



# THE POWER TO PERFORM



Guide to grow with highly concentrated fertilizers.  
The most cost-effective fertilizers in the world!



**BIONOVA**  
PREMIUM FERTILIZERS



SINCE 1993  
\*\*\*\*\*  
MOST COST-EFFECTIVE  
MADE IN HOLLAND



# THE POWER TO PERFORM



**The Missing Link**  
for premium green plants



**X-cel**  
for excellent growing and flowering



**The Silution**  
for the highest yield

Highly concentrated, the most cost-effective fertilizers in the world!



## WORD FROM THE FOUNDING FATHER

"Ever graduated as a mechanical engineer, I was interested in horticulture and especially the biology behind growing plants from an early age. I started growing at a young age, five years later I built my first greenhouse. At the end of the **70's and beginning of the 80's I started growing professionally when a couple of breeders from the US came to Holland** with indigenous plant genetics from North and South America. In these years there were no specific nutrients available for these medicinal crops. I got in charge of creating a nutrient formula to achieve the best results and potencies with the further developed genetics.

Unfortunately we had to stop our project, this resulted in the establishment of Bionova in early 1993 with a team of passionate experts. **With pride I can guarantee you that most of today's nutrient formulations used by many brands worldwide, started their formulation roots back in the 90's when me and my team started developing these formulations!** Since I started Bionova my main focus was to develop the best plant nutrition and stimulators from the highest quality and concentration.

After 30 years we have established product lines for any type of grower around the world, starting from a basic hobby grower to a large

scale professional grower and everything in between. The focus with all our liquid and dry fertilizers is to **obtain the highest possible concentration, as we want to offer the most cost-efficient nutrients possible!**

All our Stimulators are made from the highest quality sources around the world which me and my team have gathered over the past 30 years, the sources we combine in our stimulators are truly unique as I have compared them with many other sources. **After 30 years of research around the world I can make the statement that this is the best in the business, industry leading stimulators!** Beside these main product lines we also offer a line of all mono nutrients, universal products like pH controllers and a line of Substrates.

Every day we continue to work on our passion, create the best quality nutrients and stimulators in the highest possible concentrations. **So you as a grower have the power to perform the highest possible quality end product in the most cost efficient way!**

This catalog contains all information we can mention about our products. This is a complete open book of **WHAT'S** inside our products and **WHY** it's inside. **Enjoy reading about all the passion we put in our products the past 30 years!"**

**For any questions or inquiries you can always contact me:**  
[eric@bionova.nl](mailto:eric@bionova.nl)  
**+31 (0)6 53 20 65 05**



**Eric van Vlimmeren**  
Founding father of Bionova

- End 70's**  
Started growing professionally.
- Early 80's**  
Creating a nutrient formula.
- 90's**  
Manufacturing and distributing premium fertilizers, stimulators and substrates worldwide.
- 2023**  
Launching this complete open book, so you have the power to perform the highest possible quality end product in the most cost efficient way!

# THE POWER TO PERFORM

## MAIN FERTILIZERS



## STIMULATORS



## MINERALS



## UNIVERSALS



## SUBSTRATES



Bionova supplies since the 1990's a wide range of highly concentrated premium fertilizers, stimulators & substrates. For all growing and flowering crops. The most cost-effective fertilizers in the world!

## INHOUDSOPGAVE

### Main fertilizers 2

Nutri Forte A+B	4
Coco Forte A+B	5
Soil Supermix	6
Aero Supermix	7
Autoflower Supermix	8
Hydro Supermix	9

### Veganics 10

Veganics Grow	12
Veganics Bloom	13
Vegan PK 3-5	14

### Stimulators 16

X-cel	18
The Missing Link	20
Silution	22
PK 13-14	24
Roots	26
BN Zym	28
Vitasol	30

### Minerals 32

N 27	34
Micromix	35
K 20	36
P 20	37
Ca 15	38
MgO 10	39

### Universals 40

Freeflow	42
Profimix	44
Microlife	45
pH-	47
pH+	47

### Substrates 48

Bio Soilmix	50
Cocomix Plus	51
Coco Brick	51





# MAIN FERTILIZERS



*MY WAY TO GROW*



## ONE & TWO COMPONENT FERTILIZERS WITH ALL MACRO & MICRO NUTRIENTS!

### Bionova 2-component A+B nutrients

For better control when growing on a larger scale we offer two component fertilizers in A+B form. Bionova Nutri Forte A+B and Coco Forte A+B are the most cost-effective nutrients with the highest possible liquid concentration. With a dilution ratio of 1:600 you are getting the most bang for your buck!

2 options for A+B nutrients:

- Nutri Forte A+B (hydro cultivation)
- Coco Forte A+B (coco cultivation)

These products contain hardly any ballast salts to prevent blockages in dripping systems and very low in heavy metals for a cleaner crop. This A+B combination contains all the food grade minerals and trace elements for a rapid growth and abundant flowering. Plants directly absorb all food grade minerals which gives you optimal control of your plants. So take back control of your plants with Bionova fertilizers!

### Bionova 1-component Supermixes

At Bionova we offer a 'my way to grow' system which offers every individual grower the main fertilizer for the substrate they are working with. At Bionova we have created all-in-one fertilizers, (Supermixes) which makes cultivating more user friendly. Instead of mixing two components you are just mixing one. It doesn't get more user friendly than this. All of Bionova Supermixes contain food-grade minerals. All our Supermixes contain the perfect balance of Macro & Micro nutrients for an optimal result on any crop. Food-grade minerals is the purest form of minerals for a plant nutrient. Above Food-grade minerals there is pharmaceutical minerals which are used for human application. Food-grade minerals are directly plant available, which gives you the optimal control of your cultivation.

As nutrients are dependent on which substrate or method of growing you use. We have compiled different Supermixes in relation to this.

- Soil Supermix
- Hydro Supermix
- Aero Supermix
- Autoflower Supermix

So no matter what substrate you are on or which method you use, you can grow your way with Bionova!

## Extremely concentrated Hydro fertilizer

1:600

A: NPK  
8-0-0

B: NPK  
0-6-12



### WHY

Most cost effective fertilizer!

Developed specifically for the most effective absorption of the necessary elements!

For optimal growth and flowering on Hydroponics such as rockwool, clay pebbles etc!

The trace elements are chelated (EDTA) so they can be absorbed within a larger pH-range!

### What is Nutri Forte A+B?

Nutri Forte A+B is the most cost-effective solution for cultivation in Hydroponics on any artificial substrate such as rockwool, mapito, clay pebbles etc. This product contains hardly any ballast salts to prevent blockages in dripping systems and is very low in heavy metals to have a pure end product grown with minerals. This combination contains all the food grade minerals and trace elements for a rapid growth and abundant flowering. Plants directly absorb all food grade minerals which gives you optimal control of your plants. Nutri Forte A must be used in combination with Nutri Forte B.

### When to use Nutri Forte A+B?

Nutri Forte A+B is usable from first week of growth until a week before harvest, flushing is mandatory. Bionova Nutri Forte A+B can be used as irrigation. Nutri Forte A+B can be used in conjunction with all Bionova stimulators, minerals, universals & substrates.

**Word from Founding Father:**  
The most concentrated liquid fertilizer specialized for Hydroponics, since 1995!



### How to use Nutri Forte A+B?

#### Application

Shake well and add 9-18 ml per 10 litres everytime you prepare your nutrients solution. Use this solution each time the plants are irrigated until 1 week before harvest. Flushing is mandatory.

#### Available in units

1 litres 20 litres 5 litres 200 litres 1.000 litres

#### EC FERTILIZER

Calcium nitrate solution 8 (9)  
NPK 8-0-0 + 9,5 CaO + 4% MgO

8% Total Nitrogen (N) of which: 8% is Nitric Nitrogen (N)  
9.5% Calcium oxide (CaO), water soluble 4% Magnesium oxide (MgO), water soluble.

#### Solution of PK fertilizers 0-6-12

6.5% Phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>), water soluble  
12% Potassium oxide (K<sub>2</sub>O), water soluble  
4% Sulfur trioxide (SO<sub>3</sub>), water soluble.

### Suitable for cultivation methods:



Outdoor Indoor Vegetative Flowering Irrigation Spray Hydro Aero

### Any questions?

Send us a message at Instagram & Facebook: @bionovanutrients, or send an email to sales@bionova.nl

### Feeding charts



## Extremely concentrated Coco fertilizer

1:600

A: NPK  
8-0-0

B: NPK  
0-6-12



### WHY

Most cost effective fertilizer!

Optimal growth and flowering on cocofibre substrates!

Very low in ballast salts and heavy metals!

All food grade minerals are directly plant available!

### What is Coco Forte A+B?

Coco Forte A+B is the most cost-effective solution for cultivation on any cocofibre substrate. Due to the short buffering in the coco substrates, this concentrated Coco Forte A+B combination is especially formulated for the most effective absorption of the necessary elements. This combination contains all the food grade minerals and trace elements for a rapid growth and abundant flowering. Plants directly absorb all food grade minerals which gives you optimal control of your plants. As Coco Forte A+B is developed with a very low value of ballast salts and heavy metals, this prevents blockage in dripping systems and results in a cleaner end product. Coco Forte A must be used in combination with Coco Forte B.

### When to use Coco Forte A+B?

Coco Forte A+B is usable from first week of growth until a week before harvest, flushing is mandatory. Bionova Coco Forte A+B can be used as irrigation. Coco Forte A+B can be used in conjunction with all Bionova stimulators, minerals, universals & substrates.

**Word from Founding Father:**  
The most concentrated liquid fertilizer specialized for Coco substrates, since 1995!



### How to use Coco Forte A+B?

#### Application

Shake well and add 9-18 ml per 10 litres everytime you prepare your nutrients solution. Use this solution each time the plants are irrigated until 1 week before harvest. Flushing is mandatory.

#### Available in units

1 litres 20 litres 5 litres 200 litres 1.000 litres

#### EC FERTILIZER

Calcium nitrate solution 8 (11)  
NPK 8-0-0 + 11,5% CaO + 3% MgO

8% Total Nitrogen (N) of which: 8% Nitric Nitrogen (N)  
11.5% Calcium oxide (CaO), water soluble 3% Magnesium oxide (MgO), water soluble.

#### Solution of PK fertilizers 0-6-12

6.5% Phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>), water soluble  
12% Potassium oxide (K<sub>2</sub>O), water soluble  
4% Sulfur trioxide (SO<sub>3</sub>), water soluble

### Suitable for cultivation methods:



Outdoor Indoor Vegetative Flowering Irrigation Spray

### Any questions?

Send us a message at Instagram & Facebook: @bionovanutrients, or send an email to sales@bionova.nl

### Feeding charts



## Highly concentrated soil fertilizer



1:400

NPK 7-3-6

**WHY**

- All-in-one fertilizer for growing & flowering!
- Combination of Organics & Food grade minerals!
- Always use Bionova Supermixes in conjunction with Bionova PK 13-14!
- Perfectly pH balanced!

### What is Soil Supermix?

Soil Supermix is an all-in-one main fertilizer for soil substrates, especially formulated for the entire growth and bloom cycle. This perfectly balanced product contains chelated trace elements and food grade minerals. This unique mixture of ingredients ensures a rapid growth and abundant flowering. Plants directly absorb all food grade minerals which gives you optimal control of your plants. Next to Soil Supermix it's important to apply PK 13-14 as a flowering stimulator during the entire flowering period.

### When to use Soil Supermix?

Soil Supermix is usable from first week of growth until 1 week before harvest, flushing is mandatory. Soil Supermix **can be used as irrigation**. Soil Supermix **can be used in conjunction with all Bionova stimulators, minerals, universals & substrates**.

**Word from Founding Father:**

The first Bionova product established in 1993! The perfect balance between Organic and Mineral components. Since 1993 a winner for all soil growers around the world



### How to use Soil Supermix?

**Application**

Shake well and add 13-27 ml per 10 litres everytime you prepare your nutrients solution. Use this solution each time the plants are irrigated until 1 week before harvest. Flushing is mandatory.

**Available in units**

250 ml 1 litres 20 litres 5 litres 200 litres 1.000 litres

**EC FERTILIZER Solution of NPK Fertilizers 7-3-6**

- 7% Total Nitrogen (N), of which:
- 2% Ammoniacal Nitrogen (N)
- 4% Nitric Nitrogen (N)
- 1% Organic Nitrogen, plant origin (N)
- 3% Phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>), water soluble
- 6% Potassium oxide (K<sub>2</sub>O), water soluble.

