality, renewable, re-usable, non-toxic substrate

Natural clay composition for excellent oxygenation and drainage.

Grorox clay pebbles are a light and completely re-usable substrate for hydroponic gardening and food production. Unlike rockwool, Grorox can be dug into garden soil as a drainage improver when no longer required without causing pollution. We use them in large volume systems like the AquaFarm, and to support plants in net pot containers in our AeroFlo and RainForest systems.



HOW TO USE:

- Before using Grorox for the first time it is important to thoroughly rinse your pebbles with water to remove any sand and wash off any remaining dust and residues.
- We recommend that you always check the pH level of clay substrates: Put some pebbles in a glass of water with pH adjusted to 6.0. Stir well, let it rest, then measure. If the level is high (7.0 or higher), soak the pebbles overnight in a solution of diluted phosphoric or nitric acid (or pH Down liquid or powder). Then rinse thoroughly before using. If your Grorox are neutral, just wash thoroughly and rinse well as above. After use: for re-use, it is generally sufficient just to wash off all organic debris and rinse well. But if needed, and in case of insect or mould infestation, disinfect the pebbles by soaking overnight in a strong acid solution (or pH Down - at 4.0), then rinse thoroughly to ensure the acid is washed away.
- Use with: AquaFarm, WaterFarm, AeroFlo, Ebb&Grow, RainForest72, RainForest 2 and EcoGrower.

Pumps and spare parts

AIR PUMPS



ACO 2201
1,3 L/min - 1,8 W



ACO 5503 - 2 outputs
3,5 L/min - 4 W

COMPRESSORS

ACO 208 - 6 outputs
45L/min - 25 W

ACO 318 - 6 outputs
70 L/min - 35 W



WATER PUMPS

Model	Outflow	Elec. Power	Systems
Syncra 1.0	950L/H	16W	AeroFlo 10 AeroFlo 14
Syncra 1.5	1350L/H	23W	AeroFlo 20 AeroFlo 28
Syncra 2.0	2150L/H	32W	AeroFlo 40
Syncra 3.5	2500L/H	65W	AeroFlo 80 AeroFlo 84B
Syncra 3.0	2700L/H	45W	AeroFlo 56B AeroFlo 60
Syncra 5.0	5000L/H	105W	AeroFlo 120
MicraPlus	600L/H	6.5W	AeroFarm
Mi Mouse	300L/H	3.8W	Draining Kit



**GHE constantly researches the best pumps adapted to your systems.
You might therefore notice changes in models and brands but the assembly remains the same.**

VORTEX MOTORS - VORTEX 12 V - 13 W

The Vortex is an exclusive oxygenating and spraying system that lifts the nutrient solution and evenly distributes it over the root zone. It generates the right level of humidity in the root zone for rapid and healthy propagation, with no need for the domes found on traditional propagating systems.

The 12 volts Vortex has many advantages :

It uses 50% less electricity, it never heats up, it can be hooked on the usual alternative current and it is adapted to solar panels, for those who have already opted for new sources of energy.



SPARE PARTS AND AFTER SALES SERVICE

GHE offers a large range of spare parts for standard growing systems and also to allow you to build your own growing units.

In case of an after-sales request about your growing system, we recommend that you first refer to your unit's assembly instructions on www.eurohydro.com, and identify the needed part(s) reference(s).

For more help and advice, inquire with your usual supplier or contact us directly on +33 5 62 06 08 30 and sav@eurohydro.com.

What is hydroponics?



The term hydroponics comes from the Greek 'hydro' (water) and 'ponos' (work). It was coined to describe a form of culture where a nutrient solution does the "work" of bringing nutrients directly to your plants, as opposed to "traditional" gardening where bacteria and fungi break down organic materials, releasing mineral ions, which are then made available to your plants through water present in the soil.

Either way, plants only consume mineral ions for their primary nutrition, not complex organic molecules the way we do. So, Hydroponics isn't a totally different, or 'un-natural' way to grow: all plants, whether growing in purely organic potting compost, or a 100% mineral hydroponics setup with no soil or substrate at all, get their nutrition from minerals in water. The difference is that normally in Hydroponics (and in all GHE systems), the water used is re-circulated continuously, so the only significant losses are through use by the plants, and periodic reservoir water changes.

