KYMINASI®
PLANTS
CROP BOOSTER

Kyminasi Plants - Crop Booster

First Thesis

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IMPORTANT NOTE

In any field of study, it is important to fully understand the words and terms being used. Understanding of the concepts involved depends in no small part on understanding the individual terms used to describe that concept.

When reading this thesis, if you come across a word that you do not fully understand or a concept that doesn't make sense, look it up in a good dictionary or our glossary before proceeding.

As some of the concepts in this thesis are new, we have included a short glossary of terms to facilitate understanding.

GLOSSARY OF TERMS

THESE TERMS MUST BE KNOWN TO FULLY UNDERSTAND THIS DOCUMENT

1. Biophotons – photons of light in the ultraviolet and low visible light range that are produced by a biological system.

2. Biophysics – a branch of physics that uses principles of physics to understand and influence biological systems.

3. Bioresonance – branch of biology and medicine that seeks to influence the biological functions of living organisms through harmonizing the interaction of those biological systems with signals that are calibrated to frequency patterns associated with healthy functioning of those systems.

4. Brix – the Brix classification is named after the German engineer Adolf Brix and is used in the food industry to measure the approximate number of sugars in fruits, vegetables, juices, wine, soft drinks, and in the starch and sugar manufacturing industry. For fruit juices, 1.0 degrees Brix is referred to as 1.0% sugar by mass. This usually correlates well with perceived sweetness.

5. Coherence (in Physics) – the property of an electromagnetic wave to maintain a certain phase relationship with itself during its propagation.

6. Coherence Domain – the aggregation and coherent cooperation of electromagnetic fields informed to structure increasingly complex matter systems [1].

7. Water Coherence Domain – a coherence domain involves the presence of its own supply of electrons in the almost free state that turn out to be excitable. As a result, a coherence domain can easily release electrons and store large amounts of energy within it. Thanks to electromagnetic fields, these material structures become "informed," where water is the foundation, and the most excellent means for transferring and organizing information [2,3].

8. Cluster – clusters of molecules of variable size in which water molecules gather. Smaller clusters are more bioavailable to living systems.

9. CYTOALGORITHMICS – a program of instructions that influence cellular function in a living organism. From Greek *cyto-* meaning cell and from Arabic *algorithm*, meaning a set of instructions expressed as numbers.

Coherent Water Domains

Anyone who has ever watched a school of fish in the ocean can understand what coherence is. Each fish is free to move independently, yet the group responds simultaneously—as a whole. It is as though the fish follow an unseen conductor, yet no conductor exists. In the world of physics, this kind of relationship is referred to as quantum coherence. At the smallest (quantum) level, there is unity and cooperation (coherence). This allows individual components to respond together as a larger unit.

10. Gastroenterology – branch of medicine which deals with disorders of the stomach and intestines.

11. Harmonics – branch of physics in which frequencies of sound, electricity or magnetic fields can influence each other and cause these signals to come into alignment with each other. Example: a tuning fork in music can bring the frequency of a musical instrument to the proper frequency associated with the musical notes that the instrument is designed to play.

12. Infrared spectroscopy – the measurement of the interaction of infrared radiation with matter by absorption, emission, or reflection. It is used to study and identify chemical substances or functional groups in solid, liquid, or gaseous forms. It can be used to characterize new materials or identify and verify known and unknown samples.

13. Irridology – diagnosis by examination of the iris of the eye.

14. Kyminasi – a word and brand created by Fulvio Balmelli for the series of technologies he developed using biophysics. The name Kyminasi was created using the first 2 letters of his four children's names: Kyrhian, Mia, Nathan and Sirio.

15. Laws – like theories, scientific laws describe phenomena that the scientific community has found to be provably true. Generally, laws describe what will happen in a given situation as demonstrable by a mathematical equation, whereas theories describe how the phenomenon happens.

16. Massotherapy – the practice of therapeutic massage.

17. Oncology – the study and treatment of tumors.

18. Opthamology – the branch of medicine concerned with the study and treatment of disorders and diseases of the eye.

19. Phase (physics) – it is a particular instant during the unfolding of a periodic phenomenon.

20. Photon – a quantum of electromagnetic radiation, usually considered as an elementary particle that has zero rest mass and charge and a spin of one.

21. Postural Osteopath – is a branch of medicine that focuses on restoring biological function in the human body through treating and balancing bones, muscles and soft tissue in the body. A postural osteopath focuses on the establishment and relationship of good posture to restore wellness to the body.

22. Quantum Waves – waves of energy which are simultaneously both electromagnetic and corpuscular (light – Biophotons) that influence the behavior and function of the subatomic particles in a substance [4,5].

23. Software – The set of procedures and instructions in a data processing system; identifies itself with a set of programs (as opposed to hardware, which is the set of non-modifiable physical components such as power supplies, fixed circuit elements, memory units, etc., of a data processing system).

24. Superposition principle – The superposition principle states that when two or more waves overlap in space, the resultant disturbance is given by the sum of the disturbances each wave would produce in absence of the other waves. As a result, the disturbance is amplified when this occurs.

25. Wave Packets – A wave packet refers to the case where two (or more) waves exist simultaneously. A wave packet is often referred to as a wave group. This situation is permitted by the principle of superposition [6].

INTRODUCTION AND PURPOSE

INTRODUCTION

Since the Green Revolution first started in the 1960s, farmers have been using chemical fertilizers and pesticides to grow their crops. While this created a huge increase in the quantity of food being produced, it also created several other problems.

Deteriorating soil health, pesticide-resistant insects and fungi and environmental damage from the overuse of chemicals is creating a dwindling farming environment for farmers. The more they use these chemicals to maintain their yields, the more they need to use in the future due to these factors.

A new solution is needed that allows farmers to feed the growing populations of Earth in an economical and environmentally responsible way.

After more than 30 years of research, a new technology has been developed that accomplishes these goals and helps dramatically reduce the need for chemical fertilizers and pesticides.

In this thesis, we will introduce you to this exciting breakthrough and showcase some of the phenomenal results obtained with this new advanced technology.

As more and more researchers join in the development and validation of this science and methodology, this publication will grow into an encyclopedia of further research, case studies and a collaboration of information. This in turn will further expand our understanding of how we can positively influence biological function in plants and soil for the continued betterment of all mankind.

Welcome to the future of farming!

PURPOSE OF THIS THESIS

1. Every scientist reading this thesis will have a basic conceptual understanding of this new advanced technology and its benefits.

2. Every scientist reading this thesis will become interested in learning more about this new science and building upon it in collaboration with Kyminasi Project and Harvest Harmonics to improve the agricultural industry.

3. Every interested scientist will be invited and accept an invitation to begin trials in their area of the world to improve their country's agriculture, for the betterment of mankind.

4. Inspiring a collaboration of academia, government, farming associations, agricultural investment groups and farmers to work together in using this new advanced science for the betterment of mankind, planet Earth and all of its species.

CHAPTER 1 - RESEARCHER'S SUMMARY

RESEARCHER'S SUMMARY

K Project S.r.l. is in the province of Como, Italy and is one of the companies of the corporate group responsible for the distribution of the technologies of the international Kyminasi brand, led by the Chairman of the Board of Directors, Alessia Panizza.

Specifically, it is responsible for coordinating research and development, the creation of prototypes, scientific tests in the development phase, certifications, packaging, logistics, and shipping of all biotechnologies resulting from over thirty years of research by the independent Swiss researcher, Fulvio Balmelli.

The Kyminasi project was born around the concept of improving human health and involves only fields of application that can lead to a higher quality of life and a longer life expectancy for humans.

Innovative technology is used that can be applied to various disciplines including medical, agricultural, breeding, cosmeceuticals, drinking water treatment, etc.

The body of knowledge developed by Fulvio Balmelli is called "cytoalgorithmics" and aims to improve the health of any biological system.

In scientific language, “cyto” means cell, and “algorithm” means "a sequence of steps to perform a task". “Algorithm” is an expression of Arabic origin which means translating a logical sequence into numbers.

CYTOALGORITHMICS are a mathematical language derived from the decoding of the electromagnetic frequencies emitted between molecules during specific biological actions in organisms.

The advent of quantum mechanics (or quantum physics) began in the twentieth century. It was developed to explain phenomena occurring at the atomic level, which classical (or Newtonian) mechanics could not explain. Quantum physics is the physical theory that describes the behavior of matter, light radiation, and all their interactions that are seen both as wave phenomena and as related particles. “The birth of quantum physics in the early 1900s made it clear that light (and all electromagnetic radiation) is made up of tiny indivisible units, called quanta of energy or photons” (in the biological field, called biophotons) (Ananthaswamy, 2018).

The latest studies on quantum physics have shown that every organ in the human body and every single cell emit frequencies [7,8] and are able,

at the same time, to pick up frequencies coming from the outside – just as antennas do [9,10,11]. Each cell of our body has a particular vibratory frequency. Multiple cells with the same frequency make up a tissue or organ that will resonate at the same frequency. As a result, each organ responds to a specific frequency. Through the Kyminasi technology, we have applied these principles to the world of plants.

Figure 1: Fulvio Balmelli monitoring biophysical signals

The term, "biophotons" indicates the phenomenon of the emission of light energy by living tissues [12,13,14,15,16,17,18,19]. Each cell emits its own specific signal, characteristic of the tissue of which it is a part. In 1976, photodetectors confirmed that light is indeed the basis of signal transmission. According to Albert Popp, these emissions regulate cell growth, regeneration, and control every biochemical process [12,20]. In our specific case, thanks to the development of cytoalgorithmics, we utilized the "wave packet" concept

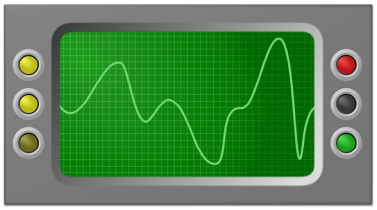


Figure 2: Example of Oscilloscope readoutdol

The KPCB technology does not just simply transmit a single frequency of sunlight to the plant, but instead sends the plant a series of instructions made up of entire packages of frequencies that rehabilitate the health of the soil and the plant's ability to absorb nutrients as efficiently as possible. This is similar to an Excel program in that a complex series of calculations lead to a certain result. These calculations form algorithms that Mr Balmelli has created to give, step by step, all the necessary information to a biological system, so that it reaches its optimum function through its natural processes. These algorithms emerged from mathematical calculations and biophysical investigations performed directly on plants.

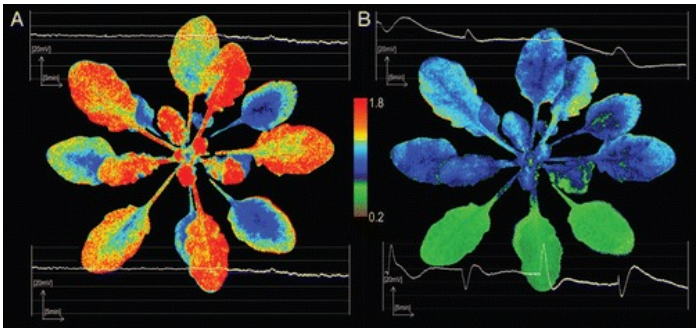
To better describe this, one should imagine inserting a plant into a closed circuit to be able to enter its "software" system so that, exactly as a computer technician would do, all the main biological parameters can be

mapped and separated for specific processes.

On this basis, mathematical calculations can be developed and made available to the "software" of the plant to allow the technician to identify his errors and correct them during learning. The maximum biological potential is achievable in proportion to the richness of the environment in which the plant lives: the quantity of light it receives compared to what it needs, the quantity of water it receives compared to its needs, the quantity of minerals in the soil, etc.

A good analogy would be when you look at a website on the front end you see beautiful pictures, videos, wording, etc... The website technician, when he works on the back end, all he sees is numeric and alphabetic algorithms that allow him to produce what you see.

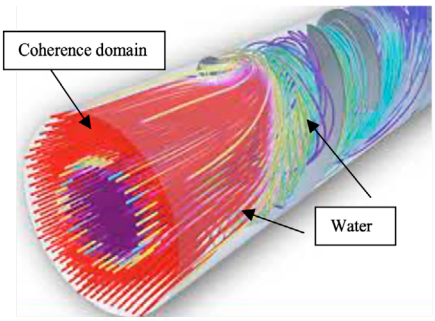
To better describe this, imagine the natural biological processes of the plant as a computer software program. Fundamental processes like nutrient absorption and utilization of sunlight would appear as sections of computer code within this software. When we observe errors or inefficiencies of the biological system, we can see the faulty code that corresponds to these errors. Now imagine if the programmer creates code in the software that automatically finds and corrects these errors, so the program works properly without further intervention. That is what the programming of the Kyminasi Plants technology does to the biological systems of the plant. Every time the farmer irrigates with our system, the programming retunes the biological systems to their natural state.