### Suitable for cultivation methods:



Outdoor Indoor Vegetative Flowering Irrigation

**Any questions?**

Send us a message at Instagram & Facebook: @bionovanutrients, or send an email to sales@bionova.nl

**Feeding charts**



## Highly concentrated Aero fertilizer



1:400

NPK 6-4-6

**WHY**

- All-in-one fertilizer for growing & flowering!
- Specially developed for NFT aero systems!
- Prevents nutrient burns and dehydration!
- Highly pH stable product in solution!

### What is Aero Supermix?

Aero Supermix is an all-in-one food grade mineral fertilizer, especially developed for substrate free systems or so called Nutrient Film Technique. This soft nutrient prevents nutrient burns and dehydration which can be caused by the Aero systems. This combination contains all the minerals and trace elements, needed for a rapid growth and abundant flowering. Plants directly absorb all food grade minerals which gives you optimal control of your plants. Next to Aero Supermix it's important to apply PK 13-14 as a flowering booster during the entire flowering period.

### When to use Aero Supermix?

Aero Supermix is usable from first week of growth until 1 week before harvest, flushing is mandatory. Bionova Aero Supermix can be used as irrigation. Aero Supermix **can be used in conjunction with all Bionova stimulators, minerals, universals & substrates**.

**Word from Founding Father:**

Perfectly pH stable and pure clean complete nutrient for usage in Aeroponics.



### How to use Aero Supermix?

**Application**

Shake well and add 13-27 ml per 10 litres everytime you prepare your nutrients solution. Use this solution each time the plants are irrigated until 1 week before harvest. Flushing is mandatory.

**Available in units**

1 litres 20 litres 5 litres 200 litres 1.000 litres

**EC FERTILIZER Solution of NPK fertilizers 6-4-6**

- 6% Total Nitrogen (N), of which:
- 2% Ammoniacal Nitrogen (N)
- 4% Nitric Nitrogen (N)
- 4% Phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>), water soluble,
- 6% Potassium oxide (K<sub>2</sub>O), water soluble.

### Suitable for cultivation methods:



Outdoor Indoor Vegetative Flowering Irrigation Hydro Aero

**Any questions?**

Send us a message at Instagram & Facebook: @bionovanutrients, or send an email to sales@bionova.nl

**Feeding charts**



## Highly concentrated Autoflower fertilizer

### WHY

Autoflower Supermix provide more power to an Autoflower!

All-in-one fertilizer for growing & flowering!

Unique formulation ensures a rapid growth and abundant flowering!

Always use Bionova Supermixes in conjunction with Bionova PK 13-14!

1:400

NPK 5-3-7



### What is Autoflower Supermix?

Autoflower Supermix is a one component food grade mineral fertilizer, especially formulated for autoflowering plants with no specific need for longer or shorter daylight periods in order to start their flowering cycle. This unique formulation ensures a rapid growth and abundant flowering. Plants directly absorb all food grade minerals which gives you better control of your plants. With Autoflower Supermix you provide more power to an Autoflower!

### When to use Autoflower Supermix?

Autoflower Supermix is usable from first week of growth until 1 week before harvest, flushing is mandatory. Autoflower Supermix **can be used as irrigation**. Autoflower Supermix **can be used in conjunction with all Bionova stimulators, minerals, universals & substrates**.

#### Word from Founding Father:

Trends and developments in the market are leading here at Bionova! This is why we designed a specific nutrient for Autoflowers, added micro-elements will assist in quick growth.



### How to use Autoflower Supermix?

#### Application

Shake well and add 13-27 ml per 10 litres everytime you prepare your nutrients solution. Use this solution each time the plants are irrigated until 2 weeks before harvest. Flushing is mandatory.

#### Available in units

250 ml 1 litres 20 litres 5 litres 200 litres 1.000 litres

#### EC FERTILIZER NPK 5-3-7

6,98% Total Nitrogen (N) of which:  
4,75% Nitrate Nitrogen (NH<sub>3</sub>) of which  
2,23% Ammonium Nitrate (NH<sub>4</sub>)  
2,95% Phosphorus (P) as (P<sub>2</sub>O<sub>5</sub>)  
5% Potassium (K) as (K<sub>2</sub>O)  
0,83% Magnesium (Mg) as (MgO)

### Suitable for cultivation methods:



Outdoor Indoor Vegetative Flowering Irrigation Hydro Aero

### Any questions?

Send us a message at Instagram & Facebook: @bionovanutrients, or send an email to sales@bionova.nl

### Feeding charts



## Highly concentrated Hydro fertilizer

### WHY

All-in-one fertilizer for growing & flowering!

Especially developed for Hydroponic & irrigation systems!

Contains all the minerals and trace elements for a rapid growth and abundant flowering!

Always use Bionova Supermixes in conjunction with Bionova PK 13-14!

1:400

NPK 7-4-5



### What is Hydro Supermix?

Hydro Supermix is an all-in-one food grade mineral fertilizer especially developed for Hydroponic systems. Nutrients for growing and flowering are combined within one solution, which makes cultivating very easy. This combination contains all the minerals and trace elements needed for a rapid growth and abundant flowering. Plants directly absorb all food grade minerals which gives you optimal control of your plants. Next to Hydro Supermix it's important to apply PK 13-14 as a flowering booster during the entire flowering period.

### When to use Hydro Supermix?

Hydro Supermix is usable from first week of growth until 1 week before harvest, flushing is mandatory. Hydro Supermix **can be used as irrigation**. Hydro Supermix **can be used in conjunction with all Bionova stimulators, minerals, universals & substrates**.

#### Word from Founding Father:

One of the first Bionova products, developed 40 years ago and constantly improved. Being loved globally by growers and plants!



### How to use Autoflower Supermix?

#### Application

Shake well and add 13-27 ml per 10 litres everytime you prepare your nutrients solution. Use this solution each time the plants are irrigated until last week before harvest. Flushing is mandatory.

#### Available in units

1 litres 20 litres 5 litres 200 litres 1.000 litres

#### EC FERTILIZER NPK 7-4-5

6,98% Total Nitrogen (N) of which:  
4,75% Nitrate Nitrogen (NH<sub>3</sub>) of which  
2,23% Ammonium Nitrate (NH<sub>4</sub>)  
3,95% Phosphorus (P) as (P<sub>2</sub>O<sub>5</sub>)  
5,25% Potassium (K) as (K<sub>2</sub>O)  
1,42% Magnesium (Mg) as (MgO)

### Suitable for cultivation methods:



Outdoor Indoor Vegetative Flowering Irrigation Hydro Aero

### Any questions?

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### Feeding charts





# THE POWER OF VEGANICS



*MY WAY TO GROW*

## Bionova Veganics range

With pride we introduce you to our Veganics range. The cleanest and purest way to feed your plants. Veganics Grow & Bloom are 100% organic vegetal liquid nutrients. Veganics is a unique blend of entirely plant based raw materials and organic minerals. Containing no animal waste and very low in ballast salts. This vegan nutrient is a complete NPK fertilizer and specially formulated for organic horticulture. Veganics products contain all the necessary ingredients for a rapid growth and abundant flowering. Fruits and flowers of a better quality and taste! Veganics Grow must be used with Veganics Bloom.

Unlike any nutrient you have experienced, growing vegan fits between mineral and organic feeding. Let us explain:

### Plant available within:

<b>Mineral nutrients</b>	<b>Vegan nutrients</b>	<b>Organic nutrients</b>

## What is Bionova Veganics?

Veganics Grow & Bloom contain plant based raw materials, various nano algae's grown in a controlled environment, enriched with primordial sea minerals and mixed with pure low saline sea minerals. All organic matters are quickly mineralized and absorbed by plants tissues (roots, stems, leaves), improving their physiological activity and natural defence against stress/attacks. Veganics allows you to obtain the cleanest possible products with highest concentrations of flavours, smells and amazing coloured flowers. We've created a combination of natural based elements, plus the special and unique selection of primordial micro-organisms. By not only respecting the typical varietal genetic resin production, Veganics promote the entire bio-chemical pathway improving the bio-synthesis of new terpenes, pigments and other healthy compounds increasing the quality and shelf life of the end products.

## Why Bionova Veganics?

1. Product is directly bio-available to the roots
2. Naturally build-in root stimulator
3. Small cuttings and seedlings will gain direct strength at first application
4. Steady growth with small internodes
5. Increases the number of secondary branches
6. Stimulates the forming of flowers
7. Cleanest and purest yields
8. Terpenes of the highest possible grade
9. No rest or waste material/nutrients in the crop
10. Intense fine smell
11. Free of heavy metals
12. Cleanest nutrient in the world
13. And last but not least Veganics can be used safely in any kind of system. We can guarantee solution will stay stable for 72 hours. For longer periods we recommend using half dosage.

## Vegan growing fertilizer



### WHY

Fruits and flowers of the best quality and taste!

Unique organic as it's usable in irrigation systems!

100% organic vegetal liquid nutrient!

Cleanest plant nutrition in the industry!

### What is Veganics Grow?

Veganics Grow & Bloom are 100% organic vegetal liquid nutrients. Veganics Grow is an unique blend of entirely plant based raw materials and organic minerals, containing no animal waste as well as very low ballast salts. This organic nutrient is a complete NPK fertilizer and specially formulated for organic horticulture. Veganics Grow contains all the necessary ingredients for an increased efficient growth and will make the plants more resistant against stress factors. This will lead to a healthy and effective soil life. Fruits and flowers of a better quality and taste! Veganics Grow must be used with Veganics Bloom.

### When to use Veganics Grow?

Veganics Grow is usable from first week of growth until 1 week before harvest, flushing is mandatory. Bionova Veganics Grow **can be used in conjunction with all Vegan fertilizers:** Vegan PK 3-5, X-cel, The Missing Link and Roots. Bionova Veganics Grow **can be used as irrigation**, but refresh your nutrient mixture every 2-3 days. Or when applying half of the advised dosage the mix can stay in solution for multiple weeks.

#### Word from Founding Father:

My passion is to create the cleanest nutrient for any plant! Launched after 5 years of development, I present to you the purest nutrient only based on plant sources.



### Suitable for cultivation methods:



Outdoor Indoor Vegetative Flowering Irrigation

### How to use Veganics Grow?

#### Application

Shake well and add 15-30 ml per 10 litres everytime you prepare your nutrients solution. Use this solution each time the plants are irrigated until 1 week before harvest. Flushing is mandatory.

#### Available in units

250 ml 1 litres 20 litres 5 litres 200 litres 1.000 litres

#### FERTILIZER NPK 3-2-4

3,60% Total Nitrogen (N) of which: 1,40% Amonium Nitrogen (NH<sub>3</sub>) and 2,21% Amonium Nitrate (NH<sub>4</sub>) Also contains: 2,98% Phosphorus (P<sub>2</sub>O<sub>5</sub>) and 4,86% Potassium (K<sub>2</sub>O) and 1,72% Magnesium (MgO)

### Any questions?

Send us a message at Instagram & Facebook: @bionovanutrients, or send an email to sales@bionova.nl

### Feeding charts



## Vegan flowering fertilizer



### WHY

Fruits and flowers of the best quality and taste!

Unique organic, usable in any irrigation system!

100% organic vegetal liquid nutrient!

Cleanest plant nutrition in the industry!

### What is Veganics Bloom?

Veganics Grow & Bloom are 100% organic vegetal liquid nutrients. Veganics Bloom is an unique blend of entirely plant based raw materials and organic minerals, containing no animal waste and very low ballast salts. This organic nutrient is a complete NPK fertilizer and specially formulated for organic horticulture. Veganics Bloom contains all the necessary ingredients for an abundant flowering. This will lead to a healthy and effective soil life. Fruits and flowers of a better quality and taste! Veganics Bloom must be used with Veganics Grow.

### When to use Veganics Bloom?

Veganics Bloom is usable from first week of growth until 1 week before harvest, flushing is mandatory. Veganics Bloom **can be used in conjunction with all Bionova Vegan fertilizers:** Vegan PK 3-5, X-cel, The Missing Link and Roots. Bionova Veganics Bloom **can be used as irrigation**, but refresh your nutrient mixture every 2-3 days. Or when applying half of the advised dosage the mix can stay in solution for multiple weeks.