But whilst most hydroponic systems keep roots continuously wet, water is not the real key to successful hydroponics: oxygen is. You may know that overwatering is one of the most common problems with potted plants; this is because saturated, waterlogged compost stops air from reaching the roots, and like the rest of the plant, roots need oxygen to survive. Well designed hydroponic systems focus heavily on oxygenation. The provision of perfectly oxygenated solution, with the right nutrients, creates the huge increases in yield that hydroponics offers over soil based cultivation: all GHE systems deliver excellent oxygenation and nutrient solution circulation.

So, if you are used to growing in soil, any of the systems in our catalogue offer, if used properly, the potential to massively increase yield, without sacrificing quality.

Whilst hydroponics allows farms to grow the tasteless tomatoes you often see nowadays by cost saving on vital nutrients, it also, if using high quality nutrients such as the GHE range, allows the production of higher volumes of extremely high quality food and plant products, with all the micro and sub-micro nutrients found in the best organic produce, in a shorter time, and with far less waste, especially of water, than "traditional" soil based culture.

Between our two brands, General Hydroponics Europe, and General Organics, we offer a complete spectrum of approaches to hydroponics: from the world leading Flora Series mineral range and professional AeroFlo systems, to our uniquely clean and pure Organic range, and easily accessible Ebb&Grow system, our range is proven to deliver exceptional results.

If you are already familiar with hydroponics, our systems offer better built, better performing ways to grow, and our nutrients deliver better results, with less add-ons and extras than any other brand. If you are new to hydroponic growing, we offer safe and easy ways to try the concept.

All our products come with instructions for use, details on nutrient schedules can be found p. 57, on each product pages, and there is a wealth of information available on the internet and elsewhere to guide you through beginning in hydroponics. But we strongly recommend that anyone starting out invests in a reputable guide book to have on hand. "Hydroponics for everybody" by William Texier, is available online, and covers everything you need to know to grow hydroponically, from beginner to professional level, but here are the GHE basics for successful hydroponics:

1. Environment is everything: Too cold, too hot; too much or too little airflow will ruin a grow: get advice from local growers, or retailers on the best set-up for your area.
2. Know your water: If you have hard or soft water use the appropriate formulation of nutrients. "General" nutrients that "work" in either water can be a compromise with too much Calcium for hard water, and too little for soft.
3. Get decent metering: pH and EC are vital criteria for managing your nutrient solution (EC less so in Organic hydroponics: see Bioponics/see page 32). pH shows how acidic or alkaline your nutrient solution is, and EC (electrical conductivity) gives a general guide to how much nutrient is in your solution. We sell inexpensive and accurate liquid pH test kits, and your local shop can supply affordable EC and pH meters.
4. There is no "ideal" pH level: all plants prefer different levels, and at any given pH, uptake of some minerals is better, others worse. Our advice is to stay on the lower side of the general range pH 5.5 to 6.2, and to check EC and pH daily. Small fluctuations are normal, large / rapid changes are not.
5. As to EC, we recommend levels for each product and each stage of growth in our feed charts, but as a rule, less is more: chasing very high EC levels generally does not increase yield and stresses plants. If you do want to experiment go slowly and if your plants show signs of stress reduce, your EC levels.

The Hydroponic MicroFarm

A viable business alternative to grow healthy food for the local market.

In 1990 at the White Owl WaterFarm (Sebastopol, California), William Texier and Noucetta Kehdi created the concept of the «Hydroponics MicroFarms»: as opposed to the rapidly developing industrial food production, they had the vision of a family or community garden, producing local, fresh, nutritious and traceable food; a microfarm as it existed traditionally - using hydroponics instead of soil.

Why hydroponics? Of course, to take best advantage of space in cities and countryside, as land becomes expensive and scarce everywhere, especially a productive one. To obtain better yields and feed an ever-growing world population. To produce nutritious food, significantly reduce water consumption, eliminate pollution of soils and waters, and participate constructively in the economical and social life of our communities. For this purpose, we built the AeroFloPRO (AFPRO).

