

For all growing methods :
hydroponics, aeroponics and soil



BioSevia™



Responds to EC organic plant
food regulation N° 2092/91

BioSevia is a 100% organic nutrient

BioSevia is a 100% organic – and complete – plant food. For 4 years indeed, our researchers studied and tested exhaustively to obtain a nutrient containing everything a plant needs to perfectly grow, and which would, at the same time, respond to all the requirements of an organic registration in France and in the rest of the world.

BioSevia has several essential qualities:

- It is a complete plant food
- Its specific composition, and its excellent solubility, make it easy for plants to assimilate.
- It is efficiently applied in fertigation and drip irrigation
- It contains humic acids which improve soil conditions and enhance the plant's absorption capacity
- It brings a sweet, pleasant taste to your crops
- ... and it works in hydroponics !

BioSevia is a "bioponic" nutrient

BioSevia gives perfect results in soil, of course, but it has the exceptionality to work beautifully in hydroponics too, be it with bare roots, or on substrates. Indeed, not any nutrient is adapted to this type of growing. Generally, organic nutrients are formulated in order to slowly decompose in soil so, when in water, some of their elements will rot and release some quite unpleasant smells. Finally, they would clog the filters and injectors.

To be bioponic, a nutrient must be liquid or perfectly soluble. It must be rapidly degradable and readily available to the plant. BioSevia fits to all these conditions.

BioSevia and Bioponics



LIQUID EARTH™

BioSevia is a unique nutrient: 100% organic for soil, and hydroponics

BioSevia comes in 2 bottles, one for growing (BioSevia Grow) and one for flowering and fruiting (BioSevia Bloom).

- **For soil**, use BioSevia Grow then BioSevia Bloom, according to the growing stage of your plant.
- **In bioponics with humid substrates** like rockwool or coconut fibre, add some Bioponic Mix (BM), a specific mix of micro-organisms that help improve breakdown of matter in the solution
- **In bioponics** with draining substrates like clay pebbles or lava rocks, use the BioFiltre to facilitate good development conditions for the micro-organisms.

Bioponics : 100% organic hydroponics

For many years researchers of several countries have been looking for an efficient way to do real organic hydroponics. It is William Texier who, in 2004, discovered and adapted the concept of bioponic growing, the new method for a 100% organic hydroponic cultivation. Patent N° 05.11569 - 15/11/05.

Bioponics goes much further than just a change of nutrients. The concept is "liquid earth". BioSevia, the appropriate nutrient, was the missing link. By combining it with other GHE products like BM and Mineral Magic, bioponics create in the nutritive solution everything useful a plant needs.

The water is present, of course, and oxygen too, especially if the growing system is well designed. You need to add:

- **BioSevia**, the nutrient that brings the humus fraction of soil, and which contains a wide range of large organic molecules reproducing the complexity of soil in the nutritive solution.
- **Bioponic Mix (BM)**, the micro-organisms which bring microbial life and participate in the carbon cycle.
- **Mineral Magic**, a product containing silicate and the majority of metals and trace elements found in soil.

This gives a nutritive solution that is quite equivalent to a good, light and well-aerated soil, rich in nutrients and microbial life, and to which you must only add an inert substrate like clay pebbles or coconut fibre, if you use a substrate in your hydroponic system.

BM or « Bioponic Mix »

The mix of micro-organisms:

BioSevia is used alone in soil. But in hydroponics it is necessary to use it with BM, a specific mix of micro-organisms which reproduces the natural decomposition process that exists in soil.

How to manage the bacteria?

In water their life conditions are not very comfortable as they lack of the soil buffering capacity that protects them from sudden changes of temperature or pH. Further more, they need an adequate "nesting" environment where to reproduce abundantly, with lots of oxygen and humidity. Dry they will die.

Bringing Nature and Technology Together



Some of our small systems, like AquaFarms and WaterFarms, or some of the other brand's units, don't adapt easily to a BioFiltre. In this case, if you want to grow bioponically, just add a little coconut fibre in your clay pebbles or lava rocks (15 to 20%).

There are 2 possibilities:

- On a humid substrate like coco fibre, rockwool or perlite:
Simply add BM directly on the substrate.
- On bare roots or in a very draining substrate like clay pebbles or lava rocks:
Use the BioFiltre, which will give your micro-organisms the right environment to live in and develop.

Add 10 g/100 L of nutritive solution.