#### Word from Founding Father:

My passion is to create the cleanest nutrient for any plant! Launched after 5 years of development, I present to you the purest nutrient only based on plant sources.



### Suitable for cultivation methods:



Outdoor Indoor Vegetative Flowering Irrigation

### How to use Veganics Bloom?

#### Application

Shake well and add 15-45 ml per 10 litres everytime you prepare your nutrients solution. Use this solution each time the plants are irrigated until 1 week before harvest. Flushing is mandatory.

#### Available in units

250 ml 1 litres 20 litres 5 litres 200 litres 1.000 litres

#### FERTILIZER NPK 2-2-5

2,4% Total Nitrogen (N) of which: 0,68% Amonium Nitrate (NH<sub>3</sub>) and 1,72% Water Soluble Nitrogen and 1,72% Phosphorus (P<sub>2</sub>O<sub>5</sub>) and 6,16% Potassium (K<sub>2</sub>O) and 1,77% Sulphur (S) as (SO<sub>3</sub>)

### Any questions?

Send us a message at Instagram & Facebook: @bionovanutrients, or send an email to sales@bionova.nl

### Feeding charts





## Vegan flowering accelerator!



### WHY

The first vegan flower booster in the industry!

100% vegan Phosphor-Potassium booster!

Free of animal ingredients and only contains plant materials!

The perfect composition as a main flowering stimulator!

## The purest form of plant feeding

### What is Vegan PK 3-5?

Vegan PK 3-5 is the perfect balanced combination of Phosphor and Potassium. Phosphor activates blooming inside any treated plant and Potassium prompts flowering and creates an exuberant flowering. It is sourced with vegetal ingredients only, which is the purest form of plant feeding. Containing barely any ballast salts and no heavy metals. This way the Vegan PK 3-5 is also directly absorbable by the root system, and no heavy metals will remain in the end product. Vegan PK 3-5 should always be used in combination with the main fertilizers Veganics Grow & Bloom.

### When to use Vegan PK 3-5?

Vegan PK 3-5 should be applied from the first week of flowering until the final week of flowering. Vegan PK 3-5 can be used in conjunction with all Bionova fertilizers, stimulators, minerals, universals & substrates. Vegan PK 3-5 can be used as irrigation and as foliar spray.

#### Word from Founding Father:

The most plant-friendly flowering stimulator out there. Only launched after 5 years of development work, and born out of my passion.



### How to use Vegan PK 3-5?

#### Application in irrigation

From 1st until last week flowering: 4-12 ml per 10 litres.

#### Application as foliar spray

Perform 3 leaf treatments with focus on the shoots: the first treatment to be performed the week before flowering begins, the second to be performed the day after the photoperiod changes and the third to be performed the following week, at the doses of 0.25 ml / litre - 0.35 ml / litre - 0.5 ml / litre of water.

#### Available in units

250 ml 1 litres 20 litres 5 litres 200 litres 1.000 litres

### Suitable for cultivation methods:



### Any questions?

Send us a message at Instagram & Facebook: @bionovanutrients, or send an email to sales@bionova.nl

### Feeding charts



### WHAT'S INSIDE?

#### Phosphorus:

- The function of phosphorus in plants is very important. It helps a plant convert other nutrients into usable building blocks with which to grow. Phosphorus is one of the main three nutrients most commonly found in fertilizers and is the "P" in the NPK balance that is listed on fertilizers.
- Phosphorus is a vital component of ATP, the "energy unit" of plants. ATP forms during photosynthesis, has phosphorus in its structure, and processes from the beginning of seedling growth through to the formation of grain and maturity. Thus, phosphorus is essential for the general health and vigor of all plants.

#### Potassium:

- Is associated with the movement of water, nutrients and carbohydrates in plant tissue. It's involved with enzyme activation within the plant, which affects protein, starch and adenosine triphosphate (ATP) production. The production of ATP can regulate the rate of photosynthesis.
- Plants "breathe" carbon dioxide through tiny pores in the leaves known as stomata. When potassium moves into the cells around the stomata, the cells collect water and swell, allowing the pores to open and CO<sub>2</sub> to enter. When water supplies are less than optimal, the potassium in the cells around the stomata recedes, closing the pores to prevent water loss and minimizing drought stress. When plants begin to flower, potassium is a catalyst in the manufacture and delivery of the starches and sugars needed for the blossoms to fully form.

#### P+K:

- The perfect combination for when your plants are in flower!
- It is always good practice to use a PK based product during flowering, as an increase in the potassium to nitrogen ratio encourages plants to divert more energy into their flowers and fruits.
- However, the primary nutrients are no more important than the other essential elements since all essential elements are required for plant growth. Remember that the 'Law of the Minimum' tells us that if deficient, any essential nutrient can become the controlling force in crop yield.



**Organic fertilizer NPK 0-3-5**  
3.6% (P) as (P<sub>2</sub>O<sub>5</sub>)  
4.5% (K) as (K<sub>2</sub>O)

#### Minerals:

- Certain minerals like phosphorus and magnesium are essential for the reproduction, growth, and development of the plant. The minerals absorbed by the roots are mineral ions dissolved in the soil and water. They support plants to complete their life cycle and to produce seeds.



# STIMULATORS



*MY WAY TO GROW*



## INDUSTRY LEADING STIMULATORS



### Why?

- Powerful bio-stims for optimal performance
- Highest standard ingredients
- Brewed and blended in house for you to perform!
- Sourced around the globe from the best sources our planet has to offer
- 30+ years experience in comparing sources – we pick only the best!
- Highly concentrated organic blends
- Most cost effective in the market
- All stimulators are 100% vegan organics
- Control Union certified

### Results?

- Mouth watering flavours
- Improved Yield and quality
- More dry-weight content
- Higher immune system
- Improved terpene profile
- Brings back flavours in your flowers

### Industry leading Bio-Stimulators, why?

It doesn't get any better than this, Bionova's Bio-stimulators give you and your crop the power to perform! We only blend the best natural organic ingredients around the globe into our Stimulators, we only pick the finest sources to ensure only the best quality possible in our stimulators.

The founders of Bionova and the team of biologists and agronomists have established a highly concentrated line of organic blends, which are constantly compared with new sources and products to keep them up to date to our everyday aim for the highest standards in quality. We developed the stimulators to improve the general health, vitality, and growth of plants and protects them against infections and various fungi. They can be successfully used in all flowers, vegetables & fruits. These highly concentrated organic blends of natural sources give you the power to perform on the crop you cultivate!

The most cost efficient Bio-stimulators on the market, an investment to your crop! Treat your crop with our stimulators to realize harvests you have never experienced before! Bionova developed various stimulators for you to explore and apply into your cultivation and be blown away by the results.

As the Bionova bio stimulators are quite intricate we have prepared a spread of each biostimulant with a technical page explaining exactly which ingredients we have used and what each ingredient does individually. We have also added a guaranteed analysis of each individual product.

## Excellent Growing + Flowering stimulator



### WHY

- Significantly increases yield quantity and quality of any treated crop!
- Hormone household of the crop is actively stimulated by the combination of amino acids!
- More dry weight of the end-product!
- Organic extract stimulate the metabolism in particular the photosynthesis and consequently the forming of carbohydrates!



## For the biggest fruits and flowers!

### What is X-cel?

X-cel is a certified organic/vegan stimulator. The sophisticated combination of components stimulates the bio-chemical functions on all levels. The organic extracts stimulate the metabolism, in particular the photosynthesis, and consequently the forming of carbohydrates. The hormone household of the crop is actively stimulated by the combination of amino acids which are inside the X-cel.

### When to use X-cel?

Use X-cel from first week of growth until the final week of flowering. X-cel can be used in conjunction with all Bionova fertilizers, stimulators, minerals, universals & substrates.

### How to use X-cel?

#### Application in irrigation

Shake well and add 5-10 ml per 10 litres everytime you prepare your nutrients solution. Use this solution each time the plants are irrigated during the entire cultivation period.

#### Tips from the growers!

Mix X-cel, TML and Silution as a foliar spray in the vegetative phase for maximum result! Start with mixing in 1,5 ml Silution and let it settle for a minimum of 30 minutes so it can stabilize! Proceed to mix in 2,5 ml X-cel, 2,5 ml TML. You are now ready for the best possible results!

#### Available in units

250 ml 1 litres 20 litres 5 litres 200 litres 1.000 litres

**Word from Founding Father:**  
We found a revolutionary stimulator whilst crafting our famous X-cel. We were amazed that harvests can significantly improve with a bio-stimulator and our X-cel still amazes growers and plants around the world.



### Suitable for cultivation methods:



### Any questions?

Send us a message at Instagram & Facebook: @bionovanutrients, or send an email to sales@bionova.nl

### Feeding charts



#### Biotin, Carotenes, Choline, Folic acid, Folinic acid, Niacin, Riboflavin, Tocopherol:

- Beneficial effect on plant fitness as it protects plants against abiotic stress conditions such as salinity, drought, heat, metal toxicity, ozone and UV radiation;
- Contribute to photosynthesis;
- Enhances adventitious root formation;
- Regulates a plant's metabolic functions. Helps plants to grow more heavily and healthily.
- Riboflavin is required for normal plant growth and development.

### WHAT'S INSIDE?

Vitamins

Enzymes



#### Desmolase, Hydrolase, Lyases, Transferase:

- Plays a significant role in cellular respiration and in fermentation;
- Degrades the fungal cell-wall;
- Catalyze the breaking a chemical bond between two parts of a molecule;
- Play an important role in the protection of plant tissues from pest and pathogen attack.
- Protease inhibitors are indispensable for the growth and development of the organism.

#### Fulvic-, Humic acid and Yucca extract:

- Certified for organic agriculture;
- Higher absorption of nutrients and minerals;
- Improved distribution and increased efficacy of fertilizers and crop protection products;
- Chelating and strengthening effect of applied trace elements;
- Better water absorption and reduction of dry spots in the soil;
- Stimulation of beneficial soil bacteria resulting in faster root growth.

Fulvic acid

Organic acids



#### Aspartic acid, Alginate acid, Butyric acid, Citric acid, Lactic acid:

- Produce the amino acids lysine, threonine, methionine, and isoleucine;
- Moisture retention during dry periods;
- Alginate acid in the soil encourages bacterial growth;
- Promote growth and development of roots, flowers and fruits;
- Aiding the Krebs's Cycle, better photosynthesis;
- Promoted plant growth and biomass by increasing the chlorophyll content.

#### Kelp:

- Helps germinate seeds quicker;
- High levels of cytokinins;
- Improve taking of cuttings;
- Encourage rooting;
- build immunity;
- Add more color and flavor;
- Give a longer shelf life;
- Produce more and larger buds and flowers;
- Counter any nutrient deficiencies, and fight off insects and disease.

Kelp

Growth stims

**Organic soil enhancer NPK 1-0-0**  
1% Total Nitrogen (N) of which:  
1% Organic Nitrogen (N), plant origin.  
Also contains: Kelp, Humic Acid, Fulvic Acid.

#### Adenine, Auxin (IAA, ABA), Betaines, Tripeptid glutation:

- Orchestrating cell division, differentiation and elongation, embryonic development, root and stem tropisms and transition to flowering improves growth and survival of plants counteracting metabolic dysfunctions. They can stimulate both the differentiation and the outgrowth of axillary buds.



## Premium green plants!



### WHY

Unique Bionova product, the Missing piece of the puzzle!

Utilizing the best and purest Fulvic Acid in the world for the ultimate immune system!

Combined with the Bionova patented silver-formula!

If you don't use The Missing Link, your plants are missing their full potential!



## Boost your plants immune system!

### What is The Missing Link?

The Missing Link is a 100% certified organic/vegan stimulator. The world's best quality Fulvic Acid creates the ultimate immune system. This ultimate immune system lowers stress factors significantly. This way the plant will achieve its full harvest potency, a compact and vital growth and cuts down the need for pesticides/fungicides. The Missing Link is an exclusive Bionova product for Premium Green plants!

### When to use The Missing Link?

The Missing Link is usable from first week of growth until the final week of flowering. TML can be used in conjunction with all Bionova fertilizers, stimulators, minerals, universals & substrates. The Missing Link can be used as irrigation and as foliar spray.