Meanwhile General Hydroponics had already created Flora Series in 1976. Indeed Flora Series is the first 3-part nutrient system specifically adapted to hydroponics: complete, concentrated, adaptable, and highly soluble. Its building-block structure allows it to closely respond to the plant's needs at all times, and helps it develop the best of its genetic potential.

Strong with 40 years immersed in plant nutrition and cultivation, we are able today to offer you the most dependable, efficient, and cost-effective line of hydroponic systems, nutrients and supplements.

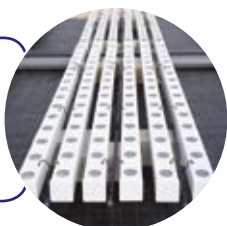


THE HYDROPONIC SYSTEMS

The AeroFlos are the best systems to use when you want your crop to be nutritious, bountiful and fast.

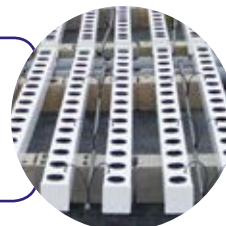
AFPRO 2160-2880/8

2160 plant-sites - 24,5 x 6,2 m - 151,9 m²
8 cm between each line
for small plants like salads, herbs, some greens, etc...



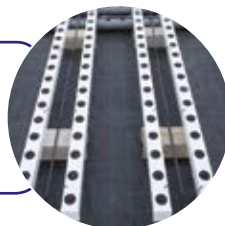
AFPRO 2160-2880/16

2160 plant-sites - 27 x 6,5 m - 175,5 m²
16 cm between each line
for medium size plants like strawberries, etc...



AFPRO 1440

1440 plant-sites - 27 x 6,5 m - 175,5 m²
33 cm between each line
for large plants like tomatoes, peppers, etc...



*We offer various standard models and also manufacture them to measure.
To know more about the advantages of the AeroFlo,
visit www.hydroponicmicrofarm.com and click on systems.*

Note : there is 90/100 days delay between order and delivery.



The Hydroponic MicroFarm

THE NUTRIENTS AND SUPPLEMENTS

Very often, when we meet with professionals from the soil gardening industry, they look at our product line in disbelief. They never thought it useful to give such exhaustive and exclusive diets to plants. A few years, and still now most greenhouse growers buy powdered mineral salts of different qualities, mixing and distributing them with the help of a simple program. But nowadays, to adapt to an increasingly demanding public for healthy food, growers find it easier to count on a dependable manufacturer, and insure nutritious and bountiful crops.

Because they gain in dependability and productivity, and therefore time and money.

MINERAL NUTRIENTS

Flora Series

FloraGro
FloraMicro SW
FloraMicro HW
FloraBloom

Maxi Series

MaxiGro
MaxiBloom

CocoTek

FloraCoco Grow
FloraCoco Bloom

BIOPONICS ORGANIC NUTRIENTS

G.O. Thrive (Sevia)

G.O. Thrive Grow
G.O. Thrive Bloom

SUPPLEMENTS

Essentials
FloraKleen
G.O. Diamond Black
Diamond Nectar
G.O. Seaweed
Bioponic Mix (BM)

pH REGULATORS

pH Down
pH Up
pH Test Kit



Hydro

Our nutrients and supplements are designed for hydroponics. They are adapted to all substrates, soil, coconut fibre, etc. (See application charts).



Bioponics



Coco



Soil

You can find a Flora Series nutrition chart for the most requested plants under www.eurohydro.com/application-charts.html.

We offer fast and reliable support to all our clients.

Let us guide you and prepare to be surprised!