Wherever they are, in a BioFiltre or directly in the substrate, the micro-organisms will happily thrive as long as their environment is oxygenated and humid. It is imperative, to guarantee a good development, to avoid all sudden changes, especially in temperature and pH levels. The more and happier your BMs are, the better your plants will be fed.

Important notice : a significant drop in pH is an alarm signal that indicates the death of a large quantity of bacteria. In this case, it is important to find the cause, treat it and replace with new BM.

BM and BioMagix are two different products. BioMagix is used to eliminate pathogens in the root zone, and help breakdown organic matter in the solution. BM is only used to breakdown organic matter. If you already use BioMagix, you do not need BM.

How to manage bioponics?

Managing bioponics needs much more attention than a traditional hydroponic growing method. Not in terms of time spent, but in terms of "visual attention and examination". Bioponics is managed at "eye-sight" as much as with pH and EC parameters; although these remain important information.

To be successful with your bioponic growing here are a few basic notions:

pH level

BioSevia has a practically neutral pH. It will not affect your water. During cultivation, the pH is more difficult to stabilize than in mineral hydroponics because some extremely efficient buffers are not accepted by organic regulation (those rules being sometimes quite arbitrary!). The pH will tend to rise. But the pH doesn't have the same importance in bioponics. It can rise up to 7.5 with no problem. Over 7.5 it has to be driven slowly down to 6.0, but progressively, over a period of a few days. To do so, use GHE's pH Down, it contains organic buffers and adapts well to BioSevia. Add your regulator slowly, little by little, and dilute it well each time. Pour it in the reservoir, far from the pump (or shut the pump), this will help avoid a stress due to too rapid a change in pH level.

Absolutely avoid: chloridric and acetic acids (vinegar, etc....)

Conductivity

This is the most complex part of the bioponic process because organic molecules don't carry electric charges, and are not read by your EC meter. When you dilute BioSevia in the water, only a small fraction is immediately dissolved and transformed into ions, giving very little conductivity. The first day, with a dose of 2 ml/l added to a "normal" tap water, you will obtain a reading around 0.65 (0.6 to 0.7). This quite low conductivity is generally enough. During the next 5 to 6 days, daily add a homeopathic dose of nutrient (1/2 ml/L). This dosage will not affect your EC. After this period, only add nutrient when your EC goes down: at that stage add 2 ml/l again, as you did in the beginning. While nutritive elements are liberated, others will be absorbed by the plant, and conductivity will tend to remain in balance around the same values. When the stock of organic matter becomes insufficient, EC will drop. It is time to add nutrient. This looks simple, but to obtain best results, it is important to anticipate this drop of EC, and assure constant organic matter availability.

And not add too much because the breakdown happens according to room temperature. Indeed, micro-organisms act at radically different velocity depending on temperature fluctuation in the nutritive solution. If there is too much organic matter in the solution, a rise in temperature could increase conductivity to a level that will kill your plant.

It is not always simple to find the middle way, this is where the eye of the grower will make a difference.

Filtration.

Filtration is very important, especially in hot weather conditions, and particularly when working with bare roots that hang directly in the nutritive solution. It is indeed necessary to filter the largest particles, as they could asphyxiate the roots. It is always better to have only easily assimilated ions in the rooting zone.

With BioSevia, a simple foam filter on the pump's input is enough. It will not clog the filter. But still, a good and regular filter maintenance is required. Rinse once a week at least. Of course, stop your system while cleaning.

The plant's environment

The environment adapts to the plant, independently from the growing method you use. So all that concerns temperature, humidity, cultivation cycle, prevention and pest control, is of course adjusted to the plant's needs.

ADVANTAGES OF BIOPONICS

Bioponics is founded on one of the very basic principles of sustainable organic agriculture, which consists in giving little quantities of nitrate to the plant, in order to increase flowering and fruiting rather than producing abundant, but sometimes useless vegetative growth. Indeed, and this is one very interesting aspect of bioponics, you create very little vegetative mass compared to yield: for the same yield, let's say 1 kg of tomatoes in bioponics, the volume of leaves and stems is much lower than the one produced for 1 kg of tomatoes in classic hydroponics (and even in soil!). This makes bioponics a very economical way to grow, as water and nutrient consumption is very much reduced compared to any other form of cultivation.

Bioponics combines the advantages of hydroponics and organic. It helps save water and nutrient, grow quality crops in reduced areas, and produce 100% organic crops.



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