#### Word from Founding Father:

One of my favorite Bionova products! I am proud to have sourced the best quality fulvic acid in the world, a 75 million year old source of plant materials and hundreds of indispensable elements! TML is the missing link to your next level harvests!



### Suitable for cultivation methods:



Outdoor Indoor Vegetative Flowering Irrigation Spray Hydro Aero

### Any questions?

Send us a message at Instagram & Facebook: @bionovanutrients, or send an email to sales@bionova.nl

### Feeding charts



### Iron (Fe), Manganese (Mn), Boron (B), Sulphur (S):

1. Iron, many of the vital functions of the plant, like enzyme and chlorophyll production, nitrogen fixing, and development and metabolism are all dependent on iron.
2. Manganese, a metal that is an essential cofactor for the oxygen-evolving complex (OEC) of the photosynthetic machinery, catalyzing the water-splitting reaction in photosystem II
3. Boron, mainly involved in cell wall synthesis and structural integration.

### Sulphur:

1. Proline, protects the plants from various stresses and also helps plants to recover from stress more rapidly.
2. Glycine, often used for production of a wide range of amino-chelate fertilizers.
3. Hydroxyproline, providing structural integrity to mediating cell-cell interactions and communication.
4. Alanine, a defense compound that enables plants to withstand various stresses such as hypoxia, waterlogging and drought, and indirectly as a precursor to the compounds pantothenate and CoA.
5. Arginine, a major storage and transport form for organic nitrogen in plants.
6. Lysine, an important signaling amino acid that regulates plant growth and responds to the environment.
7. Glutamine, an effective nitrogen source for plant growth.

### WHAT'S INSIDE?



Trace elements



Sulphur



Organic acids



### Fulvic acid:

1. Fulvic acid is one of the 3 components of humus and arises during the digestion of plants by micro-organisms. It is a substance with many positive effects on plant and substrate health. For example, fulvic mobilizes nutrients to and within plants.
2. Iron and magnesium ions are indispensable for photosynthesis, and fulvic acid promotes the function of transporting those ions in the soil into plant cells by a chelating effect, thereby leading to activation of photosynthesis.
3. Fulvic acid plays an essential role in nature in mobilizing minerals and making all kinds of compounds to help plants absorb nutrients.

### Colloidal mix of fulvic acids

0.15% Total Nitrogen (N) of which:  
0.15% as Ammoniacal Nitrogen (N)  
With micro-nutrients:  
0.037% Iron (Fe), water soluble, DTPA chelated.  
0.001% Manganese (Mn), water soluble, EDTA chelated.  
0.002% Boron (B)  
Also contains: 1,25% Fulvic Acid.

## The solution for the highest yield!



**WHY**

The only bio-stabilized mono-silicic acid enriched with world class fulvic acid!

Bionova world patented formula!

Guaranteed mono-silicic acid!

Bigger, denser flowers!

1:5000



## The most plant available silica in the world

### What is Silution?

The effectiveness of Silution in strengthening the plant and stimulating growth and flowering is particularly visible with growers that have less optimal growing conditions such as in growing in warm climates and high risk infection conditions. Even though silicon can be found in the soil almost everywhere on earth, it is usually not plant available. Most substrates do not contain plant available silicon. Mono silicic acid in Silution is the only form of silicon that is 100% bio-available to the roots.

### When to use Silution?

Always first apply water to the water tank, then add the correct amount of Silution and mix thoroughly! After this add the normal dosage of other fertilizers and stimulators and mix thoroughly again! Silution is usable from first week of growth until the final week of flowering. Silution can be used in conjunction with all Bionova fertilizers, stimulators, minerals, universals & substrates. Bionova Silution can be used as irrigation and as foliar spray.

**Word from Founding Father:**  
The solution for the ultimate harvest, the combination of our Mono-silicic Acid and our Fulvic acid makes this the most plant available form of silica there is! Growing will never be the same again without Silution.



### Suitable for cultivation methods:



Outdoor Indoor Vegetative Flowering Irrigation Spray Hydro Aero

### Any questions?

Send us a message at Instagram & Facebook: @bionovanutrients, or send an email to sales@bionova.nl

### Feeding charts



### WHAT'S INSIDE?

#### Silicon (Si) as (Si(OH)<sub>4</sub>):

1. It has been found to improve drought tolerance and delay wilting in certain crops where irrigation is withheld and will enhance the plant's ability to resist drought and other metal toxicities.
2. Promotes strengthening of the cell walls and provides increased mechanical support to the aerial parts.

Si(OH)<sub>4</sub>

Silicon

Fulvic acid

K

Potassium

Trace elements

#### Potassium:

1. Potassium regulates the opening and closing of stomata thus regulating the uptake of CO<sub>2</sub> thus enhancing photosynthesis.
2. It triggers activation of important biochemical enzymes for the generation of Adenosine Triphosphate (ATP). ATP provides energy for other chemical and physiological processes such as excretion of waste materials in plants.
3. It plays a role in osmoregulation of water and other salts in plant tissues and cells.
4. Potassium also facilitates protein and starch synthesis in plants.
5. It activates enzymes responsible for specific functions.

#### Fulvic acid:

1. Fulvic acid is one of the 3 components of humus and arises during the digestion of plants by micro-organisms. It is a substance with many positive effects on plant and substrate health. For example, fulvic mobilizes nutrients to and within plants.
2. Iron and magnesium ions are indispensable for photosynthesis, and fulvic acid promotes the function of transporting those ions in the soil into plant cells by a chelating effect, thereby leading to activation of photosynthesis.
3. Fulvic acid plays an essential role in nature in mobilizing minerals and making all kinds of compounds to help plants absorb nutrients.

#### Boron (B), Zinc (S):

1. Boron, mainly involved in cell wall synthesis and structural integration. Boron plays a key role in a diverse range of plant functions including cell wall formation and stability, maintenance of structural and functional integrity of biological membranes, movement of sugar or energy into growing parts of plants, and pollination and seed set.
2. Zinc, helps the plant produce chlorophyll. Zinc is an important component of various enzymes that are responsible for driving many metabolic reactions in all crops. Growth and development would stop if specific enzymes were not present in plant tissue. Carbohydrate, protein, and chlorophyll formation is significantly reduced in zinc-deficient plants.

#### EC FERTILIZER

Mixture of micro-nutrients Boron and Zinc. Micro-nutrients percentage by weight:  
0,6% Boron (B) water soluble;  
1,4% Zinc (Zn), water soluble, EDTA chelated.  
Also contains:  
1,45% Silicon Dioxide (SiO<sub>2</sub>)

**The Original PK 13-14**



**WHY**

- Significantly increases yield quantity and quality of any treated crop!
- Contains barely any ballast salts and heavy metals!
- More dry weight of the end-product!
- The perfect balanced combination of Phosphor and Potassium!



**Thicker fruits and flowers!**

**What is PK 13-14?**

PK 13-14 is the perfect balanced combination of Phosphor and Potassium. Phosphor activates blooming inside any treated plant and Potassium prompts flowering and creates an exuberant flowering. It is sourced with food-grade minerals, which is one of the purest forms of minerals. Containing barely any ballast salts and heavy metals. This way the PK 13-14 is also directly absorbable by the root system, and no heavy metals will remain in the end product. PK 13-14 should always be used in combination with one of the following Main Fertilizers: Soil Supermix, Hydro Supermix, Aero Supermix or Autoflower Supermix.

**When to use PK 13-14?**

Use PK 13-14 from the first week of flower until the final week of flower 2-6ml per 10 litres. PK 13-14 can be used in conjunction with all Bionova fertilizers, stimulators, minerals, universals & substrates.

**Word from Founding Father:**  
Bionova is the inventor of the perfect Phosphorus and Potassium balance PK 13-14! The classic made classic by Bionova, since 1992 a brand name!



**How to use PK 13-14?**

**Application in irrigation**

Shake well and add 2-6ml per 10 litres everytime you prepare your nutrients solution. Use this solution each time the plants are irrigated during the entire flowering period.

**Tips from the growers!**

Deficiencies often occur due to poor quality of substrates and/or abnormal pH values of the nutrient solution. To cure deficient plants you can apply a solution of PK 13-14 with dilution rate of 2,5-5 ml in 10 litres of water by irrigation or foliar spray.

**Available in units**

250 ml 1 litres 20 litres 5 litres 200 litres 1.000 litres

**Suitable for cultivation methods:**



**Any questions?**

Send us a message at Instagram & Facebook: @bionovanutrients, or send an email to sales@bionova.nl

**Feeding charts**



**Phosphorus:**

- The function of phosphorus in plants is very important. It helps a plant convert other nutrients into usable building blocks with which to grow. Phosphorus is one of the main three nutrients most commonly found in fertilizers and is the "P" in the NPK balance that is listed on fertilizers.
- Phosphorus is like a power station within plants, playing a role in every process that involves energy transfer from one function to another. These energy transfers include growing roots or forming flowers and fruit. Phosphorus initiates the transformation of nitrogen into amino acids and it is the trigger that converts sunlight into carbohydrates. This element is most in need during transitional periods in plants growth, such as the end of vegetative growth and the beginning of the flowering stage.

**WHAT'S INSIDE?**



**Potassium:**

- Is associated with the movement of water, nutrients and carbohydrates in plant tissue. It's involved with enzyme activation within the plant, which affects protein, starch and adenosine triphosphate (ATP) production. The production of ATP can regulate the rate of photosynthesis.
- Plants "breathe" carbon dioxide through tiny pores in the leaves known as stomata. When potassium moves into the cells around the stomata, the cells collect water and swell, allowing the pores to open and CO<sub>2</sub> to enter. When water supplies are less than optimal, the potassium in the cells around the stomata recedes, closing the pores to prevent water loss and minimizing drought stress. When plants begin to flower, potassium is a catalyst in the manufacture and delivery of the starches and sugars needed for the blossoms to fully form.

**P+K:**

- The perfect combination for when your plants are in flower!
- Bionova is the inventor of the original composition: PK 13-14. A must use additive.
  - Bionova PK 13-14 has a higher concentration compared to most of our competitors!
  - Bionova PK 13-14 is made from the highest quality food-grade minerals. Ensuring that our PK 13-14 is plant available within hours which gives you optimal control of your plants.

**Adenine, Auxin (IAA, ABA), Betaines, Tripeptid glutation:**

- Certain minerals like phosphorus and magnesium are essential for the reproduction, growth, and development of the plant. The minerals absorbed by the roots are mineral ions dissolved in the soil and water. They support plants to complete their life cycle and to produce seeds.

**EC FERTILIZER Solution of PK fertilizers 0-13-14**

13% Phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>), water soluble  
14% Potassium oxide (K<sub>2</sub>O), water soluble

## More Roots more flowers!



### WHY

Most efficient Roots stim on the market because of its high concentration!

Crucial for a rapid root development on young plants!

Develops more root hairs in order to absorb more nutrients!

More resilience against stress due to a stronger developed root system!



## Rapid root development

### What is Roots?

Roots product has been researched and fabricated with several European horticultural companies and universities worldwide. Bionova Roots consists of the following main ingredients: Humic-acids (improves the absorption of oxygen, quickens the root and cell development and quickens the transport of ions), Kelp (healing of wounds and of chlorosis, increases the chlorophyll development and more root-hair development), Ascorbic-acid (vitamin C), Thiamin (vitamin B1), Myo-inositol (also known as vitamin B7, for the forming of cell walls), L-glycine (amino acid, for a better resistance and growth).

### When to use Roots?

Roots is usable from the first week of growth up to 3 consecutive weeks after first application. **Roots can be used in conjunction with all Bionova fertilizers, stimulators, minerals, universals & substrates.**

### How to use Roots?

#### Application in irrigation

Use Roots 3 consecutive weeks from the first moment you start your grow in dilution rate 8-5 ml per 10 litres of water.

#### Tips from the growers!

The root system of a plant is where essential nutrients are absorbed and distributed to the rest of the plant. Indoor horticulturists who focus their energy on promoting and maintaining a healthy root system are more likely to have less problems and larger yields each grow cycle.

#### Available in units

250 ml 1 litres 20 litres 5 litres 200 litres 1.000 litres

**Word from Founding Father:**  
Developed in the 90s when Bionova collaborated with a university in the USA to develop the first organic root stimulator, constantly improved over the years to today's standards.