Quantum Physics Diagram: This diagram shows a plant's reaction to excessive sunlight exposure.
Figure A represents normal light exposure and Figure B represents a plant's reaction to excessive sunlight exposure. When a plant is exposed to too much sunlight, it will reduce its absorption rate, reducing the radiant energy used by the plant. (Karpinski et al)

It is obvious that the reprogramming takes place only and exclusively on the alterations that have been taken into consideration during the research and development of the current technology, which still cover most of them. Any specific and rarer alterations that could be discovered through cooperative academic research, should be specifically investigated and added to the base technology. This language is "Programmed" on devices and products, depending on the fields of use, with the aim of resonating with the biological systems to which it is applied, remodeling them, and bringing them back into balance.

BIOPHYSICAL MANIFESTATION



A coherence domain can easily release electrons and store large quantities of energy within it and as such can receive and transport electromagnetic information within its clusters.

To understand the potential of the programming of water through KPCB technology, it is essential to understand the concept of a coherence domain (see glossary), which gives an initial explanation of why it is not possible to restore a biochemical process using chemical molecules. Water has properties that allow it to behave differently depending on the environment in which it is found. For example, when water flows, it adheres to the surface of the object that contains it and it can be observed that the molecules closer to the surfaces have the ability to remain still even when the fluid is agitated and have specific physical characteristics including greater viscosity and negative electrical potential.

So, what is observed in water is that it organizes its molecules in a more or less coherent manner depending on the layer in which they are found in the mass of water.

A coherence domain involves the presence of its own personal supply of electrons in the almost free state which are excitable. Consequently, a coherence domain can easily release electrons and store large quantities of energy within it and as such can receive and transport electromagnetic information within its clusters *[21]*. This has an ordering effect on biochemical activities. For example, when water is in a condition of coherence, it can cause the correct biochemical processes necessary for the best survival of the biological system to take place. The frequencies transmitted into the water by the KPCB micro-transmitters exploit these principles, allowing CYTOALGORITHMICS to be transported to the soil and plants.

CHEMICAL MANIFESTATION

On the other hand, continuously introducing a certain number of "solution" molecules (chemicals) into the soil and plants does not necessarily mean that these molecules are correctly directed towards their final destination. From a physical point of view, it could instead be said that these molecules, once administered, are no longer able to resonate with water, as they should have spontaneously done. Therefore the water is not emitting the correct electromagnetic signals to ensure that the right biochemical processes are restored. At this point, the water would manifest the so-called coherence problems and therefore lack the ability to restore the biological systems of the plant.

Currently, the K Project company has launched 16 research and development projects in different fields, some of which are in a more advanced state, such as the one covered in this thesis.

"It is interesting to observe that the effects of Biophysics on a living being are inevitable ... whether I demonstrate it or not through the technology I have created, they exist and happen..."

Fulvio Balmelli - Independent Researcher

CHAPTER 2 - KYMINASI PLANTS “CROP BOOSTER”

INTRODUCTION

Kyminasi Plants - “Crop Booster" is the application of the Kyminasi technology to the world of plants and agriculture, using low-frequency quantum waves (signals) that improve plant and soil health.

Kyminasi Plants - Crop Booster programming improves both the quantity and the quality of a farmer’s yields and environment by:

- Improving soil health and nutrient availability,
- Increasing the density and quantity of roots,
- Improving and balancing the absorption and use of plant nutrients,
- Increasing the efficiency of photosynthesis in warm, dry, and cloudy conditions.

OBSERVED RESULTS

Yield Quantity - Increases of yields by 20-30% or more are common.

- Increase in produce fresh weight
- Increase in the number of fruits and vegetables collected

Yield Quality - Higher quality grades are common.

- Increase in the percentage of crop quality elements
- Increased Brix and Brix/Acidity ratio in fruit
- Longer shelf life with less storage loss
- Increased nutritional quality (nutrient density) in fruits and vegetables

Growth and Vigor - Accelerated growth rates and stronger plants are common.

- Improved plant health with faster growth rates
- Increased disease resistance and plant resilience against pests

Soil Health - Better soil health is common.

- Increased soil mineral content and improved soil electrical conductivity
- Increase in beneficial soil microorganisms, including cyanobacteria
- Increase in the rate of water penetration into the soil
- Decrease in soil compaction

Water Use

- Reduction in the volume of water required to grow a crop
- Increased plant tolerance to brackish water
- Increased plant tolerance to non-potable/contaminated water

Growth and Strength

- Reduction of fertilizer requirements
- Reduction of agrichemical requirements

HOW KPCB PROGRAMMING STIMULATES PLANT PHYSIOLOGY

PLANT HEALTH - SUMMARY

- The signals target the increased absorption and BALANCED use of the main macronutrients: nitrogen, phosphorus, and potassium.
- KPCB signals enhance and help BALANCE secondary and micronutrient absorption and utilization.
- KPCB promotes an increase in the absorption and use of nitric oxide. Nitric oxide is important for growth, development, immunity, and environmental interactions in plants.

PLANT HEALTH - NUTRIENT BALANCING

- Calcium is kept in balance using magnesium, phosphorus, and potassium.
- Calcium, magnesium, sulfur, copper, zinc, manganese, and silica are treated together to facilitate iron absorption.
- An increase in boron absorption has also been observed when using KPCB.
- KPCB signals inhibit excess sodium absorption and reduce excessive soil conductivity.

PHOTOSYNTHESIS

Reaction to Light: KPCB signals are designed to increase the absorption and use of sunlight, water, and nitrogen to maximize energy production during the light reaction of photosynthesis.

Calvin Cycle: Additional KPCB signals stimulate increased absorption and use of carbon dioxide, while improving the efficiency of glucose metabolism to create a “propulsion” of the dark reaction of photosynthesis and plant growth.

Environmental Stress: Due to the above improvements and regardless of which method a plant uses to fix carbon (C3, C4 or CAM),

Kyminasi Plants - Crop Booster appears to broaden the range of conditions under which photosynthesis can occur. For example, when the weather is cloudy, the KPCB amplifies a plant's ability to use available light.

SOIL HEALTH

- KPCB signals help to bind minerals in the soil and inhibit the leaching of nutrients.

- KPCB signals help activate nitrogen fixing bacteria in the soil and inhibit the evaporation of nitrogen from moist soils.

- KPCB signals improve soil characteristics by reducing compaction. The frequencies seem to increase the molecular attraction of soil minerals which cumulatively causes a decompaction effect.

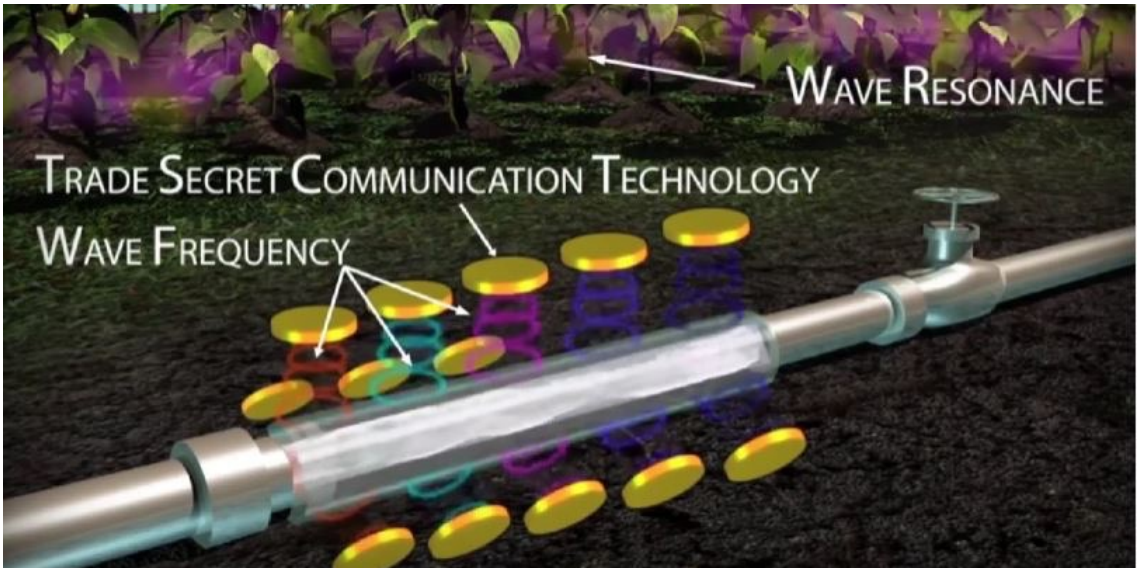
- KPCB signals optimize soil water retention due to the soil decompaction effect which increases the rate of water penetration into the soil and results in less water being needed to hydrate the soil.

USAGE GUIDELINES & TIPS

Nitrogen: KPCB signals improve nitrogen retention in the soil, as well as absorption and utilization by plants. Although we are still collecting data, it is recommended that a minimal application of nitrogen is used so as not to over-fertilize the crop or feed any weeds with extra nutrients.

Germination: KPCB signals improve a seed's ability to absorb water. However, a pre-emergent plant does not yet have a leaf structure for this increase in water absorption to be visible. Therefore, we recommend minimal irrigation with KPCB signals until the plant emerges from the ground to prevent oversaturation of the seed.

MECHANISM OF ACTION



Kyminasi Plants - Crop Booster works like a computer microchip. Precise "software-like" instructions are transmitted to plants using impulses of low-frequency quantum waves that are similar to radio waves at different frequencies.

As the transmitted frequencies correspond to the natural molecular frequencies of soils and plants, these instructions can be received from them and will change function accordingly. Through the laws of quantum physics, The Kyminasi waves “retune” the molecular frequencies of the plant back to their natural state. This greatly reduces inefficiencies in the metabolism of the plant and organisms in the soil.

SCIENTIFIC FOUNDATION AND BACKGROUND

The electrons that hold all matter together move, and these movements create vibrations. For any structure, these vibrations combine to form a composite frequency known as the natural frequency. We can identify such frequencies between atoms, using technologies such as infrared spectroscopy. We also know that externally applied frequencies can affect living organisms. [Suggs, 1973].

Kyminasi Plants - Crop Booster (KPCB) technology is based on the theory that the natural frequencies of the vibrational bonds between the atoms of a plant can affect that plant's physiology and health. It has also been theorized that adverse environmental conditions can alter the natural biological frequency patterns in a way that negatively affects its health.

By exposing plants to the natural frequencies that are ideal for various functions, the molecules of the plants will harmonize with the ideal vibrational frequencies, thereby improving plant health. KPCB technology contains over 3000 quantum wave patterns (programming) that correspond to the natural frequencies found in healthy, productive plants. To provide an analogous comparison, the KPCB system acts on plants, soil and water similarly to the way that a tuning fork is used to tune a musical instrument.

MATERIALS AND METHODS

A key step in the development of the KPCB technology was finding a way to identify the natural frequencies associated with the plant's ideal functions. To do this, Balmelli adapted a device that was originally developed by German researcher Hans Brugemann and recorded the vibrational frequencies of various organs of the human body [Brugemann, 1987]. The device works on different principles than an IR spectrometer, but it also measures the frequencies emitted by the vibrational bonds between atoms. The device was originally used to diagnose diseases in humans. Through various supplemental equipment added to the device, proprietary language, and complete set of Kyminasi Plants intellectual property (coding), Mr. Balmelli was able to utilize this advanced system to analyze plant physiology and measure the ideal frequency patterns of the metabolic processes in plants.

Once the vibrational frequencies associated with specific plant functions had been mapped, the next step was to find a way to store them on a transmitter device. Various materials were tested, and the related programming was codified. Eventually, a silicon and metal-based micro-transmitter capable of storing and transmitting the necessary signals was developed.

The focus, therefore, shifted to the search for a way to transmit the quantum waves to the plants. Water, due to its polar nature (a slight positive charge on one side and a negative charge on the other), proved to be remarkably effective in the transmission of KPCB signals.

Any moving electrically charged object will create an electromagnetic field. For example, when water travels in a linear direction, it creates an electromagnetic field. When KPCB micro-transmitters are mounted on the metal pipe of an irrigation system, the tiny magnetic field created by the flow of water passively turns on the KPCB System and extracts the beneficial programming (coding) stored by the micro-transmitters and transports them to the plants. The water tested one mile from the source demonstrated the same coding as those stored on the micro-transmitters and stored in the plants.

In much the same way that a cell phone uses a small electric current to transmit specific frequencies to other devices enabling communication, water acts as a carrier wave to transmit the frequencies stored in the micro-transmitters to the plants.

The micro-transmitters are passive, require no external power, and do not emit signals when not activated by running water. Micro-transmitters are easy to install, require minimum to no maintenance and work for two years before needing to be replaced (stored electromagnetic energy similar to a battery). However, the electromagnetic energy is unique in relation to the transmitters' ability to retain the programming, as this is a programming/storage limitation. Once activated, excessive use can deplete the energy faster. The uniqueness of the energy and programming is that from the first activation, it will not last beyond 2 years.