The essentials of successful gardening



Genes

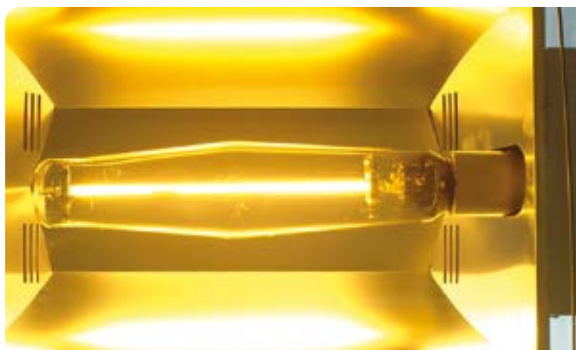
The genetics of your plants will play a major role in the outcome of your garden. As the plant goes through its life cycle it can sometimes be difficult to assess whether it is responding to its environment, or whether it is following the instructions written in its DNA. With the rise of genetically engineered crops, the choice of which varieties to grow can become a charged issue. We have an ethic at GHE, which is to promote growth and flowering by improving the nutrition of the plants.

Therefore, our products contain no hormones or synthetic precursors of any kind.

The amazing results that you experience with our products are not due to a manipulation of the metabolism of the plant, they are merely the best expression of its genetic make-up promoted by comprehensive, holistic nutrition.

Atmosphere

The atmosphere affects the growth and life of plants dramatically. Plants require lots of fresh air, so growers who are using greenhouses and indoor facilities must supplement their airflow with fans. The temperature and relative humidity have a major effect on plant physiology and growth. Both photosynthesis and transpiration are dependent upon proper humidity, temperature and air circulation. Plants can survive in a wide variety of atmospheric conditions, but to truly thrive they must have plentiful fresh air and proper temperature and humidity. The ideal temperature and humidity for your plants is between 18 and 32°C and 60% to 80% relative humidity.



Light

The amount and quality of sunlight that your plants receive will also affect their growth. Seasonal variances, exposure and shadows from buildings and trees must be taken into account when setting up a garden. If artificial light is to be used, it must be of a robust spectrum and sufficient intensity to satisfy the needs of the plants without overwhelming them or drying them out. Different plants and different phases of growth require different light spectra and intensity. Light supplies the energy used in photosynthesis, which is one of the most fundamental plant processes.

Insects

Unfortunately for gardeners, there are a host of organisms which survive by destroying plants. These range from microscopic bacteria, viruses and fungi to larger organisms such as insects and arachnids.

Cleanliness can help prevent pests from arriving. By keeping garden tools and surfaces sterilised, destructive micro-organisms will have a harder time gaining a foothold. Moist, warm and damp conditions are favourable to developing mould and mildew, so avoiding condensation and ensuring sufficient air circulation will help keep these undesirables away. Larger pests require a more aggressive approach. There are many products available which assist in the eradication of these invaders, but cleanliness is a good start in managing pathogens and pests. Used as preventatives, products like G.H. Protect (that stimulates the immune system), or G.O. Urtica (that kills an amazingly wide range of insects) are very efficient in improving plant resistance.

There are also integrated pest management (IPM) techniques which use natural predators to fight harmful insects. The effectiveness of IPM is now well proven.



Nutrition

Plants need nutrients to grow. GH has several nutrients which provide all of the elements required by plants. These fertilisers contain an ideal blend of macro and micro nutrients, and can be adjusted to suit the needs of the plant based on its age and growth stage.

To boost plant performance, successful gardeners add supplements to the nutrient solution. These additives can improve plant vitality, enhance flavours and increase yields. Since these nutrients and supplements are absorbed through the roots of the plant, optimum nutrition requires strong and healthy roots. Proper nutrition is a major component of healthy, thriving plants.

Water

The quality of the water that plants receive will affect their health and vitality. Tap water can contain harmful additives, such as chlorine, and even natural well water can contain an excess of minerals or have an extreme pH. A surplus of many common elements in water can cause a chain reaction in a nutrient solution, resulting in many of the vital elements fusing together and becoming unavailable to the plant. Testing your water will inform you if your water is an issue.

If your problem is excessive minerals, using the hard water versions of our nutrients might be sufficient. Truly problematic water must be filtered and pH adjusted before being used for plants.

To know the quality of your water, ask for an analysis from your water supplier.