### Suitable for cultivation methods:



Outdoor Indoor Vegetative Flowering Irrigation Hydro Aero

### Any questions?

Send us a message at Instagram & Facebook: @bionovanutrients, or send an email to sales@bionova.nl

### Feeding charts



### WHAT'S INSIDE?

#### Ascorbic Acid (Vitamin C):

1. L-Ascorbic acid (vitamin C) is as essential to plants as it is to animals. Ascorbic acid functions as a major redox buffer and as a cofactor for enzymes involved in regulating photosynthesis, hormone biosynthesis, and regenerating other antioxidants.
2. It has proposed functions in photosynthesis as an enzyme cofactor (including synthesis of ethylene, gibberellins and anthocyanins) and in control of cell growth.

Vitamins

Vitamins

#### Thiamine (Vitamin B):

1. In plants, thiamine is known to have its role as a cofactor for important metabolic activities [8]. Thiamine is known to be an essential regulator that plays an important role in plant's primary regulatory system.
2. Role of thiamine in plant protection. In plants, thiamine plays a role as a response molecule towards abiotic and biotic stresses.

#### Kelp:

1. Helps germinate seeds quicker;
2. High levels of cytokinin;
3. Reduce stress when taking cuttings;
4. Encourage rooting;
5. Build immunity;
6. Add more colour and flavour;
7. Give a longer shelf life;
8. Produce more and larger buds and flowers;
9. Counter any nutrient deficiencies, and fights off insects and disease.

Kelp

Organic acids

#### Humic acid:

1. Humic acids are an excellent natural and organic way to provide plants and soil with a concentrated dose of essential nutrients, vitamins and trace elements.
2. Humic acids are the organic substances that coagulate when the strong-base extract is acidified while fulvic acids are the organic substances that remain soluble when the strong-base extract is acidified.
3. Substances that remain soluble when the strong-base extract is acidified.
4. Humic acids chemically change the fixation properties of the soil, with benefits such as: neutralizes both acid and alkaline soils; regulates the pH-value of soils. Improves and optimizes the uptake of nutrients and water by plants. Increases buffering properties of soil.

#### Soil Improver

1% Total Nitrogen (N) of which:  
1% Organic Nitrogen (N), plant origin.  
0.15% Sodium (Na)  
With micro-nutrients:  
0.081% Manganese (Mn), water soluble, EDTA chelated.  
0.001% Molybdenum (Mo)  
Also contains: Kelp extract; Ascorbic Acid; Thiamine; Inositol; Glycine.

## The substrate energizer



### WHY

**Bionova Zym is a natural bio-catalyst!**

**Stimulates the water-retaining ability of every medium and decreases the soil-tension of water!**

**Bionova Zym brings more oxygen into your substrate!**

**Speeds up the flushing process from 2 weeks to 4 days!**



## Healthier substrate

### What is BN-Zym?

BN Zym brings an increased bacteria activity, which converts nutrients and minerals in your substrate into material that is directly absorbable by the roots. BN-Zym catalyses the waste matters and delivers them back to the crop in the form of absorbable nutrients. Moreover, the medium stays clean and free of all sorts of excess components. This is important for every cultivation and especially for those that re-use their Soil and Coco substrates.

### When to use BN-Zym?

BN-Zym is usable from first week of growth until the final week of flowering. BN-Zym **can be used in conjunction with all Bionova fertilizers, stimulators, minerals, universals & substrates.** Bionova Silution can be used as irrigation.

### How to use BN-Zym?

#### Application in irrigation

Continuously 5-10 ml per 10 litres of water.

#### Application as foliar spray

Can't be used as foliar spray.

#### Tips from the growers!

To make the most of your enzyme solution, you'll want to apply it directly to the soil. Remember, the enzymes we're interested in reside in the soil around your plant's root system.

#### Available in units

250 ml 1 litres 20 litres 5 litres 200 litres 1.000 litres

#### Word from Founding Father:

An indispensable element in nature and the human body. Accelerates many processes and conversions, without changing itself. The effect therefore continues, which is truly unique.



### Suitable for cultivation methods:



Outdoor Indoor Vegetative Flowering Irrigation Hydro Aero

### Any questions?

Send us a message at Instagram & Facebook: @bionovanutrients, or send an email to sales@bionova.nl

### Feeding charts



### WHAT'S INSIDE?

#### Potassium:

- Potassium regulates the opening and closing of stomata thus regulating the uptake of CO<sub>2</sub> thus enhancing photosynthesis.
- It triggers activation of important biochemical enzymes for the generation of Adenosine Triphosphate (ATP). ATP provides energy for other chemical and physiological processes such as excretion of waste materials in plants.
- It plays a role in osmoregulation of water and other salts in plant tissues and cells.
- Potassium also facilitates protein and starch synthesis in plants.
- It activates enzymes responsible for specific functions.

#### Xylanase:

- Plays a major role in micro-organisms thriving on plant sources for the degradation of plant matter into usable nutrients.
- Degrades the linear polysaccharide xylan into xylose, thus breaking down hemicellulose, one of the major components of plant cell walls.



#### Beta-Glucanase:

- Plays key roles in cell division, trafficking of materials through plasmodesmata, in withstanding abiotic stresses and are involved in flower formation through to seed maturation.
- Commonly known as athogenesis-related (PR) proteins, play an important role not only in plant defense against fungal pathogens but also in plant physiological and developmental processes.

#### Cellulase:

- Cellulase enzymes are used to break down the cellulose of plant cell walls into simple sugars that can be transformed (fermented) by microbes to fuels, primarily ethanol, as well as to chemicals, plastics, fibers, detergents, pharmaceuticals, and many other products.
- Plays a major role in the global carbon cycle by degrading insoluble cellulose to soluble sugars.
- Cellulases are used to degrade the cell wall and obtain protoplasts. Cellulases are synthesized by certain microorganisms (bacteria, fungi, protozoa).

#### Organic soil enhancer

0,5% Phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>)  
0,27% Potassium Oxide (K<sub>2</sub>O)  
Also contains: pectinase, amylase, cellulase. All enzymes used are free from animal substances.

## The natural candy!



1:1000

NPK  
0-0-3

### WHY

Develops a sweeter taste in any crop!

100% natural ingredients in Vitasol gives you The Natural Candy!

Vitasol provides a high potency of uptake in sugars!

Use of Vitasol will provide any flower more energy!



## Bring back the flavour in your flower!

### What is Vitasol?

This fruit sweetener contains natural sugars. Calcium, Magnesium, Copper, Lime, Potassium, vitamins and a great number of vegan trace elements. Vitasol is extremely suitable as a converter of available nutrients. Especially in periods of high production and rapid growth (in case of artificially lighted crops) or in case of a stagnation in growth caused by a deficiency of nutrients, the use of Vitasol will provide more energy in these flowering phases.

### When to use Vitasol?

Use Vitasol as a sweetener in final weeks of flowering phase 5-10ml per 10 litres. Bionova Vitasol as micro-organism boost: 2,5-5ml per 10 litres. Vitasol **can be used in conjunction with all Bionova fertilizers, stimulators, minerals, universals & substrates.**

#### Word from Founding Father:

When I first tasted a product with Vitasol, I was amazed by the smell and flavours. Today I can't live without the additive of Vitasol in any crop. The sweetness will convince yourself!



### How to use Vitasol?

#### Application in irrigation

Shake well and add 4-10 ml per 10 litres everytime you prepare your nutrients solution. Use this solution each time the plants are irrigated during the final weeks of flowering.

#### Tips from the growers!

Molasses helps to feed the microbes that already exist in the substrate. But you can add an extra punch to your preparation by adding rhizobacteria as well. This type of bacteria does a world of good by helping to free up nutrients and combating pathogens.

#### Available in units

250 ml 1 litres 20 litres 5 litres 200 litres 1.000 litres

### Suitable for cultivation methods:



Outdoor Indoor Vegetative Flowering Irrigation Hydro Aero

### Any questions?

Send us a message at Instagram & Facebook: @bionovanutrients, or send an email to sales@bionova.nl

### Feeding charts



### WHAT'S INSIDE?

#### Cane Molasses:

- Blackstrap molasses stimulates and encourages rapid plant growth and supplies the plant with iron, magnesium, potassium, sulfur, and some trace minerals. Molasses fertilizer helps protect plants against diseases, pests, heat stress and cold damage.
- What does molasses do for the soil? Adding molasses to soil has been shown to improve the bacterial health of the soil, thus allowing the plants to be more receptive to fertilizer and, in general, to be healthier.



Cane Molasses



Potassium

#### Potassium:

- Potassium regulates the opening and closing of stomata thus regulating the uptake of CO<sub>2</sub> thus enhancing photosynthesis.
- It triggers activation of important biochemical enzymes for the generation of Adenosine Triphosphate (ATP). ATP provides energy for other chemical and physiological processes such as excretion of waste materials in plants.
- It plays a role in osmoregulation of water and salts in plant tissues and cells.
- Potassium also facilitates protein and starch synthesis in plants.
- It activates enzymes responsible for specific functions.

#### Amino Acids:

- Proline, protects the plants from various stresses and also helps plants to recover from stress more rapidly.
- Glycine, often used for production of a wide range of amino-chelate fertilizers.
- Hydroxyproline, providing structural integrity to mediating cell-cell interactions and communication.
- Alanine, a defense compound that enables plants to withstand various stresses such as hypoxia, waterlogging and drought, and indirectly as a precursor to the compounds pantothenate and CoA.
- Arginine, a major storage and transport form for organic nitrogen in plants.
- Lysine, an important signaling amino acid that regulates plant growth and responds to the environment.
- Glutamine, an effective nitrogen source for plant growth.



Amino Acids



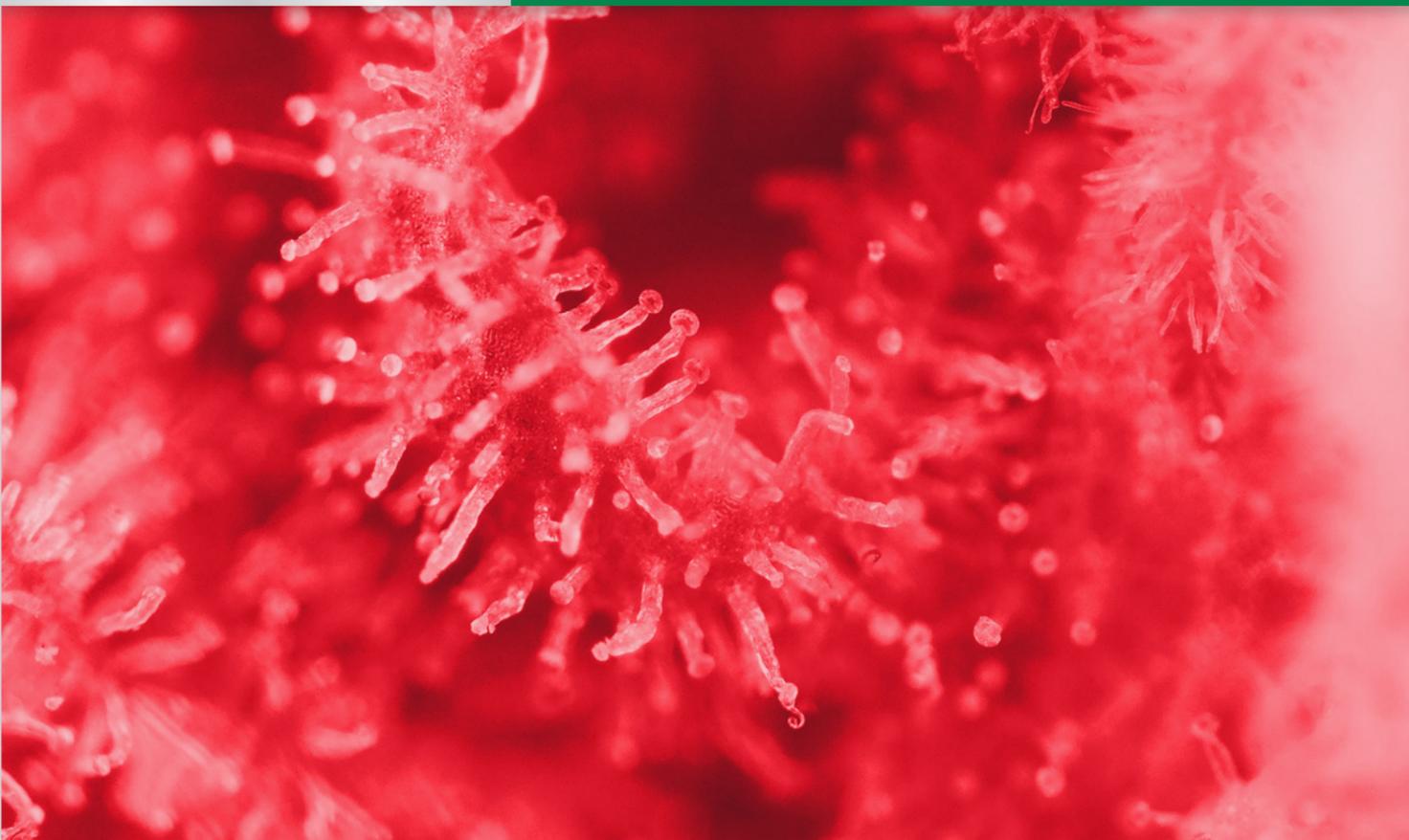
Trace elements

#### Trace elements:

- Boron, mainly involved in cell wall synthesis and structural integration.
- Copper, is required for many enzymatic activities in plants and for chlorophyll and seed production.
- Iron, many of the vital functions of the plant, like enzyme and chlorophyll production, nitrogen fixing, and development and metabolism are all dependent on iron.
- Manganese, a metal that is an essential cofactor of the oxygen-evolving complex (OEC) of the photosynthetic machinery, catalyzing the water-splitting reaction in photosystem II.
- Zinc, helps the plant produce chlorophyll.