The number and type of transmitters used are proportional to the water flow, water usage, farm size, and water travel distance, of each unique farm. Water flow speeds above 75 gallons per minute (GPM) or equivalent to approximately 4.73 liters per second require both a sequential combination of transmitter power types and an increased number of micro-transmitters.

Mr. Balmelli found that each of the plant functions described was associated with specific combinations of ultra-low to low quantum frequencies ranging from 10 hertz to 150 kilohertz. In total, more than 3,000 separate frequencies are programmed on the micro-transmitters.

The signals are emitted in pulses that act sequentially on plants to provide the desired effect. In other words, certain frequencies will produce a change in a plant that will allow it to absorb a distinct set of frequencies and so on until normal, and eventually, ideal vibrational frequencies are reached in the plant and soil (environment). The purposes of the numerous and distinct set of frequencies are to enable a plant and its environment to expand from whatever condition it is in, step-by-step, into a better improved condition, regardless of the environmental factors/challenges it faces each day.

The frequency patterns in the plant will then match the ideal frequency patterns for that plant's biological processes (moment by moment, day by day). This interaction can be further defined as "a combination of quantum waves (coding) that travel together in pulses that provide sequenced instructions assisting the plant and soil to transform towards the ideal functioning of the plant and soil at the molecular level." Mr. Balmelli describes this process as "algorithmic wave packets".

The fact that the signals are transferred to the water can be demonstrated with rapid freezing tests which show a change in the crystalline arrangement of the water with KPCB use. Other water characteristics such as pH, levels of carbonates, bicarbonates, calcium, magnesium, and sodium content do not appear to be affected. On the positive side, electrical conductivity and excess sodium resilience have been shown in our field trials.

It should be noted here that while some research has shown that low-power, high-frequency (HF) electromagnetic stimulation of plants can alter their metabolism [Vian et al, 2016], little research has been conducted on the effects of low-frequency quantum-wave stimulation of plants besides during the development of the Kyminasi Plants technology.

The frequencies selected for KPCB micro-transmitters optimize the vibrational frequencies associated with the following functions common to all plants:

- Absorption and utilization of water, nutrients, and light
- Carbon dioxide absorption and utilization
- Glucose production and utilization
- Nitric oxide absorption and utilization
- Hydrogen Peroxide absorption and utilization
- Photosynthetic efficiency
- Plant metabolism efficiency and related processes
- Water transpiration rate efficiency (increased resilience to drought)
- Pest and disease resistance (self-defense efficiency)
- The equilibrium of the ions and the minerals in the soil

The following are the documented improvements observed thus far:

- Faster plant growth with higher yields
- Healthier, stronger, and more disease/insect resistant plants
- Larger, more attractive, and abundant fruits and vegetables
- Products that stay fresher for longer after being harvested (extended shelf life)
- Products with better flavor and quality as measured with Brix degrees and other similar values

CHAPTER 3 - CRONOLOGY OF RESEARCH

THE MILESTONES OF THE RESEARCH

Much like many geniuses throughout history, such as Leonardo da Vinci, Isaac Newton, Benjamin Franklin, Nikola Tesla and Elon Musk, Fulvio Balmelli possesses a vast breadth of knowledge in many fields. Mr. Balmelli is self-taught in such fields as engineering, medicine, physics, biology and chemistry. He has drawn upon his knowledge in these fields to develop a new technology using biophysics to improve human health.

The development of Kyminasi Technology research began more than 30 years ago, when the Swiss independent researcher Fulvio Balmelli, through independent and self-financed research, decided to fill the gap between medicine and physics, through a more precise approach to biophysics, medicine, and quantum physics. With the sole objective of improving and stabilizing people's health and expanding the range of action in medicine, Mr. Balmelli deepened his study of biophysical sciences and their application to medicine.

While continuing his career in the healthcare field as a bioresonance expert, he also embarked on extensive research to further develop and broaden the application of bioresonance in the medical field. In recent years, research in the field of the human body, and specifically bioresonance as related to health improvement and diets, has also advanced as a master's degree study for Italian medical students. For over 30 years, Mr. Balmelli and his team of medical professionals treated tens of thousands of patients at his Biomedic Clinic and Research Center in Como, Italy.

Independent Researcher Fulvio Balmelli testing.

During this time Mr. Balmelli developed effective treatments for human disease and aesthetics using various forms of bioresonance therapies. He continued to develop and expand these techniques to evolve this branch of medicine.

One of his key early discoveries was the fact that the common denominator of human disease is poor nutrition and water quality. He thus embarked on a journey to unlock the secrets of increasing water quality, plant health and nutrition in order to prevent people from getting sick, rather than continuing to treat people after they were already ill. Throughout this process, Mr. Balmelli also developed his own unique system of conducting research that would help him further expand his understanding of the interrelationship of water, plant physiology, nutrition and the human body.

This chronology documents the milestones of Mr. Balmelli's research.

1985-1989

Fulvio Balmelli, born in Faido in Ticino (Switzerland) on 15/07/1964.

In 1984, after graduating in Bellinzona as a Machine Designer, together with an engineer specialized in the sector, he opened a company for the design of industrial plants in the chemical and pharmaceutical sectors. In those years, he also continued his studies independently, obtaining certificates in various private training courses of Homeopathy, Phytotherapy, Massotherapy and manipulation of the spine, until 1987.

In 1987, he decided to deepen his skills in the field of natural therapies and opened his first Center for Medicine and Natural Therapies in Manno, Switzerland, focusing on Homeopathy, Massotherapy and Manipulations of the Spine.

1990-1999

From 1990 to 1998, through the leading Bioresonance experts of the time, he followed a private training at the Regumed company in Germany, where he deepened his knowledge of human anatomy and specialized in the use of Bioresonance, achieving the maximum specific certifications and enabling the use of Bioresonance equipment in the health field. Thanks to these new skills, he expands the services offered by his medical and natural therapy center in Manno, Switzerland.

From 1995 to 1998 he collaborated with Dr. Jacques-Philippe Blanc, a medical specialist in Internal Medicine and Homeopathy in Ponte Capriasca, Switzerland, as a bioresonance operator.

From 1998 to 2000 he collaborated in Lugano, Switzerland, as a homeopath, with Dr. Rubens Giorgio Mattioli, a specialist in Otolarynologist (ENT specialist in Ear, Nose and Throat) and pathology of the head and neck.

Mr. Balmelli continued his research while expanding his practices of bioresonance and becoming known as an expert in the field based on his in-depth knowledge and experience. It was early on at this time that he knew that if he was going to solve the mysteries of good health with science, it would be necessary to eventually know profoundly the science of water, nutrition, and plant physiology.

In order to conduct his research and test his theories on disease, allergies, and dysfunction without risk to human subjects, Mr. Balmelli conducted experiments on his own body. This allowed him to be the researcher, use his body as a laboratory and resolve his own medical issues using his biophysical approach. This approach allowed him to discover more details of the importance of water and nutrition down to a cellular

level for the human body. Although this was a very intelligent approach, in many cases, he risked his life.

2000-2009

In the early 2000s, he also trained and practiced Postural Osteopathic Therapy with Prof. Philippe Caiazzo and the Italian Academy of Postural Osteopathic Therapy (AITOP), through which in addition to developing an increasing dexterity and experience of the body he also obtained the Diploma of Postural Osteopath of 1st level. Over the years Balmelli continued to develop a technology for postural restoration in the clinical field, which today takes the name of Kyminasi Postural.

From 2001 to 2003 he collaborated in Bergamo in Italy, as a bioresonance operator, with Dr. Pedrocchi, a doctor specialized in Dentistry.

In 2001 he also began collaborating at his practice in the province of Modena in Italy, with Prof. Pietro Procopio, a doctor specialized in Ophthalmology and professor of Iridology at the University of Urbino.

Since 2003 he has been coordinating the Medical Specialists of the Medical Center and the team of professionals in the field of Bioresonance trained by himself and then certified by the Regumed company in Germany. He also performed further specific training related to Bioresonance at Regumed, obtaining further certifications in 2008 and 2009. At the Biomedic Clinic & Research, he also performs integrated medicine services in the areas of his training, performing in-depth studies on diagnostics in support of the doctors of the Medical Center and the related Biophysical and Bioresonance treatments for the treatment of 900 diseases and symptoms, listed on the official website. In the meantime, he continues to develop his method and evolution of Bioresonance that in 2012 takes the name of Cytoalgorithmics, the mathematical and biophysical decoding of the alterations of many biological processes of the organism in clinical / pathological contexts, which represent a whole new body of knowledge in constant expansion.

From 2008 to 2012 he collaborated in the province of Pordenone in Italy, as a bioresonance operator, with Dr. Francesco De Mita, a specialist in Gastroenterology.

During this period, Mr. Balmelli engaged in several lines of research, including medicine, characteristics of water and plant health simultaneously. Each new discovery in one area led to further discoveries in others.

Being that water is the common denominator of all life, he began with

an in-depth research and study of water and its interrelationships with the body, plants and soil. He had to start reverse-engineering all the effects and benefits of water on the human body down to a cellular level and he continued to use his own body as a laboratory to do so.

Once done, he would then focus his attention on improving nutrition.

This began the next phase of Mr. Balmelli's research: how to improve the quality of food and water, which had been deteriorating over the last 100 years.

In the early 2000s, a major change took place, when he discovered fundamental basic data in the physical sciences (the application of quantum physics to biological systems, i.e., biophysics) which, if proven true, could revolutionize entire sectors related to human well-being into the future. This data had to be tested, developed, and proven through thousands of internal tests before sharing it with the world. The research has developed over the years by evolving the technology through continuous processing of the data collected. Every time Mr. Balmelli discovered a new datum or encoded a new portion of the mapping of the biological processes of the interested subject (humans, plants, or water), all the technology was checked again with this new data. This is one of the reasons why his work took many years to develop. Mr. Balmelli continued to run hundreds of experiments throughout this time using his own body.

In developing his medical technology to treat disease, Mr. Balmelli realized that the only way to make humanity healthier was to provide mankind with better quality food and water. This was a new necessity level over and above his 1990s discoveries. Therefore, he decided to devote a significant portion of his research efforts to improving water quality and nutritional quality in fruits and vegetables.

As Mr. Balmelli continued to map out the ideal biological functions in humans using his biophysical methods, he discovered that without dramatically increasing the nutrient density of the food we eat, the human body would continue to be weak and susceptible to illness and dysfunction.

In 2009, Mr. Balmelli began using his biophysical method to break apart water molecules, reducing the clustering effect and making water more absorbable. As he continued to conduct hundreds of experiments on water and its effect on the human body using his own body as the test subject, Mr. Balmelli was able to map out several ways to improve how living organisms utilize water, especially plants.

The in-depth understanding of the body's need for nutrition prompted the necessity to improve plant physiology to obtain more nutrients, hence the quest to improve agriculture.

Each new development and discovery led to further advancements and finally, after years of research and testing, the basic preliminary technology of Kyminasi Plants and Kyminasi Water was in development by 2010.

2010

Mr. Balmelli, while studying the biochemical processes of the gastrointestinal system through a biophysical method, makes a discovery concerning the application of these biophysical systems in the plant field. This led to the completion of the first prototypes for both Kyminasi Water and Kyminasi Plants. In collaboration with Dr. Elia Roberto Cestari, who supported him in the delivery of protocols to patients, he developed an innovative slimming system that would handle the problems of obesity and is now the Kyminasi Diet.

2012

Mr. Balmelli creates hundreds of prototypes to identify the best combination of quantum wave patterns necessary for improving plant health, soil and nutrient absorption, which concluded with a device capable of obtaining results that exceeded expectations.

2013 TECH 1 KYMINASI PLANTS

Balmelli develops the first micro-transmitter device model for plant irrigation systems. The first internal tests produce striking results, but he begins to have issues due to the innumerable variations and needs of the different plant species. This required a more in-depth study of plant physiology at a cellular level to understand the common denominators of plant production. The expansion of knowledge in one area expands his knowledge in other areas of study.

2014 TECH 2 KYMINASI PLANTS

In early 2014 Mr. Balmelli undertook a collaboration and cooperation engagement at his Biomedic Center in the province of Como, with Dr. Giuseppe Zora, a specialist in Oncology, on the integrated treatment of cancer through bioresonance and the now evolved cytoalgorithmics, with supportive therapy of cancer patients.

Mr. Balmelli also discovers the preliminary formula for resolving the variations and needs of different plant species and develops Kyminasi Plants Tech 2. Mr. Balmelli coordinates with Mr. Arlia Jr., CEO of Harvest Harmonics, in March 2014 to perform field installations to evaluate the effectiveness of the first micro-transmitter prototypes on different continents and with different crops.