Nutrient strength and meters

Nutrient strength is a key factor in proper plant nutrition. Although the recipes GH provides you with should create nutrient solution at the proper strength, there are many environmental factors which can cause nutrient strength to change. A nutrient strength meter is an essential tool for the advanced grower.

There are two different types of meters which measure nutrient strength - PPM and EC meters. Both types make the same measurement, but then present the result in different units. Nutrient strength is measured by passing an electric current through the solution; the more easily electricity travels through the solution, the stronger it is. An electrical conductivity meter (EC) will give this result as an electrical value, such as a milliSiemen (mS). This number is directly related to the strength of the nutrient.

PPM meters measure the conductivity of the solution, and then attempt to estimate the actual parts per million. The problem with this method is that different meters may use different scales to convert EC measurements to PPM readings, so two different PPM meters could read drastically different values in the exact same nutrient solution.

In Europe we use EC meters, which simplifies things a lot.

Whichever meter you choose, it is very important to use a measuring device, in order to track changes in nutrient strength and make decisions and adjustments which will contribute to success.



Use our pH adjusters to raise or lower pH as needed. Adjusters are available in liquid form (pH Up & pH Down) or in powder (Dry pH Down). Add regulators gradually to avoid overshooting.

Heat and nutrients

Arid, bright, hot environments can have an impact on nutrient solution. As the solution loses water through evaporation and plant transpiration, nutrient strength increases. When growing conditions are more intense, using a less concentrated nutrient solution and monitoring nutrient strength with a meter can help prevent overfeeding. As nutrient solution becomes warmer in hot weather, it loses its ability to hold dissolved oxygen, which is essential for root health. When hot weather strikes, monitor the solution temperature and keep it below 24°C or use a BioFiltre.

Digital meters: EC & pH

Electrical meters are a fast way to control EC and pH.

To make sure your meters remain accurate regularly test them with calibrating solutions.

Quick tips for reverse osmosis users:

For those who use reverse osmosis filters, here is a great tip to buffer your water and help stabilise the pH. There are two ways, and both are efficient:

- If you prefer simplicity, all you have to do is add 20% tap water to your reverse osmosis water.
- If you are a purist, and do not want to use tap water, or whose water is particularly bad, here are two easy steps:
 1. First increase your pH up to 10.0 with pH Up or potassium carbonate.
 2. Then bring it down to 6.0 with pH Down.

In both cases you'll obtain water well adapted to hydroponic nutritive solutions, while avoiding untimely pH fluctuations.

pH and nutrient availability

The pH of a nutrient solution describes its acidity or alkalinity. Although extremes of pH can damage roots, the primary reason that pH is relevant to growers is that it affects whether certain elements in the solution are available to the plant or not. Specific nutrient deficiencies can arise in a well balanced nutrient solution if that solution exceeds the optimum pH range. Therefore, it is beneficial to your plants to monitor and adjust pH as needed to ensure complete nutrient availability. Many factors work to change the pH of your nutrient, including microbial activity, atmospheric interactions and recirculation.

For best results regularly check pH to ensure that it does not exceed the acceptable range. Keep nutrient pH between 5.5 and 6.5.

Liquid pH testers

A liquid pH indicator is the most reliable and economical way to check your pH level.

With a liquid pH test indicator, you can also regularly validate the accuracy of your pH meter, and make sure it is working properly.