#### Organic/ mineral combination fertilizer NPK 1-0-3

1% Total Nitrogen (N) which is:  
1% Organic Nitrogen (N), plant origin  
3% Potassium oxide (K<sub>2</sub>O), water soluble  
1.4% Sulfur trioxide (SO<sub>3</sub>), water soluble  
0.06% Manganese (Mn), water soluble, EDTA chelated



## WHEN PRECISION IS YOUR GAME!

## QUICK FIX FOR DEFICIENCIES



# MINERALS



## MY WAY TO GROW

Having deficiency problems with your plants? Bionova minerals allow you to tackle this with precision. Or when you have the desire to create your own mixture for a base nutrient. As with all Bionova products we use the best possible food-grade minerals for improved nutrient uptake and optimal control.

Diagnosing (reading) your plants is paramount. We will help you out in diagnosing deficiencies of Macro- and Micro nutrients.

N, nitrogen deficiency causes yellow leaves and the veins also turn yellow. The older leaves discolor first, because nitrogen is mobile in the plant. It causes growth inhibition.

P, phosphorus deficiency can be recognized by a different leaf color of the older leaves. The leaves can become dark and dull, in extreme situations even red-purple. Underground, it can be recognized by a decrease in root development. The defect is reinforced by a soil temperature that is too low, soil that is too moist or too high a pH.

K, potassium deficiency is usually rare. It causes the stem to be thinner, smaller flower buds, smaller and pale fruits, yellowing or dying of leaf edges and possibly leaf dots. Potassium is very mobile, therefore lack is first visible in the old leaves.

Ca, in the case of a calcium deficiency, the least evaporating parts of the plant are affected, such as leaf margins and the top of a fruit (nose rot). Flowers remain smaller due to deficiency. Antagonism of potassium enhances this making calcium absorption more difficult.

MgO, magnesium deficiency can be caused by too much potassium and, to a lesser extent, calcium. It leads to an accelerated breakdown of chlorophyll. This causes chlorosis of the older leaves, the veins remain green.

Micronutrients, in addition to the main elements that are applied via fertilizers, a crop needs various trace elements, also called micronutrients. These are the smallest elements that must be present in the nutrition of a plant for optimal growth. However, various factors ensure that trace elements in many cases cannot be properly absorbed by a plant and a shortage occurs. Which is what Micromix is all about! Most micro-elements are present in outdoor fields and potting soils, but not completely available. Using MicroMix ensures exact amounts of micro-elements to maintain the physiology running at a higher level, obtaining a more consistent and bigger production. Micromix contains all the necessary chelated micro-elements, which are directly absorbable and available for plants in any pH range of irrigation water. If the plants presents deficiencies of some other micro elements, you can apply Micromix to the cultivation, by root or leaf. To quickly recover plants from the nutritional shortage.

**Nitrogen deficiency agent!**



**WHY**

- Food grade mineral fertilizer 27% Nitrogen!
- Nitrogen plays a significant role in the plant's osmoses regulation!
- Nitrogen is the primary substance of proteins (amino acids) and chlorophyll!
- Bionova N 27 is a very powerful liquid nitrogen fertilizer enriched with magnesium!

1:2000

NPK 27-0-0

**What is N 27?**

The importance of nitrogen is a well-known fact for most cultivations. Nitrogen is quantitatively speaking the most important fertilizer as it is. e.g. the primary substance of proteins (amino acids) and chlorophyll. Furthermore, nitrogen appears in the chromosomes (nuclei). DNA and vitamins. It also plays a significant role in the plant's osmoses regulation. A deficiency of nitrogen manifests itself in the fading of the biggest leaves and a too early blooming. An excess results in dark green leaves and a slow growth. It is important when nitrogen is used as a fertilizer, the appropriate form is used. N 27 offers a very powerful liquid nitrogen fertilizer. This product is one of the various well-known Bionova liquid mineral fertilizers.

**When to use N 27?**

N 27 should be applied when deficiencies occur or when you want to stimulate growth. N 27 is **mixable with all Bionova fertilizers, stimulators, minerals, universals & substrates.** N 27 can be used as irrigation and as foliar spray.



Healthy leaf Nitrogen deficiency

Food grade mineral fertilizer 27% nitrogen. Bionova N 27 must be used when a deficiency in nitrogen occurs or when you want to develop an advanced vegetative growth. Bionova N 27 is free of chlorides. Plants directly absorb all food grade minerals which gives an optimal control of the cultivation.

**Suitable for cultivation methods:**



**EC FERTILIZER**  
Calcium nitrate solution 8 (15) NPK 27-0-0  
27,16% Total Nitrogen (N) of which:  
5,23% Nitrate Nitrogen (NO<sub>3</sub>) of which  
3,61% Ammonium Nitrate (NH<sub>4</sub>) of which  
18,32% Urea Nitrogen (NH<sub>2</sub>)

**Concentrated trace elements mix!**



**WHY**

- The trace elements inside Bionova Micromix are indispensable!
- Contains all the necessary chelated micro-elements!
- Deficiencies of trace elements will show in the younger leaves!
- Directly absorbable and available for plants in any pH range of irrigation water!

1:3000

**What is Micromix?**

Micromix is a combination of trace elements. It contains: 0.36% Fe (iron HEEDTA). 0.08% Mn (manganese EDTA). 0.4% Bo (boron monohydrate). 0.09% Zn (zinc EDTA) and 0.06% Mo (sodium molybdate). A dosage of 1:1000 Micromix. increases the total amounts by: Fe by 100 µmol, Mn by 25 µmol, Bo by 140 µmol, Zn by 16 µmol, Mo by 5 µmol.

**When to use Micromix?**

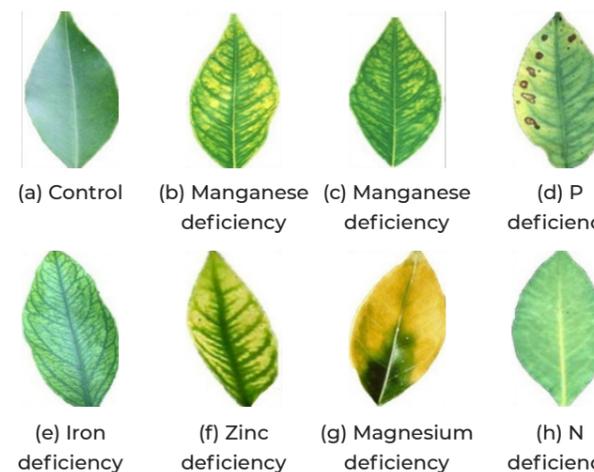
Micromix should be applied when deficiencies occur and in case of re-using potting soil. Micromix is mixable with all Bionova fertilizers, stimulators, minerals, universals & substrates. Micromix can be used as irrigation.

**How to use Micromix?**

**Application in irrigation**  
In case of deficiencies add 2.5-5 ml. per 10 litres of water. A dosage of 1:1000 Micromix. increases the total amounts by: Fe by 100 µmol, Mn by 25 µmol, Bo by 140 µmol, Zn by 16 µmol, Mo by 5 µmol.  
**Application as foliar spray**  
2,5-5 ml per litre of water.

**Available in units**  
250 ml 1 litres 20 litres 5 litres 200 litres 1.000 litres

**EC FERTILIZER**  
Liquid mixture of micro-nutrients  
0.60% Boron (B), water soluble  
0.17% Copper (Cu), water soluble, EDTA chelated.  
3,48% Iron (Fe), water soluble, DTPA chelated.  
0.68% Manganese (Mn), water soluble, EDTA chelated.  
0.02% Molybdenum (Mo), water soluble.  
0.44% Zinc (Zn), water soluble, EDTA chelated.



The trace elements inside Micromix are indispensable for a great number of biological processes. A deficiency of trace elements immediately manifests itself by malfunctioning of the plant's vital functions and it manifests itself in the young leaves because trace elements cannot be transported within the plant. When re-using your soil upgrading the trace element proportions is mandatory.

**Suitable for cultivation methods:**



**Potassium deficiency agent!**



**WHY**

Food grade mineral fertilizer 20% Potassium!

Makes cells more sturdy (water household), and prompts the blooming!

Potassium is important for the opening and closing of the stomata!

Higher quality fruit/flowers, improved firmness and dry-weight content!

1:2000

NPK 3-0-20

**What is K 20?**

Besides the basic elements N and P, also K 20 (Potassium) is crucial for every cultivation. Potassium makes cells more sturdy (water household), and prompts the blooming. Potassium also plays an important role in the forming of cells, the osmotic regulation and the carbohydrate household. Furthermore, potassium is important for the opening and closing of the stomata, which enable the drainage of excessive heat. A deficiency of potassium manifests itself when the plant does not open the stomata sufficiently for vaporization in order to cool down. This results into the development of chlorosis at the rims of the leaves which develops into necrosis (death) in a later stage. In case of an excess of potassium the plant will be curbed in its development and subsequently turn dark. An excess also hampers the absorption of other cations (Ca and Mg) which is caused by antagonistic effects.

**When to use K 20?**

K 20 should be applied when deficiencies occur and/or to mature and improve firmness. K 20 is **mixable with all Bionova fertilizers, stimulators, minerals, universals & substrates. K 20 can be used as irrigation.**

**How to use K 20?**

**Application in irrigation**

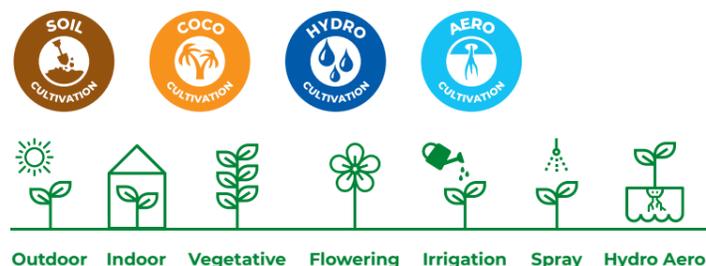
As a supplement during the blooming period add 1-10 ml. per 10 litres of nutrient solution. A dosage of 1:1000 increases the total amount of K by 5 mmol.

**Available in units**

250 ml 1 litres 20 litres 5 litres 200 litres 1.000 litres

**EC FERTILIZER**  
**Calcium nitrate solution 8 (15) NPK 3-0-20**  
3,4% Total Nitrogen (N) of which:  
2,7% Nitrate Nitrogen (NO<sub>3</sub>)  
0,7% Ammonium Nitrate (NH<sub>4</sub>)  
19,7% Potassium (K) as (K<sub>2</sub>O)

**Suitable for cultivation methods:**



Healthy leaf Potassium deficiency

Food grade mineral fertilizer 20% potassium. Plants have a high demand for potassium during the maturation phase. Potassium plays an important role in the osmotic regulation, in the opening and closing of the stomata's, the protein synthesis and the functioning of enzymes. Which results in a higher quality fruit/flowers, improved firmness and dry-weight content.