By September 2014, Tech 2 was delivered to Harvest Harmonics to begin field trials.

Testing was also carried out on installation methods that varied based on the characteristics of the system in terms of size, pressure and water flow.

2015

Trials were started in Panama, Southern Russia, Australia and the United States.

Each of these preliminary trials demonstrated the efficiency and benefits of the technology, however, the greatest challenge was overcoming the constraints of the water flow rate capacity of the system.

2016 TECH 3 KYMINASI PLANTS

The combinations of micro-transmitters are defined in terms of quantity and installation sequence thanks to the tests carried out in the field. These combinations are formulated under the designation Technology version 3. The combination, although increasing water flow rate capacity, was still not commercially viable and needed to be further advanced.

2017 TECH 4 KYMINASI PLANTS

For the production of the micro-transmitters and expansion of the flow rate, a steel alloy with a better basic chemical composition is selected, which will later prove sadly inadequate as the steel alloy has magnetic characteristics that come into conflict with the low-frequency quantum waves of the technology, canceling them.

In fact, the crops where these devices were installed did not achieve the desired results because of the cancelling effect. This created a major financial setback for the company and the technology.

The company had to withdraw the entire batch of several thousand micro-transmitters and replace them free of charge with a new steel alloy which proved to be suitable in the following year. This led to the development of a new version and delivery mechanism, which was collectively known as Tech 4, however, the technology was still not commercially viable.

2018 TECH 5 KYMINASI PLANTS

In September 2018, Technology version 5 is completed. Final internal testing and verification is completed in December 2018 and Tech 5 is released. Tech 5 is the first major breakthrough in the delivery system capability of the Kyminasi Plants technology. The expectation is that the signals should travel up to ½ mile with water flows in the range of 3,000 gallons per minute. The technology is turned over to Mr. Arlia in December 2018 to conduct tests in Florida to confirm the strength of the delivery system.

2019 TECH 6 KYMINASI PLANTS

In February 2019, Mr. Arlia confirms the huge breakthrough in the strength of the transmitters, testing Tech 5 on several irrigation systems with water flows up to 2600 gallons per minute and confirming the signals will travel up to one mile.

This opened the door to economically servicing farms around the world.

Mr. Balmelli continued his research in coordination with Minoprio Analisi e Certificazioni, an agricultural research center in Italy. Several prototypes are developed whose effectiveness has been compared by means of experimental tests followed by laboratory analyses.

05/13/2019 - The first test is carried out on water to demonstrate that it does not undergo chemical changes due to the treatment. Additionally, the trial was designed to determine if Mr. Balmelli can manipulate the absorption of certain minerals while reducing the absorption of other minerals in plants. The trial proved positive that the manipulation of nutrient absorption was possible. The data received from the trial also assisted Mr. Balmelli to further advance the technology. The researchers report from this trial follows:

MAC
Minoprio Analisi e Certificazioni s.r.l.

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22070 Vertemate con Minoprio (CO)
Tel. 031/887127/901389/900224 - Fax 031/887834
e-mail: maclab@tin.it

Cod. Fisc. e Part. I.V.A. 01975220136
Cap. Soc. € 96.900,00 int. vers.
Reg. Imprese Trib. di Como n. 27261
R.E.A. n. 231114 C.C.I.A.A. di Como

Clinic & Research S.r.l.
Via Belvedere, 11
22079 Villa Guardia (CO)

C19012

Subject: Results of preliminary experimental activity to verify the effects on the vegetative activity of the technological application of irrigation water activation
- ref. MAC offers 48/2019 + 93/2019

PREMISE
In relation to the offers indicated in the subject, Minoprio Analisi e Certificazioni S.r.l. of the Minoprio Foundation (CO) has been appointed to carry out preliminary experimental activity in order to verify the possible effects on the vegetative activity of a technological application of water activation for irrigation use that you implemented.

The experimental tests carried out have been identified following the information you provided on the technology being tested. The species chosen are those that best respond to the type of tests implemented.

The results of this preliminary experimentation may lead to the definition of tests on a larger scale.

Experimental tests were carried out at the Minoprio Foundation facilities. The experimental methodology implemented, results and conclusions are shown below.

The job order included the following experimental tests.

Lettuce test (ref. Lombardy Region - BU 13/05/2003 - 1st SS - DGR 16/04/2003 n. 7/12764 - All. B)

The test aims to evaluate the response of vegetation to activated water treatment in terms of aerial biomass production and content of mineral elements in the leaves.

Two (2) types of culture media were used:

1) Mineral substrate composed of silica sand (87.5%), bentonite (9%), medium-textured earth with a neutral pH (2%) and peat (1.5%)

2) Peat-based organic substrate

The test involved the use of Kagran variety cabbage lettuce, sown on 03/14/2019 and transplanted, in the different identified substrates, on 03/26/2019 in 300 ml capacity jars (3 seedlings/pot).

The pots were placed in an iron/glass greenhouse (Hortiplus glass), on pallets with small channels, with a minimum temperature of 12 °C and aeration at 18 °C.

The transplanted plants were divided according to the following experimental specimens:

- *Control on mineral substrate: irrigation with mains water*
- *Control on organic substrate: irrigation with mains water*
- *Treatment on mineral substrate: irrigation with activated water*
- *Treatment on organic substrate: irrigation with activated water*

The control specimens were placed on a pallet separated from the water treatment specimens. Irrigation was carried out manually; the first week with nebulization to facilitate rooting of the transplanted seedlings, then with a watering can, always paying maximum attention in order to exclude any possibility of contamination between the specimens irrigated with different types of water (normal or activated). Irrigation was carried out daily, always bringing the individual pots to maximum saturation.

For each experimental thesis, 5 replicas have been planned, each with 4 pots (total 60 plants/thesis).

On April 23, in agreement with the client, further transplanting was carried out in 16- diameter pot, using neutral mineral substrate with a low presence of limestone as a mineral substrate and the correct acid peat as an organic substrate.

The irrigations continued on a daily basis, with an average intake of 500 ml/pot.

On 15 May the aerial biomass of each individual pot was cut (except for an entire replica of each thesis) to determine the production of biomass/pot (fresh weight and dry weight at 75°C).

The determination of the content of the main mineral elements (1 representative sample/replica) was carried out on the dried biomass: N, P, K, Ca, Mg, Na, Fe, Mn, Cu, Zn. Irrigation was suspended for the plants of the non-harvested replicas, observing any differences in drying times.

All the results were subjected to statistical analysis for the evaluation of the presence of statistically significant differences between the average values obtained for the individual theses (ANOVA and Duncan test for P = 0.05).

On 10 May, the main characterization parameters of an irrigation water were determined on treated and untreated water samples.

Below are reported, for each test, summary tables of the results obtained and the outcome of their processing (analysis of variance and Duncan test: in different letters I correspond to significantly different values for P = 0.05).

Lettuce test (ref. Lombardy Region - BU 13/05/2003 - 1st SS - DGR 16/04/2003 n. 7/12764 - All. B)

The following tables (Table 1 to Table 4) show the average production data of fresh and dry aerial biomass for the different types of substrate (mineral or organic), a summary of the statistical processing (ANOVA) and the outcome of the Duncan test (95% confidence) in order to identify any statistically significant differences between the different treatments.

Table 1: Average Fresh Air Biomass Production on mineral substrate and 95% Duncan test

Thesis	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	16	**9.4525**	0.843821	8.92696%	**a**
2 – Treated	16	**8.8975**	0.983107	11.0493%	**a**

(if present, in different letters correspond statistically different averages for P = 0.05)

Table 2: Average Dry Aerial Biomass Production on Mineral Substrate and 95% Duncan test

Thesis	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	16	**1.58563**	0.212445	13.3982%	**a**
2 – Treated	16	**1.52625**	0.199862	13.095%	**a**

(if present, in different letters correspond statistically different averages for P = 0.05)

Table 3: Average Fresh Air Biomass Production on Organic Substrate and 95% Duncan test

Thesis	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	16	**29.9419**	1.71966	5.74331%	**a**
2 – Treated	16	**29.0687**	2.09757	7.21588%	**a**

(if present, in different letters correspond statistically different averages for P = 0.05)

Table 4: Average Dry Aerial Biomass Production on Organic Substrate and 95% Duncan test

Thesis	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	16	**3.95125**	0.248807	6.29692%	**a**
2 – Treated	16	**3.86437**	0.439833	11.3817%	**a**

(if present, in different letters correspond statistically different averages for P = 0.05)

The results of plant tissue analysis (mineral element determination) are shown in the following tables.

Table 5 shows the results of the statistical analysis for the **nitrogen** parameter (N% s.s.).

The results show that the average values of the two experimental theses (control and treated), both on mineral and organic substrates, are significantly different (P = 0.05). Specifically, the plant tissues of plants irrigated with treated water have significantly higher values than those irrigated with untreated water. However, it is necessary to specify that the data obtained on both treatments, regardless of the type of substrate, are below the lower limit of sufficiency for lettuce (2.5% s.s.).

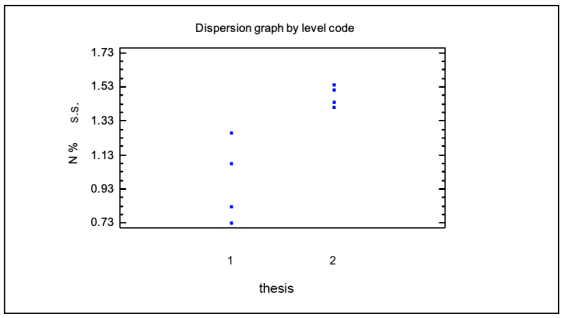
Table 5: Total Nitrogen of Plant Tissues (% s.s.) and 95% Duncan test

Thesis - Mineral	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	**0.975**	0.240347	24.651%	**b**
2 – Treated	4	**1.475**	0.0602771	4.08659%	**a**
Thesis - Organic	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	**1.110**	0.116333	10.4804%	**b**
2 – Treated	4	**1.532**	0.0906918	5.9179%	**a**

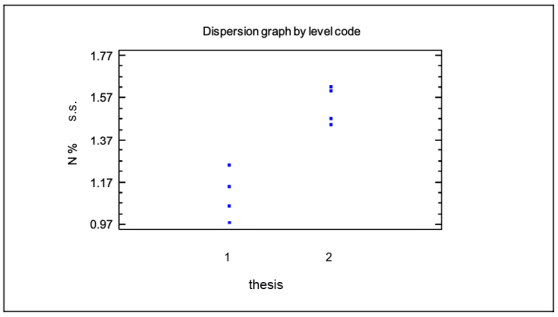
(if present, in different letters correspond statistically different averages for P = 0.05)

In the following two graphs (Graph 1 and Graph 2) the dispersions of the individual analytical values subjected to analysis of variance are visually represented: the perception of the statistically different distribution between the values of the two theses is immediate (1 = control / 2 = treated).

Graph 1: Dispersion graph by level code (% N tot on mineral substrate)



Graph 2: Dispersion graph by level code (% N tot on organic substrate)



In the following tables (from number 6 to number 14) the average results are a summary of the statistical analysis for the phosphorus, potassium, calcium, magnesium, iron, manganese, copper, zinc and sodium parameters.

The results of the **phosphorus** (Table 6) show a statistically significant difference between the two experimental theses on organic substrate (higher value in the untreated control); on the contrary, on the mineral substrate the two theses are not statistically different from each other. Also in this case the values found are well below the sufficiency limit for lettuce (0.4% ss)

Table 6: Total Phosphorus of Plant Tissues (mg/kg s.s.) and 95% Duncan test

Thesis - Mineral	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	**878.21**	159.57	18.17%	**a**
2 – Treated	4	**1,004.10**	69.8515	6.95682%	**a**
Thesis - Organic	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	**979.70**	73.2274	7.47447%	**a**
2 – Treated	4	**834.23**	80.9174	9.69971%	**b**

(if present, in different letters correspond statistically different averages for P = 0.05)

The **potassium** results (Table 7) show a statistically significant difference between the two experimental theses in both types of substrate, with higher values for the untreated control. Also in this case the values found are well below the sufficiency limit for lettuce (5.0% s.s.)

Table 7: Total Potassium of Plant Tissues (% s.s.) and 95% Duncan test

Thesis - Mineral	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	**2.393**	0.408197	17.0615%	**a**
2 – Treated	4	**1.700**	0.0535413	3.14949%	**b**
Thesis - Organic	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	**2.258**	0.0585235	2.5924%	**a**
2 – Treated	4	**1.545**	0.0793725	5.13738%	**b**

(if present, in different letters correspond statistically different averages for P = 0.05)

The same results are found for the **calcium** (Table 8) and **magnesium** (Table 9) parameter, where the difference is statistically significant between the two experimental theses in both types of substrate; the highest values (however below the limits of sufficiency for the crop) are found for the sample irrigated with treated water.