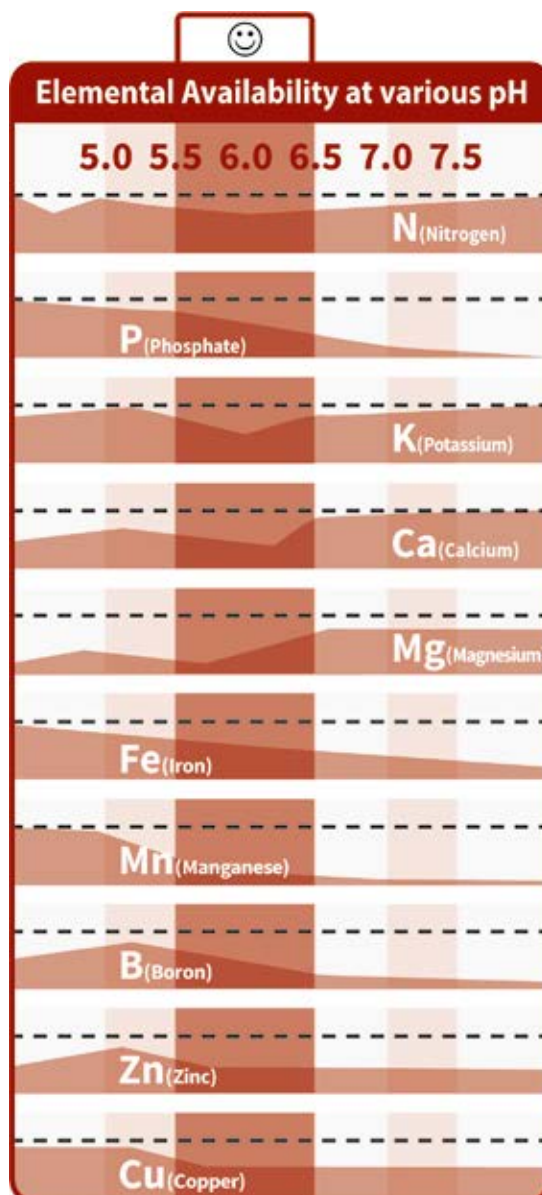
Remember, it only takes a few hours to kill a crop if your digital meter gives you an incorrect reading.

Add two drops of liquid pH Indicator to half a tube of nutritive solution. Compare with the colour chart provided to identify your pH.



Deficiencies

Hydroponic nutrients contain all elements needed by plants. Under normal circumstances, all elements should be available and nutrient deficiencies will not occur. A pH imbalance can cause nutrient deficiencies by creating mineral interactions. Hard water or incorrectly mixing nutrients directly together will also contribute to pH problems. If you observe signs of a specific nutrient deficiency while using high-quality nutrients, examine environmental factors first.



Why use hydroponic nutrients?

In soil or in hydroponics, hydroponic nutrients provide the ultimate in comprehensive and customisable plant nutrition.

Providing superior results in both soil and hydroponic gardens, hydroponic nutrients are mineral-based plant food which provide complete and total plant nutrition. Because hydroponic systems do not use soil, they rely on the nutrient solution to provide all the elements needed by the plants. As a result, hydroponic fertilisers, unlike most commonly available plant food, must contain the entire spectrum of necessary elements, making them a robust and complete nutrient source suitable for all gardens.



Typical Fertiliser: Unsuitable for Hydroponics

This fertiliser only provides partial nutrition and must be combined with other fertilisers and soils to provide complete nutrition. (In this case we recommend using Essentials.



Hydroponic Nutrient: Full-Spectrum Plant Nutrition

In a hydroponic system or in soil, this fertiliser will ensure that everything the plant needs will be right at its root-tips.



The nutritional needs of your plants will change throughout their lifetime. A seedling needs a completely different nutrient than a flowering or fruiting plant, and due to their precise composition and modular components, hydroponic nutrients can easily be tuned to match the needs of a plant at any stage of growth. In addition to supplying complete nutrition, hydroponic nutrients are also easily customisable and adjustable to match the changing needs of your plants.

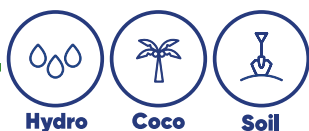
Download our feed charts from www.eurohydro.com/application-charts.html or ask for them from your usual supplier. They are also offered each time you buy our nutrients.



For more info :

- Consult www.eurohydro.com regularly and download your feed charts, instructions, The Basics, etc
- Follow us on Facebook, Twitter, Instagram, You Tube.