**Phosphorus deficiency agent!**



**WHY**

Food grade mineral fertilizer 20% Phosphorus!

P 20 plays an important role in forming the energy carriers and DNA!

Indispensable for the metabolism of sugars and forming cell membranes!

Bionova P 20 is absorbed fast is free of chlorides or other excess ingredients and does not have any unwanted side-effects!

1:2500

NPK 3-20-0

**What is P 20?**

P 20 plays an important role in forming the energy carriers and DNA. It is indispensable for the metabolism of sugars and forming cell membranes. Plants directly absorb all food grade minerals which gives you optimal control of your plants. P 20 can be used when having a deficiency in phosphorus. A deficiency of phosphorus manifests itself in a slow growth and purple decolorisation of the nerves at the lower surface of the leaf and purple stems caused by an anthocyan-accumulation. An excess of phosphorus results in an ill-growing plant with an induced shortage of zinc. Before P 20 it used to be a problem to add any form of phosphorus to crops that would be absorbed entirely and very fast without any harmful side-effects. P 20 is absorbed fast and does not have any side-effects. P 20 is free of chlorides or other excess ingredients.

**When to use P 20?**

P 20 should be applied when deficiencies occur or to prompt the start of blooming. P 20 is **mixable with all Bionova fertilizers, stimulators, minerals, universals & substrates.** P 20 can be used as irrigation and as foliar spray.

**How to use P 20?**

**Application in irrigation**

In case of severe phosphorus deficiency add a max. of 5-10 ml per 10 litres of water. To stimulate root development and/or flowering add 1-5 ml. per 10 litres of water. A dosage of 1:1000 increases the total amount of P by 3.5 mmol.

**Application as foliar spray**

2,5-5 ml per litre.

**Available in units**

250 ml 1 litres 20 litres 5 litres 200 litres 1.000 litres

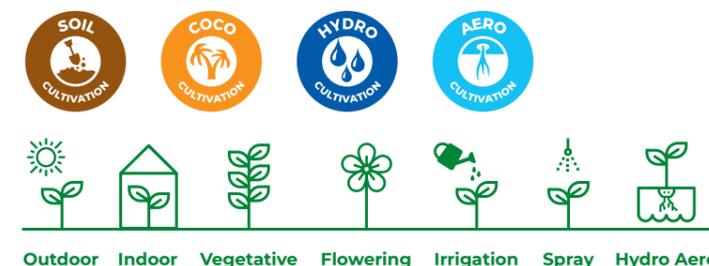
**EC FERTILIZER**  
**Solution of NP fertilizers 3-20-0**  
3,56% Total Nitrogen (N) of which:  
2,7% Nitrate Nitrogen (NO<sub>3</sub>)  
0,7% Ammonium Nitrogen (NH<sub>4</sub>)  
19,8% Phosphorus (P) as (P<sub>2</sub>O<sub>5</sub>)



Healthy leaf Phosphorus deficiency

Food grade mineral fertilizer 20% phosphorus. Plants have high demands for phosphorus in the first weeks of flowering. this gives a head start in the development of fruits/flowers.

**Suitable for cultivation methods:**



**Calcium deficiency agent!**



**WHY**

- Food grade mineral fertilizer 15% Calcium!
- Plays an important role in stabilizing the cell walls!
- Ca 15 causes ion-reactions within plants, influencing growth hormones!
- Plants directly absorb all food grade minerals to provide optimal control of your plants!

1:3000

NPK 8-0-0 +15% CAO

**What is Ca 15?**

Calcium often appears in the cell walls and membranes and plays a special role in the ion-reactions within plants. Calcium is transported in the plant by means of water conduction (xylem). In situations with a high humidity or in a compact crop the rate of conduction is small and can lead to a deficiency of calcium. A deficiency of calcium leads to softened cell walls which manifests itself immediately in an increased sensitivity to fungi and the dying off of young leaves and growing points. Also an excess of calcium can occur. Which results into brown spots on the leaves.

**When to use Ca 15?**

Ca 15 should be applied when deficiencies occur and/or to strengthen cell walls. Ca 15 is **mixable with all Bionova fertilizers, stimulators, minerals, universals & substrates.** Ca 15 can be used as irrigation and as foliar spray.

**How to use Ca 15?**

**Application in irrigation**

In areas with soft water add to Supermixes 2-4 ml per 10 litres of water. When using Reverse Osmosis Water add 2-8 ml per 10 litres of water. A dosage of 1:1000 increases the amount of Ca by 3.2 mmol.

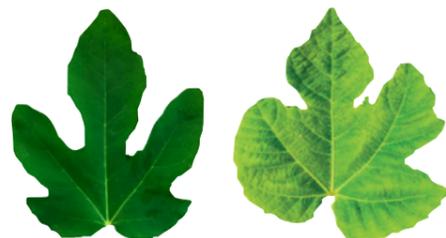
**Application as foliar spray**

2,5-5 ml per litre of water.

**Available in units**

250 ml 1 litres 20 litres 5 litres 200 litres 1.000 litres

**EC FERTILIZER**  
Calcium nitrate solution 8 (15) NPK 8-0-0 + 15% CaO  
7,35% Nitrate Nitrogen (NO<sub>3</sub>)  
15,69% Calcium as (Ca) from CaO  
2,84 Magensium as (Mg) from MgO

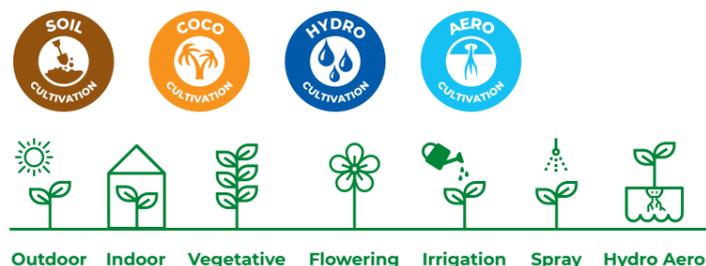


Healthy leave

Calcium deficiency

Food grade mineral fertilizer 15% calcium, Ca 15. Calcium plays an important role in stabilizing the cell walls, ion-reactions within plants, influencing growth hormones and it controls the transport of nutrients and water in your plant. In situations with a high humidity or in a compact crop the rate of conduction is small and can lead to a deficiency of calcium.

**Suitable for cultivation methods:**



Outdoor Indoor Vegetative Flowering Irrigation Spray Hydro Aero

**Magnesium deficiency agent!**



**WHY**

- Food grade mineral fertilizer 10% Magnesium!
- Forms the reactive nuclei in the chlorophyll!
- Always the right amount of Magnesium!
- Magnesium is essential for photosynthesis!

1:3000

NPK 6-0-0 +10% MgO

**What is MgO 10?**

A deficiency of magnesium manifests itself in chlorosis (slight decolorisations) between the nerves of old leaves. An excess results into an ill-growing crop and small leaves! Plants directly absorb all food grade minerals giving you optimal control of your cultivation. Magnesium in MgO 10 forms the reactive nuclei in the chlorophyll, which converts light energy into chemical energy (ATP and ADP).

**When to use MgO 10?**

MgO 10 should be applied when deficiencies occur and to stabilize osmose water. MgO 10 is **mixable with all Bionova fertilizers, stimulators, minerals, universals & substrates.** Bionova MgO 10 can be used as irrigation and as foliar spray.

**How to use MgO 10?**

**Application in irrigation**

In case of deficiencies add 2-8 ml. per 10 litres of water. When using Reverse Osmosis Water add 5-15 ml per 10 litres of water. A dosage of 1:1000 increases the total amount of Mg by 2 mmol.

**Application as foliar spray**

2,5-5 ml per litre.

**Available in units**

250 ml 1 litres 20 litres 5 litres 200 litres 1.000 litres

**EC FERTILIZER**  
Magnesium nitrate solution 6 (10) NPK 6-0-0 + 10% MgO  
6% Total Nitrogen (N) of which:  
6% Nitric Nitrogen (N)  
10% Magnesium oxide (MgO), water soluble

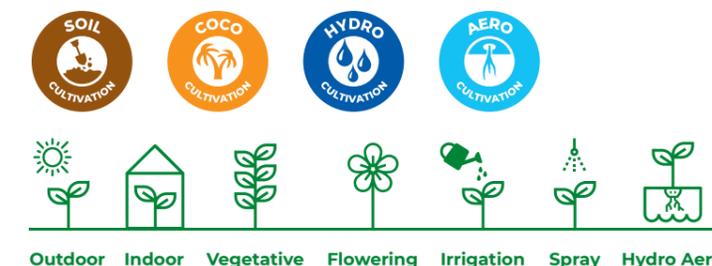


Healthy leave

Magnesium deficiency

Food grade mineral fertilizer 10% magnesium. MgO 10 Magnesium is essential for photosynthesis and forms the reactive nuclei in the chlorophyll. MgO 10 is mostly used when a deficiency occurs. When using Bionova's main fertilizers and stimulators, there is always the right amount of Magnesium, except when cultivating with osmoses water or when cultivating with LED's.

**Suitable for cultivation methods:**



Outdoor Indoor Vegetative Flowering Irrigation Spray Hydro Aero



**TAKE A LOOK AT BIONOVA UNIVERSALS!**

# UNIVERSALS



*MY WAY TO GROW*

## Natural wetting agent!



### WHY

**Certified vegan organic product!**

**Lowers the surface-tension of water thus improving penetration of soil/ substrate!**

**Free of animal ingredients and only contains plant materials!**

**Don't miss a spot with FreeFlow**



## Beat the heat!

### What is Freeflow?

Freeflow is a yucca schidigera extract product, yucca is a desert plant that is used to deal with excessive heat stress, drought stress, UV stress and salt stress. When we take the extracts from a plant which adapted to such harsh conditions, when yucca is harvested many of the stress reducing components comes with it. Applying yucca extracts to your cultivation, will give your plants an extra boost in helping them deal with adverse conditions.

### When to use Freeflow?

Freeflow is usable from the first week of growth until harvest. Freeflow is **mixable with all Bionova fertilizers, stimulators, minerals, universals & substrates.** **Freeflow can be used in irrigation and as foliar spray.**

When spraying your plants, Freeflow is highly recommended as it makes sure you'll cover every spot on the leaves, very important when spraying against pests. Yucca is high in natural wetting agents called schidigera & saponins. Saponins steroidal-based natural chemicals make water actually wetter, breaking the polarity of the water molecule.

### How to use Freeflow?

#### Application in irrigation

Application in irrigation 2 ml per 10 litre.

#### Application as foliar spray

10 ml per litre.

#### Available in units

250 ml 1 litres 20 litres 5 litres 200 litres 1.000 litres

Freeflow is a certified vegan organic product. Freeflow lowers the surface-tension of liquids, to make it penetrate more easily in soil or substrates which don't take water properly. Or when a substrate is to dry or to wet, with Yucca extract the water penetrates the substrate more easily.

### Suitable for cultivation methods:



Outdoor Indoor Vegetative Flowering Irrigation Spray Hydro Aero

### Any questions?

Send us a message at Instagram & Facebook: @bionovanutrients, or send an email to sales@bionova.nl

### Feeding charts



### WHAT'S INSIDE?

#### Yucca Plant Extract:

1. Yucca Plant Extract is a Plant Biostimulant that can be used to improve soil health and plant growth. Yucca improves permeability at the soil surface, as well as nutrient use efficiency at the root zone. Yucca extracts increase the dispersal of liquids, and allows for higher infiltration rates and improved soil and plant performance.
2. Yucca contains many complex sugars that are also a major benefit to living soils. This helps to create the conditions for a diverse and vibrant soil ecosystem. These sugars feed and energize soil microbes, allowing these beneficials to multiply and work with plants to gather nutrients, protect against pathogens, and grow better plants.