Table 8: Total Calcium of Plant Tissues (% s.s.) and 95% Duncan test

Thesis - Mineral	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	**0.825**	0.0974679	11.8143%	**b**
2 – Treated	4	**1.428**	0.0221736	1.55331%	**a**
Thesis - Organic	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	**0.753**	0.0419325	5.57242%	**b**
2 – Treated	4	**1.548**	0.13099	8.46461%	**a**

(if present, in different letters correspond statistically different averages for P = 0.05)

Table 9: Total Magnesium of Plant Tissues (% s.s.) and 95% Duncan test

Thesis - Mineral	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	**0.18**	0.0173205	9.89743%	**b**
2 – Treated	4	**0.34**	0.005	1.48148%	**a**
Thesis - Organic	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	**0.16**	0.00816497	5.1031%	**b**
2 – Treated	4	**0.36**	0.0221736	6.20239%	**a**

(if present, in different letters correspond statistically different averages for P = 0.05)

For the **iron** (Table 10) and **manganese** (Table 11) microelements, the values found are normal for the culture in question and the two experimental theses show statistically different mean values. However, it should be noted that the behavior of the two elements is strangely divergent; in fact, iron has higher values in plants irrigated with untreated water, while for manganese the outcome is the opposite.

Table 10: Total Iron of Plant Tissues (mg/kg s.s.) and 95% Duncan test

Thesis - Mineral	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	535.28	80.5158	15.0419%	a
2 – Treated	4	75.70	5.02517	6.63804%	b
Thesis - Organic	Count	Average	Standard Deviation	Variation coeff.	Homogeneous
1 – Control	4	391.35	50.9596	13.0215%	a
2 – Treated	4	75.96	2.6483	3.48633%	b

(if present, in different letters correspond statistically different averages for P = 0.05)

Table 11: Total Manganese of Plant Tissues (mg/kg s.s.) and 95% Duncan test

Thesis - Mineral	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	47.738	1.53951	3.22495%	b
2 – Treated	4	145.93	6.02184	4.12666%	a
Thesis - Organic	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	53.168	3.92232	7.3773%	b
2 – Treated	4	138.15	10.1576	7.35258%	a

(if present, in different letters correspond statistically different averages for P = 0.05)

The behavior of **copper** (Table 12) and **zinc** (Table 13) microelements is similar.
For copper there is a significant difference between the treatments only on organic substrate, with a higher value for the untreated control; both theses however present levels of element sufficient for the crop. Zinc shows higher values for the thesis with treated water; for the control the result shows a lack.

Table 12: Total Copper of Plant Tissues (mg/kg s.s.) and 95% Duncan test

Thesis - Mineral	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	5.430	0.0751983	1.39039%	a
2 – Treated	4	3.665	1.74422	47.5912%	a
Thesis - Organic	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	6.2675	0.708725	11.3079%	a
2 – Treated	4	3.4475	0.489311	14.1932%	b

(if present, in different letters correspond statistically different averages for P = 0.05)

Table 13: Total Zinc of Plant Tissues (mg/kg s.s.) and 95% Duncan test

Thesis - Mineral	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	15.188	1.19321	7.85655%	b
2 – Treated	4	32.59	1.45307	4.45862%	a
Thesis - Organic	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	19.348	0.904853	4.67685%	b
2 – Treated	4	36.418	3.39024	9.30938%	a

(if present, in different letters correspond statistically different averages for P = 0.05)

Sodium (Table 14), which generally has high values, is higher in untreated plants, with significant difference between the theses only on organic substrate.

Table 14: Total Sodium of Plant Tissues (mg/kg s.s.) and 95% Duncan test

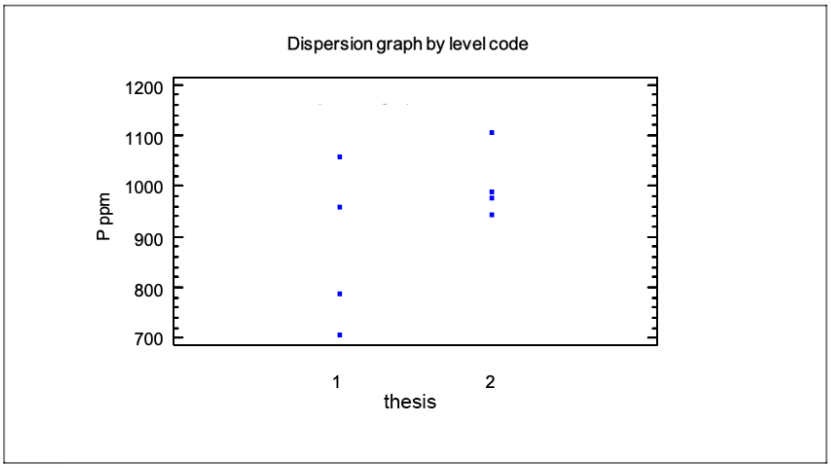
Thesis - Mineral	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	5,734.2	2,808.86	48.9843%	a
2 – Treated	4	2,878.8	239.611	8.32322%	a
Thesis - Organic	Count	Average	Standard Deviation	Variation Coefficient	Homogeneous
1 – Control	4	7,884.8	927.259	11.7601%	a
2 – Treated	4	1,912.3	295.489	15.4519%	b

(if present, in different letters correspond statistically different averages for P = 0.05)

Considering the results obtained with respect to the different type of substrate used (mineral or organic), for the investigated elements there is no difference between this factor.

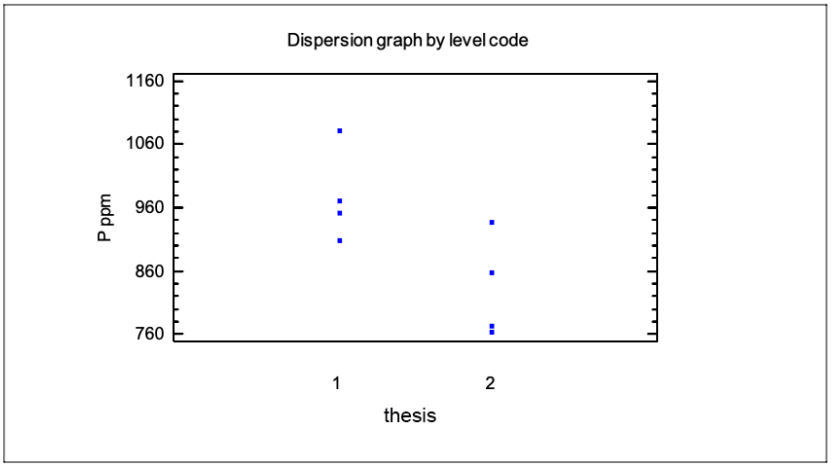
In support of the above tables for the phosphorus, potassium, calcium, magnesium, iron, manganese, copper, zinc and sodium parameters, the following pages (for each of them and for the different types of substrate used) are shown, where graphs the dispersions of the individual analytical values subjected to analysis of variance are represented visually. These graphs allow a more immediate and clearer perception of the distribution of the data and, where present, of the statistically significant differences found (1 = control - 2 = treated).

Graph 3: Dispersion graph by level code (mg/kg P tot on mineral substrate)

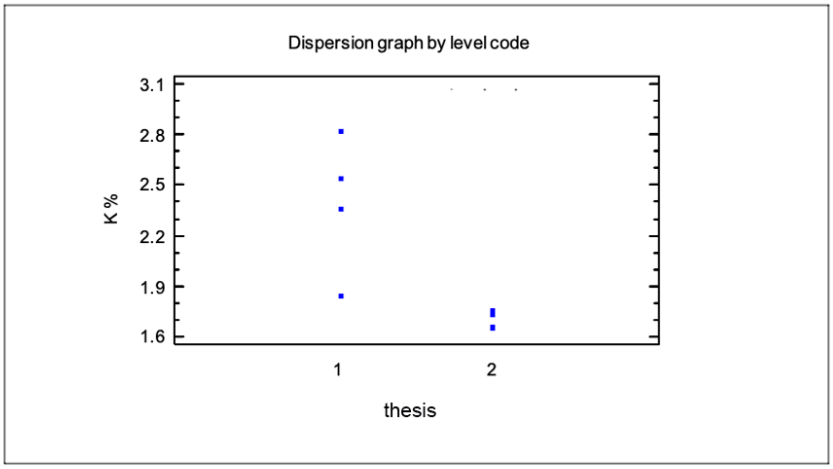


Absence of significance (P = 0.05)

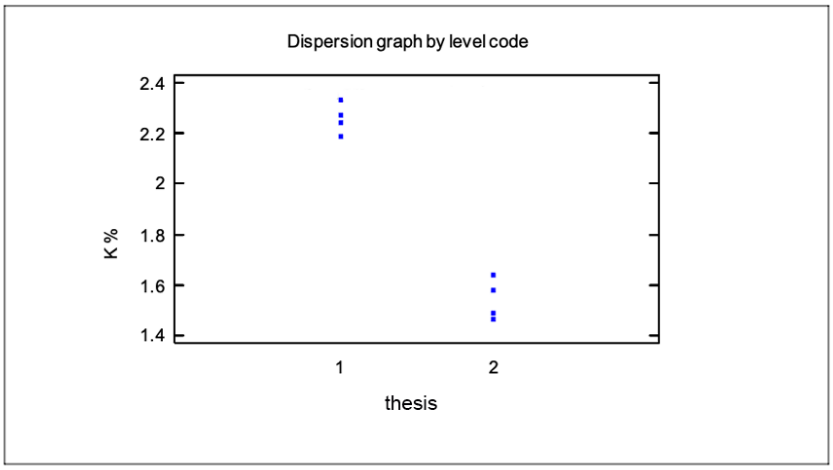
Graph 4: Dispersion graph by level code (mg/kg P tot on organic substrate)



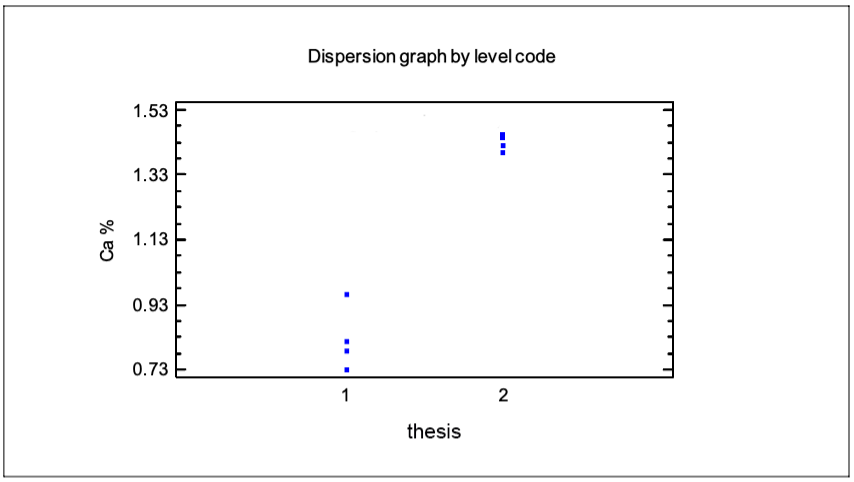
Graph 5: Dispersion graph by level code (% K tot on mineral substrate)



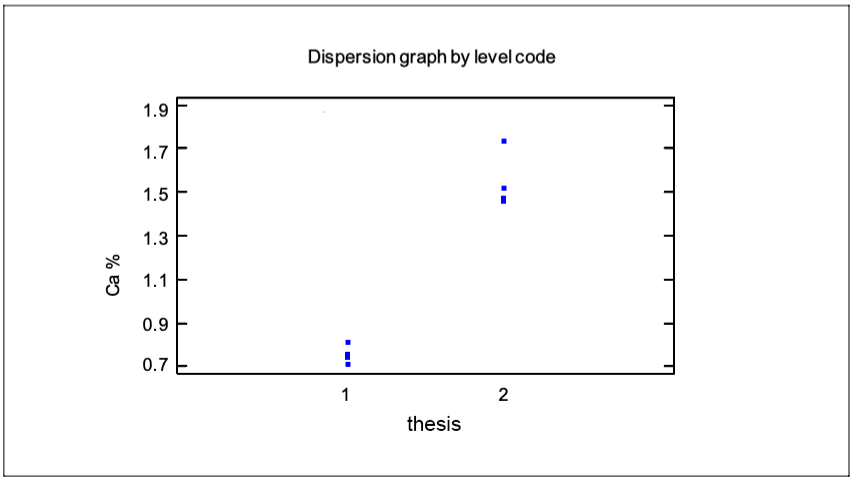
Graph 6: Dispersion graph by level code (% K tot on organic substrate)