GHE Supplements application



GHE Supplements



FloraKleen®

	1st roots	1st true leaves	Growing	Preflowering	Flowering	Ripening	Cleaning
G.H. Roots	0,2mL/L	0,2mL/L	-	-	-	-	-
Diamond Nectar	-	2mL/L	2mL/L	2mL/L	-	-	-
G.H. Bloom	-	-	-	0,2mL/L	0,2mL/L	0,2mL/L	-



Bioponics

Organic hydroponics: In recirculating hydroponic systems, substitute Diamond Nectar for Diamond Black (see "G.O Supplements application table p. 39").



Spray

GHE Supplements

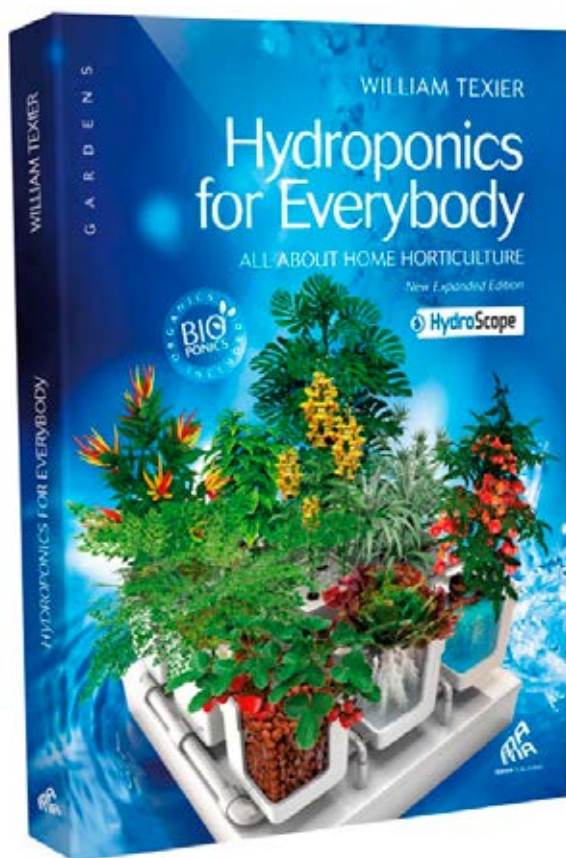


Ripen

	1st roots	1st true leaves	Growing	Preflowering	Flowering	Ripening	Cleaning
G.H. Roots	0,1mL/L	0,1mL/L	-	-	-	-	-
Diamond Nectar	-	3mL/L	3mL/L	3mL/L	-	-	-
G.H. Protect	-	5mL/L	5mL/L	5mL/L	-	-	-
G.H. Bloom	-	-	-	0,1mL/L	-	-	-

Foliar application: all GHE nutrients and GHE and G.O supplements can be applied as foliar sprays when needed, but avoid use during flowering. Always keep EC of your foliar solutions under 0.6mS.

More info on hydroponics



Hydroponics for Everybody

By William Texier

"A highly anticipated book."

MAXIMUM YIELD

"How to become the perfect indoor gardener."

THE INDOOR GARDENER

"Outstanding drawings. I keep my reference copy close at hand."

JORGE CERVANTES

"You're going to understand how it works... It's impressive!"

FRANCE 5 (NATIONAL TV)

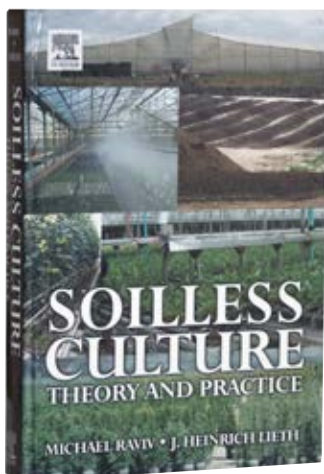
"William Texier is considered one of the most knowledgeable hydroponics experts worldwide."

SOILLESS GARDENING

MA
MAMA PUBLISHING



Hydroponics For Everybody is available in several translations: French, English, German, Spanish, Czech, Russian, and Italian. Now also available in a mini edition.

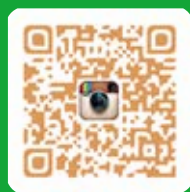


And for more indepth info ...

Soilless Culture: Theory and Practice

By Michael Raviv and Heiner Leith

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