Yucca



Saponins



#### Saponins:

1. Saponins help get the water and nutrients to where they benefit the plants most.
2. In addition to saponins, Yucca Plant Extracts contain other compounds that protect and improve plant health and performance. Polyphenols are Antioxidants that have been identified to assist plants in tolerating various stress conditions.
3. Polyphenols such as resveratrol, larinol, and yuccaols act as antioxidants, and serve plant protecting functions. These compounds scavenge for free-radicals, and reduce the numbers of reactive oxygen species (ROS) present in soil. These ROS act as signaling molecules when plants are under stress, and their accumulation can lead to plant loss. The antioxidants present in Yucca Extracts allow plants to respond to stress and at the same time benefit from the regulation of potentially harmful substances.

Yucca Schidigera



#### Yucca Schidigera:

1. Increases plant cell wall permeability and dispersal of liquids.
2. Protects against plant pathogens.
3. Reduces plant stress from drought, heat, and salinity.
4. Increases soil infiltration and absorption of water and nutrients.

#### Yucca Schidigera 50%

0,12% Total Nitrogen (N).  
0,46% Sulphur (S), water soluble.  
0,9% Chloride (Cl), water soluble.  
0,0038% Iron (Fe).

## All-in-one granular fertilizer for full cultivation!



### WHY

- Easy-to-use product!
- Mix this basic fertilizer into your soil, and it's fertilized for 10-12 weeks!
- Completely free of animal-waste, so it's a natural fertilizer!
- Profimix stimulates the activity of micro-organisms, enhances the rooting process!

### What is Profimix?

Profimix is developed for maximum profit and easy usability. Profimix contains organic fertilizers + micro-organisms. The organic matter we put inside profimix is completely free of animal-waste, so it's a veganic fertilizer. After mixing Profimix in the soil, only water is what you need to grow! Mix this basic fertilizer into your soil, and it's fertilized for 10-12 weeks. The easiest way of cultivation! Profimix stimulates the activity of micro-organisms, enhances the rooting process, provides vigorous growth and bloom. Profimix stimulates the natural resistance against pests and plagues.

### When to use Profimix?

Profimix is for a full growth cycle. Profimix is **mixable with all Bionova substrates, stimulators, minerals & universals**.

Profimix is a vegan grain fertilizer, especially created as an easy-to-use product. Just mix 100-150 grams per 15-20 litre pot, and the rest you have to do is just add water. No pH has to be measured as the micro-organisms inside the product will balance the pH in your substrate in a natural way!

### How to use Profimix?

Profimix is mixed into open soil or a substrate. Mix 10 kg's of our Profimix per 100 m<sup>2</sup> of soil. All that is required from that point forward is to add water regularly. No pH has to be measured as the micro-organisms inside the product will balance the pH in your substrate in a natural way!

- Allround fertilizer for natural cultivation
- Rapid growth and more internodes
- Higher resistance against stress factors
- Better root development
- Very cost-efficient, works for 3 months
- Stimulates soil-ecosystem
- 100% vegetal

### Available in units

2 kg 25 kg 1000 kg

#### EC FERTILIZER Mixture of NPK fertilizers 5-4-7+2 MgO

5% Total Nitrogen (N) of which:  
2% Ammoniacal Nitrogen (N)  
3% Nitric Nitrogen (N)  
4% Phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>)  
7% Potassium oxide (K<sub>2</sub>O)  
2% Magnesium oxide (MgO) Water soluble  
3% Sulfur trioxide (SO<sub>3</sub>)  
Also contains: Bentonite, seaweed, lime, vinasse, cacao pellets, enzymes, amino acids, vitamins, humates, natural chelated trace-elements and micro-organisms.  
No animal by-products are used.

### Suitable for cultivation methods:



## Concentrated trace elements mix!



### WHY

- Uptakable fertilizers will be easier and more available, which results in a higher yield!
- MicroLife stimulates the growth of micro-organisms!
- MicroLife enriches and stimulates soil life!
- Packed full of essential soil organisms like Mycorrhiza sp, Bacillus sp, yeasts and enzymes!

### What is Microlife?

Mycorrhiza soil enhancer with micro-organisms. Microlife stimulates, enriches and adds natural occurring micro-organisms to the soil. This assures a better structure, better rooting and the air-water household will be enhanced. The uptakable fertilizers will be easier and more available, which results in a higher yield. Microlife organisms bring back the soul to your soil! Also present are other microorganisms working as antagonists and producing antibiotic effects such as fungi of the Penicillium, Trichoderma and pergillus families. In addition, there are Actinomycetes from the family of Streptomyces and nitrogen binding bacteria of the Azoto bacter string. The amino acid Glycerine and small amounts of the vitamins C, B1 and E are there too. Finally, the clay minerals and algae are good resources for a large variety of trace elements, which are needed for the healthy development of soil life and plants.

### When to use Microlife?

Microlife is usable from first week of growth until harvest. Microlife is **mixable with all Bionova fertilizers, stimulators, minerals, universals & substrates**.

Using this product will bring a higher yield with fewer illnesses or root problems and a much higher stress resistance, which will in turn prevent plant shock and loss. Photosensitivity will increase which will result in higher yields, especially for crops grown with artificial light.

### How to use Microlife?

Dosage: 1 - 2 kg per m<sup>3</sup> potting soil or per 25 m<sup>2</sup>, depending on the soil quality.  
Repetition while changing crops: 1 kg per m<sup>3</sup> potting soil, work the product in well.

**Ingredients:** Bone meal, cacao pellets, lime, clay minerals (Bentonite), compost and Ascophillum Nodosum.

#### Micro organisms – Mycorrhiza species (Endo and Ecto):

Glomus intraradices	Glomus deserticola	Rhizopogon amylopogon
Glomus mosseae	Glomus brasillianum	Rhizopogon villosuli
Glomus aggregatum	Gigaspora margarita	Rhizopogon fulvigleba
Glomus clarum	Pisolithus tinctorius	Rhizopogon luteolus
Glomus monosporus	Laccaria bicolor	Sceloderma citrinum
Glomus etunicatum	Laccaria laccata	Scleroderma cepa

#### Micro organisms – Bacillus species:

B. licheniformis	B. subtilis
B. pasteurii	B. laevolacticus
B. amyloliquefaciens	B. Azotofixans

### Available in units

2 kg 25 kg 1000 kg

#### Soil improver

2% Nitrogen (N) of which:  
1% Ammoniacal Nitrogen  
1% Nitric Nitrogen  
2% Phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>)  
2% Potassium Oxide (K<sub>2</sub>O)

### Suitable for cultivation methods:





## Universals

### pH

Although most plants will grow within a wide pH range, 3.5 to 8.0, for many years the suggested range of pH values for growth of good quality foliage plants is 5.5 to 6.5. This recommendation originated back when most ornamental plants were grown in mineral or organic soils or soil-containing mixtures.

*"The key to pH is that it is going to influence the key nutrients available to plants – nitrogen, phosphorus and potassium – and other nutrients like calcium and boron. When pH is in the right range, it makes it easier for the plants to uptake the nutrients they need."*



## pH- & pH+



### What is pH-?

pH- is a phosphoric acid solution containing 24.5%. It is crucial to manage pH values of the water/nutrient solution you feed to the plant. Plants only absorb all nutrients when applied in the correct pH value. When your pH is too low or too high, the plant won't be able to uptake all nutrients.

### When to use pH-?

Our pH- is usable from first week of growth until one week before harvest, flushing is mandatory pH- is mixable with all Bionova stimulators, minerals, universals & substrates. The pH- can be used as irrigation.

### How to use pH-?

#### Application in irrigation

Continuously 2-4 ml per 10 litres of water depending on pH of solution.

#### Available in units

1 litres 20 litres 5 litres 200 litres 1.000 litres

### What is pH+?

The pH+ is a potassium hydroxide solution containing 24,5%. It is crucial to manage pH values of the water/nutrient solution you feed to the plant. Plants only absorb all nutrients when applied in the correct pH value. When your pH is too low or too high, the plant won't be able to uptake all nutrients.

### When to use pH+?

Our pH+ is usable from first week of growth until 2 weeks before harvest, flushing is mandatory pH+ is mixable with all Bionova stimulators, minerals, universals & substrates. The pH+ can be used as irrigation.

### How to use pH+?

#### Application in irrigation

Continuously 2-4 ml per 10 litres of water depending on pH of solution.

#### Available in units

1 litres 20 litres 5 litres 200 litres 1.000 litres

### Any questions?

Send us a message at Instagram & Facebook: @bionovanutrients, or send an email to sales@bionova.nl

### Feeding charts



### Feeding charts





**IT ALL STARTS  
WITH THE PROPER  
FOUNDATION!**



# SUBSTRATES



*MY WAY TO GROW*



## Pre-fertilized premium soil substrate



### Bio Soilmix

Bio Soilmix is an excellent pre-fertilized organic potting soil, containing only vegan ingredients. This substrate consists of grinded and sieved garden compost, black peat, white peat and a vegan fertilizer with specific additives. This mix is delivered in recyclable plastic bags of 50 litres and is ready-to-use. The included fertilizer suffices for the first 1-2 weeks, depending on the plant and pot size. Thereafter a liquid fertilizer is necessary, Bionova Soil Supermix is recommended! This mix is of a sublime quality and keeps its quality and airiness for a long period. This Bio Soilmix is free of chemicals and animal waste.

Also important to note is that **our Bio Soilmix as well as our Cocomix Plus are both RHP trademarked!** This ensures that the quality that you have come to expect from Bionova is ensured. Look for the RHP logo to be sure you are working with quality substrates.



Bio Soilmix contains: Black peat, White peat, Organic compost, Perlite, Bacillus amyloliquefaciens. Organic vegan fertilizer: 2 MgO.

#### Composition

Black peat 17%    7,0% Organic Nitrogen (N)  
 White peat 73%    3,0% Organic Phosphorus (P)  
 Perlite 10%        Organic compost 3,0% Organic Potassium (K)  
 2,0% Organic Magnesium (Mg)

1,0 Kg Organic Vegan Fertilizer + 2 MgO per derived from:

- Green compost (made in Holland, plant based)
- Vinasse Potassium
- Rock Phosphate
- Magnesium rock

**pH = 6.0**

**EC = 0.8**

#### Available in units

50L bags – 65 bags per pallet  
 1000L big bags  
 4.5 m<sup>3</sup> pressed soil – 4500 L per pallet  
 (process machine required)

### Any questions?

Send us a message at Instagram & Facebook: @bionovanutrients, or send an email to sales@bionova.nl

### Feeding charts



## Washed and buffered Cocos



### Cocomix Plus

Cocomix Plus is an excellent natural 100% coco substrate. This coco mix consists of washed and buffered natural cocopeat derived from coco palm trees of Sri Lanka. The mix is delivered in recyclable plastic bags of 50 litres and is ready-to-use. Because this substrate is not fertilized, you have to start fertilizing after planting.

Recommended is Coco Forte A+B. This mix is of a sublime quality and keeps its quality and airiness for a long period. This coco mix is perlite free, and therefore 100% compostable. This Cocomix Plus is free of chemical and animal ingredients.

**EC ± 0.2**

**pH ± 6.5**

#### Available in units

50L bags  
 65 bags per pallet



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### Feeding charts



## Washed and buffered pressed Cocobricks



### Coco Brick

Coco Brick is an excellent natural 100% coco substrate. The cocos is washed and buffered with Calcium and Magnesium.

This package consist of six bricks which result in 6 times 10 litres of ready-to-use coconut substrate after adding 4 litres of water to it. It's volume will increase approximately tenfold. Bionova Coco Brick is washed and buffered with Calcium and Magnesium.

**EC value < 0.5 mS/cm**

**pH value of 6.0**

Add 4 litres of water per brick and well it. To speed up the process drastically, use Bionova Freeflow.

#### Available in units

Cocobrick is packed per 6 in a carrier bag or per 24 pieces in a box.

### Feeding charts





**THE POWER TO PERFORM**

### Sales

T +31(0)416 65 00 82  
E [info@bionova.nl](mailto:info@bionova.nl)  
[www.bionovanutrients.com](http://www.bionovanutrients.com)

Bionova International B.V.  
Elzenweg 13  
5144 MB Waalwijk  
The Netherlands

### Cultivation questions

Send us a Direct Message  
via Instagram or Facebook:  
[@bionovanutrients](https://www.instagram.com/bionovanutrients)



**BIONOVA**  
PREMIUM FERTILIZERS