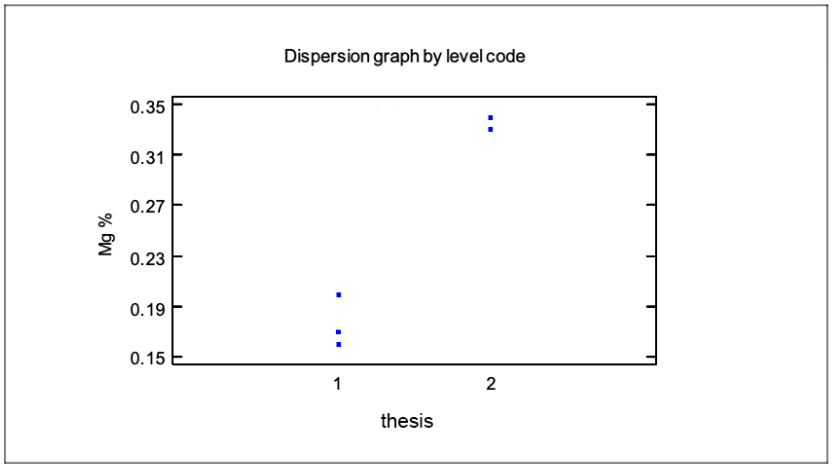
Graph 7: Dispersion graph by level code (% Ca tot on mineral substrate)



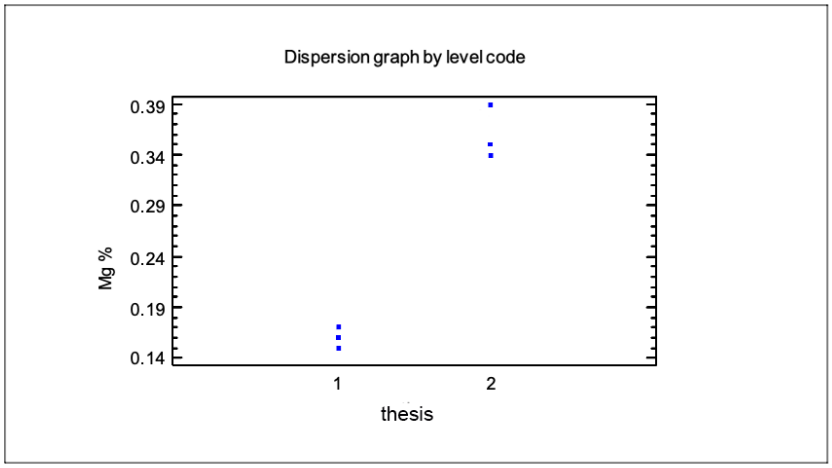
Graph 8: Dispersion graph by level code (% Ca tot on organic substrate)



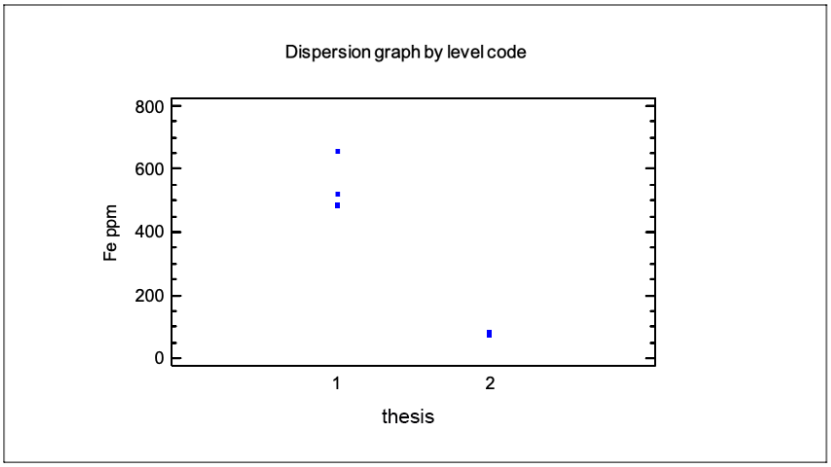
Graph 9: Dispersion graph by level code (% Mg tot on mineral substrate)



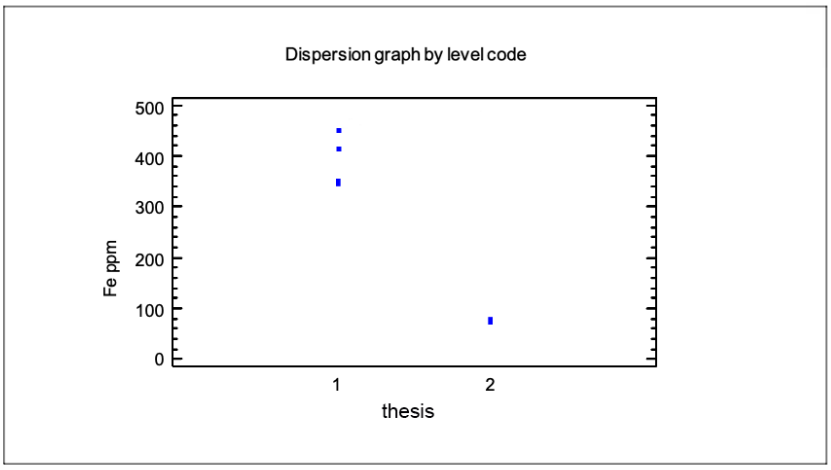
Graph 10: Dispersion graph by level code (% Mg tot on organic substrate)



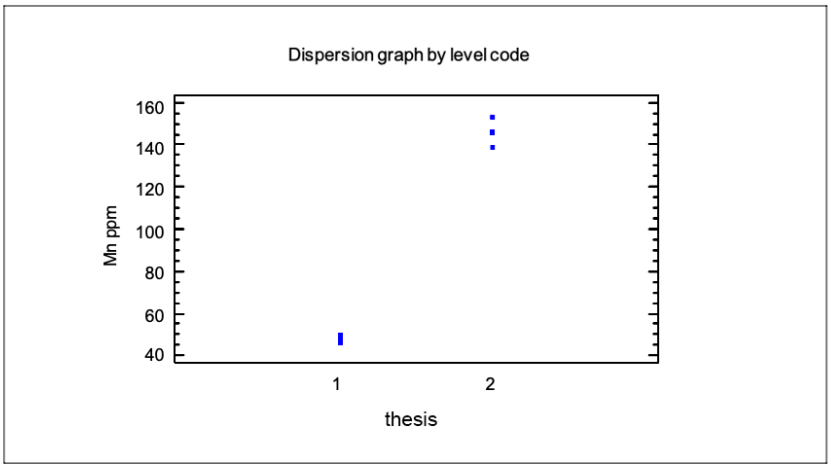
Graph 11: Dispersion graph by level code (mg/kg Fe tot on mineral substrate)



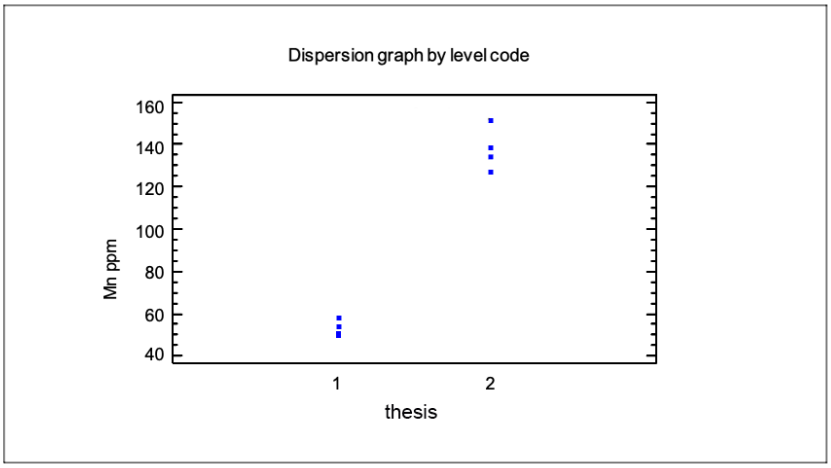
Graph 12: Dispersion graph by level code (mg/kg Fe tot on organic substrate)



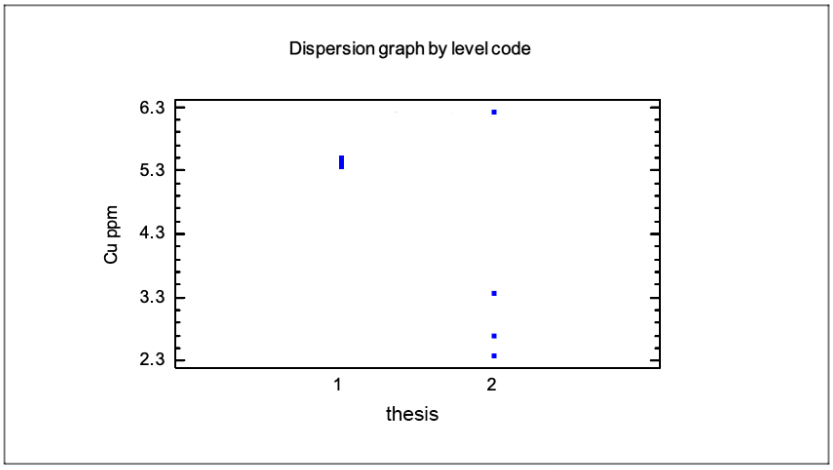
Graph 13: Dispersion graph by level code (mg/kg Mn tot on mineral substrate)



Graph 14: Dispersion graph by level code (mg/kg Mn tot on organic substrate)

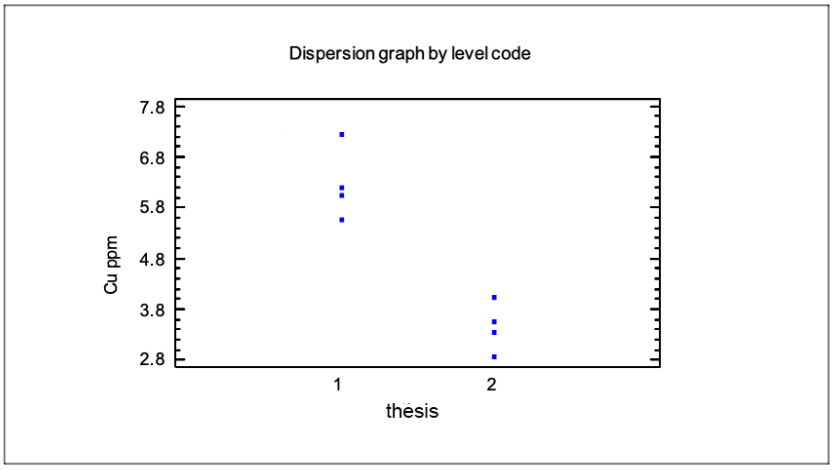


Graph 15: Dispersion graph by level code (mg/kg Cu tot on mineral substrate)

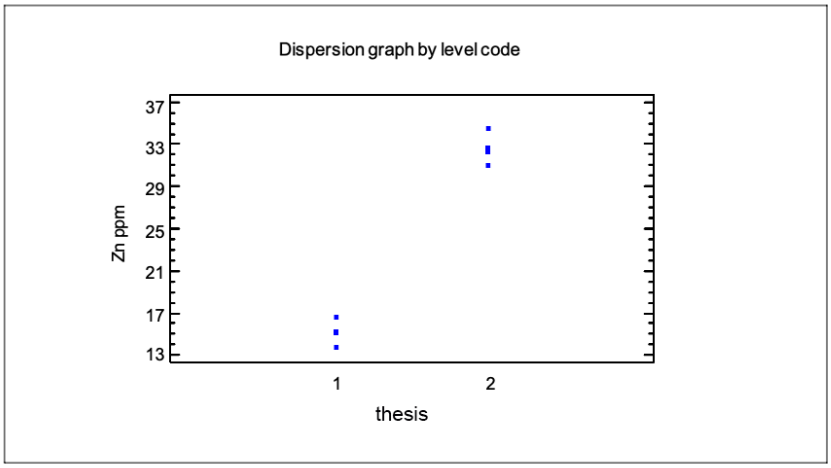


Absence of significance (P=0,05)

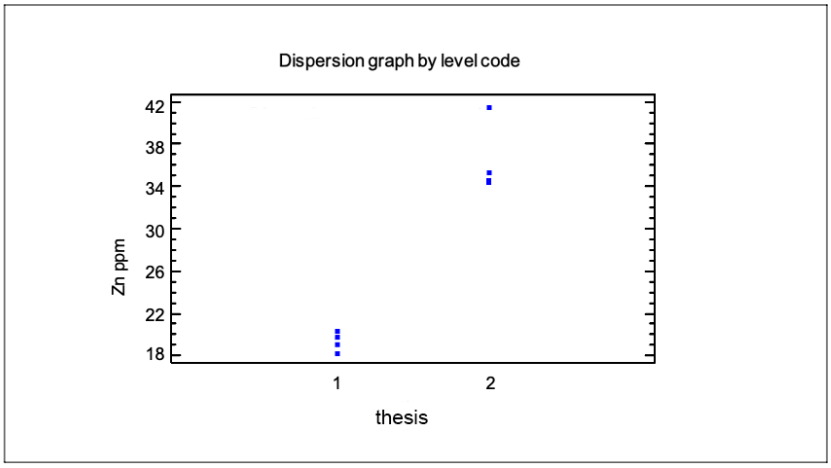
Graph 16: Dispersion graph by level code (mg/kg Cu tot on organic substrate)



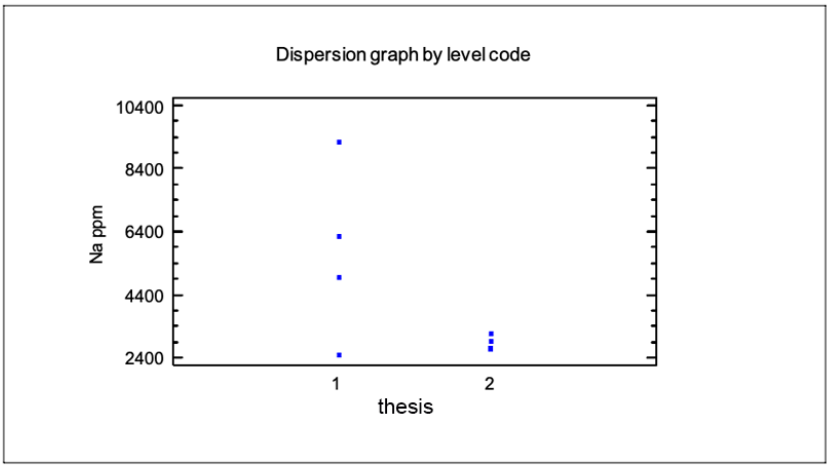
Graph 17: Dispersion graph by level code (mg/kg Zn tot on mineral substrate)



Graph 18: Dispersion graph by level code (mg/kg Zn tot on organic substrate)

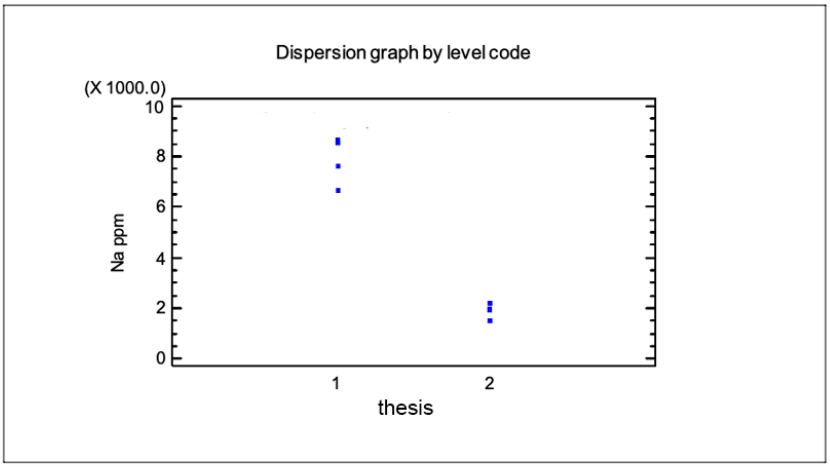


Graph 19: Dispersion graph by level code (mg/kg Na tot on mineral substrate)

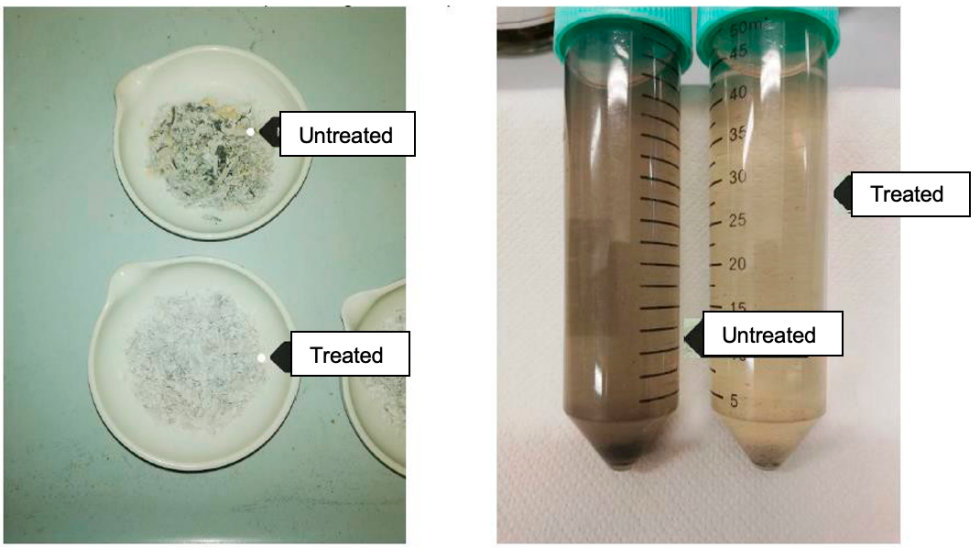


Absence of significance (P = 0.05)

Graph 20: Dispersion graph by level code (mg/kg Na tot on organic substrate)



Visual differences were found in the analytical procedure of plant tissues. The ashes produced for the determination of the cations and of the phosphorus had a different consistency and color, as well as the aqueous extract in an acid environment, as the following photos clearly show.



Aqueous ashes and extracts in an acid environment obtained from plant tissue samples of plants irrigated with treated or untreated water

Lastly, for the plants of the replicas not collected and left without irrigation (4 plants per thesis and by type of substrate, for a total of 16 pots), no differences in drying times were observed; the plants on a mineral substrate are, as was expected, prematurely dried (after 6 days from the suspension of irrigation) and earlier than those on organic substrates, dried after 12 days of non-irrigation.

The results of the water analysis carried out on 10 May showed the absence of significant differences for the main parameters for the characterization of water for irrigation use (pH, electrical conductivity, carbonates and bicarbonates, calcium, magnesium, sodium, SAR).

The results are reported in the attached Test Reports No. 19211/564 and 19211/565 issued on 13 May 2019.

The results of the preliminary tests implemented with lettuce did not find statistically significant differences between the different treatments applied in terms of aerial biomass production; on the contrary, significant differences were found in relation to the endowment of mineral elements present in the plant tissues of lettuce plants.

Therefore, if the use of activated water, compared to untreated water, did not allow to obtain results in terms of increased production, different effects were found for the adsorption of the nutritive elements; it should be noted, however, that the amount of macroelements (N-P-K-Ca-Mg) found in the plants was low and below the sufficiency levels for the species in question.

Positive effects (increased adsorption for plants irrigated with treated water) were found for nitrogen, calcium, magnesium, manganese and zinc; on the contrary, for the elements potassium, iron and (only on organic substrate) for phosphorus, copper and sodium the adsorption was superior in the control plants (untreated water).

The different consistency of the ashes and the aqueous extracts in an acid environment obtained from plant tissues is believed to be the fruit of the different content of potassium, calcium and magnesium in the different samples.

In light of the results obtained and without well-defined information regarding the technology inherent in water treatment, it is not possible to provide a detailed and certain explanation of these outcomes. Below are some basic notions of the behavior of mineral elements in relation to root systems, concepts that could be useful for a better understanding of experimental results.

The adsorption by the calcium and magnesium roots is passive, while that of potassium, iron, manganese and zinc is active. The iron, to be adsorbed, needs a reduction of the trivalent form to the bivalent one, or to a chelation of the trivalent form; difficult to explain the opposite behavior obtained for iron and manganese, even if bibliographical data show an antagonism between the two elements (interferences). Nitric nitrogen is adsorbed both actively and passively.

Table 15 shows data concerning the methods of absorption of the mineral elements by the roots (average data obtained from studies dating back to the seventies); obviously, this data could vary from species to species.

Table 15: Different Methods of Absorption of the Mineral Elements by the Roots

Mineral Element	% Absorption Mode		
	Interception	Mass Flow	Diffusion
Nitrogen	2	98	-
Phosphorus	3	6	91
Potassium	2	20	78
Calcium	28	72	-
Magnesium	13	87	-
Copper	70	20	10
Iron	50	10	40
Manganese	15	5	80
Zinc	30	30	40

Segment from “The leaf diagnosis in horticulture”, Massimo Valagussa, 2009

On the basis of this data, nitrogen, calcium and magnesium are absorbed mainly by mass flow, while phosphorus, potassium, but also manganese, by diffusion; iron, as well as by diffusion, together with copper, is also absorbed by interception (the roots transfer hydrogen ion to the colloids to activate exchange).

A greater knowledge of how the treatment acts on water could help more to explain the interesting results obtained in terms of endowment of mineral elements in plant tissues.

In consideration of the results obtained, it is possible to reflect the following, also in view of the possible implementation of further medium-long term field tests.

The preliminary tests were carried out in a container, with two different types of substrate (a very poor and organic mineral), where the supply of water (treated and untreated) was exclusive and, in terms of quantity, also significant.

The implementation of a new test should be carried out in our opinion in the open field and on a medium-long term crop cycle.

However, there are two issues that need to be addressed and clarified.

The first arises from a declaration by the client about the inactivation that the treated water would exert on any added fertilizers. The subject would require further study. Is inactivation (and it is necessary to understand what is meant by this term) only on any fertilizers added to water (fertigation) or even on fertilizers/mineral elements present in the cultivation layer? If inactivation is also exercised on fertilizers distributed on the ground, the problem takes on a significant dimension; in the biological cycle of a soil (even not fertilized) the micro-organisms continuously “release” nutrients that are used by plants.

In this regard, it is believed that the implementation of a field test would require at least 4 experimental specimens, namely:

- Control with untreated irrigation water and without organo-mineral fertilization
- Control with untreated irrigation water and organo-mineral fertilizer
- Specimen with treated irrigation water and without organo-mineral fertilization
- Specimen with treated irrigation water and organo-mineral fertilizer

The aforementioned specimens would allow the verification of possible effectiveness of the system even in comparison with the current and conventional agricultural practices.

Further experimental specimens could be inserted in order to evaluate other aspects (if the client believes that they can be influenced by the use of activated water); as an example: Can treated water affect the water retention properties of the soil?

The second issue is a limitation of the water treatment system: the need for minimum flow rates (liters/minute) to allow the instrument to effectively activate the liquid medium.

This limitation leads to the exclusion of the application of this technology in localized irrigation systems (for example drip irrigation systems), systems that are increasingly favored in modern agriculture in order to obtain significant water savings.

This could be avoided if the system were able to treat the water present in collection tanks, before it is sent to the distribution lines.

Available for clarifications and further in-depth analysis.

For Minoprio Analisi e Certificazioni
Agronomist Doctor Massimo Valagussa
(with the collaboration of Dr. Piero Frangi of the Minoprio Foundation)

Vertemate con Minoprio, 10 June 2019

2019 CONTINUED

06/10/2019 - A second test is carried out with the aim of evaluating any phytotoxic effects on the germination / growth of plant species, specifically the inhibition of germination and growth. After careful study, the researchers concluded that the differences in germination and growth rate were statistically insignificant and thus proving that there was no phytotoxicity in the treated plants. The researcher's report from this trial follows:

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e-mail: maclab@tin.it

Cod. Fisc. e Part. I.V.A. 01975220136
Cap. Soc. € 96.900,00 int. vers.
Reg. Imprese Trib. di Como n. 27261
R.E.A. n. 231114 C.C.I.A.A. di Como

Clinic & Research S.r.l.
Via Belvedere, 11
22079 Villa Guardia (CO)

C19013

Subject: phytotoxicity test results of the technological application of the irrigation water activation - ref. MAC Offers 03/2019 to 05/2019

PREMISE

In relation to the offers indicated in the subject, an assignment was conferred to Minoprio Analisi e Certifications S.r.l. di Fondazione Minoprio (CO) to carry out preliminary experimental activities in order to verify the possible effects on the vegetative activity of a technological application of irrigation water activation implemented by you.
The experimental test carried out involved the implementation of a phytotoxicity test to assess any negative effects of water treatment.
The results of the present preliminary experimentation may lead to the definition of tests on a larger scale.
The experimental test was carried out at the Minoprio Foundation facilities.
The experimental methodology implemented, results and conclusions are shown below.

MATERIALS AND METHOD

The job order included the realization of the following experimental test.

Spring barley test (ref. UNI EN 1608601_2012)

The test aims to assess any phytotoxic aspects on germination / growth of plant species (germination and growth inhibition).
As a substrate, according to the reference standard, peat was used with a humidification degree of H3-H5 (Van Post scale), with addition of calcium carbonate for pH correction and 2.25 g of 18-11-18 fertilizer (N - P2O5 - K2O).
Spring barley was used for the test.
Sowing took place on 03/26/2019 in pots with a capacity of 750 ml (20 seeds / pot).

The pots were placed in an iron / glass greenhouse (Hortiplus glasses), on pallets with ducts, with a minimum temperature of 12° C and aeration at 18° C.
The pots were divided into two experimental theses:

- Specimen 1 (control): irrigation with tap water
- *Specimen 2 (test): irrigation with activated water*

For each specimen, 4 replicas have been prepared, with 3 replica pots (total 240 seeds / specimen).
For the first 5 days pots were covered with non-woven fabric and kept moist with nebulization* (always differentiating the two types of irrigation water); on the fifth day, the germination rate for each pot was determined.
Subsequently the irrigation was carried on at first with a nebulizer and then with a watering can or a spray gun, always with the utmost care to avoid contamination between the plants of the different experimental theses.

On 04/23/2019 the fresh and dry (75° C) biomasses were determined for each individual pot (replicas 2, 3, 4).
* nebulization: watering via a mist or microjet spray
The results were subjected to statistical analysis to verify the possible presence of germination and growth inhibition.
Replica 1 pots were left in cultivation without irrigation until May 6th , 2019, date on which the irrigation with the two different types of water was restored.
The observation of any signs of recovery was kept active until May 15th , 2019.
On May 10th, on samples of treated and untreated water, the main irrigation water characterizing parameters were determined.

RESULTS AND STATISTICAL INTERPRETATION
The following tables summarize the results obtained and the outcome of the processing of the same (analysis of variance and Duncan test: different letters correspond to significantly different values for P = 0.05).

Spring barley test (ref. UNI EN 1608601_2012)
The results obtained highlight a significant absence of germination and growth inhibition.
Table 1 shows the results related to the germination rate. Data shows a significant results homogeneity (modest coefficient of variation) and a complete absence of germination inhibition using activated irrigation water (specimen 2).

Table 1: Germination Inhibition

Thesis	Replica	Pot	Number of Germinated Seeds	Germination Rate (%)	Average Germination Rate (%)	Germination Rate Coefficient of Variance	Germination Inhibition (%)
1 - control	1	1	20	100	92.08	15.79	=
1 - control	1	2	18	90			
1 - control	1	3	20	100			
1 - control	2	1	18	90			
1 - control	2	2	18	90			
1 - control	2	3	18	90			
1 - control	3	1	20	100			
1 - control	3	2	17	85			
1 - control	3	3	17	85			
1 - control	4	1	17	85			
1 - control	4	2	18	90			
1 - control	4	3	20	100			
2 - treated	1	1	20	100	92.08	19.17	**0.00**
2 - treated	1	2	20	100			
2 - treated	1	3	18	90			
2 - treated	2	1	17	85			
2 - treated	2	2	20	100			
2 - treated	2	3	19	95			
2 - treated	3	1	18	90			
2 - treated	3	2	20	100			
2 - treated	3	3	18	90			
2 - treated	4	1	16	80			
2 - treated	4	2	16	80			
2 - treated	4	3	19	95			

Growth outcomes are shown in Table 2 (fresh aerial biomass weight) and in Table 3 (dry aerial biomass weight). Assuming that the reference standard indicates to quantify the growth inhibition on the fresh biomass weight only, the test conducted has provided the calculation also on the dry weight, considering this data more robust and reliable.

Table 2: Growth Inhibition (Fresh Weight)

Thesis	Replica	Pot	Average Fresh Weight (g)	Average Fresh Weight per Pot (g)	Number of Plants per Pot	Plant Fresh Weight per Pot (g)	Average Plant Fresh Weight per Pot (g)	Plant Weight Coefficient of Variance	Germination Inhibition (%)
1 - control	2	1	22.26	19.124	19	1.17	1.019	36.74	=
1 - control	2	2	20.02		19	1.05			
1 - control	2	3	15.78		19	0.83			
1 - control	3	1	20.61		19	1.08			
1 - control	3	2	18.07		16	1.13			
1 - control	3	3	26.53		20	1.33			
1 - control	4	1	13.67		19	0.72			
1 - control	4	2	17.40		18	0.97			
1 - control	4	3	17.78		20	0.89			
2 - treated	2	1	15.07	17.088	20	0.75	0.938	23.72	**10.65**
2 - treated	2	2	20.90		19	1.10			
2 - treated	2	3	16.50		19	0.87			
2 - treated	3	1	19.17		20	0.96			
2 - treated	3	2	13.89		17	0.82			
2 - treated	3	3	18.29		18	1.02			
2 - treated	4	1	16.23		17	0.95			
2 - treated	4	2	19.91		19	1.05			
2 - treated	4	3	13.83		15	0.92			

Table 3: Growth Inhibition (Dry Weight)

Thesis	Replica	Pot	Average Dry Weight (g)	Average Dry Weight per Pot (g)	Number of Plants per Pot	Plant Dry Weight per Pot (g)	Average Plant Dry Weight per Pot (g)	Plant Weight Coefficient of Variance	Germination Inhibition (%)
1 - check	2	1	2.00	1.683	19	0.105	0.090	34.64	=
1 - check	2	2	1.83		19	0.096			
1 - check	2	3	1.38		19	0.073			
1 - check	3	1	1.84		19	0.097			
1 - check	3	2	1.55		16	0.097			
1 - check	3	3	2.19		20	0.110			
1 - check	4	1	1.18		19	0.062			
1 - check	4	2	1.58		18	0.088			
1 - check	4	3	1.60		20	0.080			
2 - treated	2	1	1.33	1.482	20	0.067	0.081	26.23	**11.95**
2 - treated	2	2	1.82		19	0.096			
2 - treated	2	3	1.41		19	0.074			
2 - treated	3	1	1.69		20	0.085			
2 - treated	3	2	1.17		17	0.069			
2 - treated	3	3	1.63		18	0.091			
2 - treated	4	1	1.36		17	0.080			
2 - treated	4	2	1.78		19	0.094			
2 - treated	4	3	1.15		15	0.077			

The results show a modest growth inhibition (10.65% for fresh weight and 11.95% for dry weight). It can be stated with certainty that this value is not statistically significant, meaning that the use of activated water has no phytotoxic effects on plant growth.
This statement is confirmed by the statistical analysis (ANOVA) carried out on the results obtained (Table 4) and the Duncan test results (95% confidence).

Table 4: Duncan Test Results With 95% Confidence

Thesis	Count	Average Fresh Weight (g)	Standard Deviation	Coefficient of Variance	Homogeneous Groups
1 – Control	9	**19.1244**	3.78339	19.783%	a
2 – Treated	9	**17.0878**	2.60458	15.2423%	a
Thesis	**Count**	**Average Dry Weight (g)**	**Standard Deviation**	**Coefficient of Variance**	**Homogeneous Groups**
1 – Control	9	**1.68333**	0.31301	18.5946%	a
2 – Treated	9	**1.48222**	0.254695	17.1833%	a

(if present, statistically different averages for P = 0.05 correspond to different letters)

The results of the water analysis carried out on May 10th highlighted the absence of significant differences for the main characterization parameters for irrigation water (pH, electrical conductivity, carbonates and bicarbonates, calcium, magnesium, sodium, SAR).
The results are reported in the attached Test Reports no. 19211/564 and 19211/565 issued on May 13th 2019.

COMMENT ON RESULTS AND FINAL CONSIDERATIONS

The results of the growth test with spring barley showed no phytotoxicity of the water treatment system.

Available for clarifications and further details.

for Minoprio Analysis and Certifications
agronomist doctor Massimo Valagussa
(with the collaboration of Dr. Piero Frangi of the Minoprio Foundation)

Vertemate con Minoprio, June 10th, 2019

2019 CONTINUED

06/10/2019 - A third set of tests was performed to test several variations of the Kyminasi Plants technology based on existing knowledge and new data discovered via the above trials. Results of the tests of these variations follow:

MAC

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Mod RP
Rev 00 of 03/23/10

TEST REPORT NO. 19371/1011 **dated 24/09/2019**

Sampling performed by: Principal
Sampling date: 17/09/2019
Sampling location: c/o client
Transportation carried out by: principal
Acceptance date: 17/09/2019
Rehearsal start date: 17/09/2019
End date of rehearsal: 24/09/2019

SAMPLE IDENTIFICATION
Matrix: plant tissue
n.lab: 19371/1011
Name: 1
Sample status on **arrival:** potted

Dear
Clinic & Research Ltd.
Belvedere Street, 11
22079 VILLA GUARDIA (CO)
C.A. Alessia Panizza

test name	result	unit of measurement	limit normative #	test method	U	K	chapter: opinions and interpretations ¤
total nitrogen	**4,52**	% s.s.		UNI EN 15104:2011			
total phosphorus	**0,51**	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
total potassium	**6,41**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
total magnesium	**0,31**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
total iron	**101,90**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
total manganese	**32,76**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
sulfur from total sulfates	**0,10**	% s.s.		Plant Analysis Handbook II:1996 ch. 5 + 6			
chlorophylls and carotenes + xanthophylls chlorophyll a	0,65	mg/g		Arnon, D (1949) Plant Physiology 24: 1- 15			
chlorophyll b	0,23	mg/g					
total chlorophyll	0,87	mg/g					
carotenes and xanthophylls	0,19	mg/g					
fresh weight	**142,84**	g		gravimetric			
dry weight	**7,44**	g		gravimetric			

U = expanded uncertainty calculated with 95% confidence level - K = coverage factor

Laboratory manager Dr. agr. Massimo Valagussa
Order of Chartered Agronomists and Chartered Foresters of the provinces of CO-LC-SO No. 130

VALAGUSSA MASSIMO

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Date: 2019.09.24 14:26:31 +02'00'
Date: 2019.09.24 14:25:59 +02'00'
Date: 2019.09.24 14:26:31 +02'00'

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tel: 031887127 - e-mail : info@mnaclab.it

Mod RP
Rev 00 of 03/23/10

TEST REPORT NO. 19371/1012 dated 24/09/2019

Sampling performed by: Principal
Sampling date: 17/09/2019
Sampling location: c/o client
Transportation carried out by: principal
Acceptance date: 17/09/2019
Rehearsal start date: 17/09/2019
End date of rehearsal: 24/09/2019

SAMPLE IDENTIFICATION
Matrix: plant tissue
n.lab: 19371/1012
Name: 2
Sample status on arrival: potted

Dear
Clinic & Research Ltd.
Belvedere Street, 11
22079 VILLA GUARDIA (CO)
C.A. Alessia Panizza

test name	result	unit of measurement	limit normative #	test method	U	K	chapter: opinions and interpretations ¤
total nitrogen	4,50	% s.s.		UNI EN 15104:2011			
total phosphorus	0,50	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
total potassium	6,05	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
total magnesium	0,31	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
total iron	152,40	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
total manganese	39,00	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
sulfur from total sulfates	0,13	% s.s.		Plant Analysis Handbook II:1996 ch. 5 + 6			
chlorophylls and carotenes +				Arnon, D (1949) Plant Physiology 24: 1- 15			
xanthophylls chlorophyll a	0,69	mg/g					
chlorophyll b	0,22	mg/g					
total chlorophyll	0,91	mg/g					
carotenes and xanthophylls	0,20	mg/g					
fresh weight	138,57	g		gravimetric			
dry weight	6,99	g		gravimetric			

U = expanded uncertainty calculated with 95% confidence level - K = coverage factor

VALAGUSSA MASSIMO

Laboratory manager Dr. agr. Massimo Valagussa
Order of Chartered Agronomists and Chartered Foresters
of the provinces of CO-LC-SO No. 130

ND: c=IT, o=CONAF, ou=Ord Prov Dr Agronomists Dr Foresters CO, ou=Section A, ou=Enrollment No. 130, title=4.11 Doctor of Agronomy, sn=VALAGUSSA, givenName=MASSIMO, serialNumber=ENVLGMSM62M02E507Q, cn=VALAGUSSA MASSIMO, dnQualifier=LOVM20160725958782 30
Date: 2019.09.24 14:26:31 +02'00'

Minoprio Analisi e Certificazioni S.r.l.
Via Verdi, 2 - c/o Tenuta Superiore della Fondazione Minoprio
tel: 031887127 - e-mail : info@mnaclab.it

Mod RP
Rev 00 of 03/23/10

TEST REPORT NO. 19371/1013 dated 24/09/2019

Sampling performed by: Principal
Sampling date: 17/09/2019
Sampling location: c/o client
Transportation carried out by: principal
Acceptance date: 17/09/2019
Rehearsal start date: 17/09/2019
End date of rehearsal: 24/09/2019

SAMPLE IDENTIFICATION
Matrix: plant tissue
n.lab: 19371/1013
Name: 3
Sample status on arrival: potted

Dear
Clinic & Research Ltd.
Belvedere Street, 11
22079 VILLA GUARDIA (CO)
C.A. Alessia Panizza

test name	result	unit of measurement	limit normative #	test method	U	K	chapter: opinions and interpretations ¤
total nitrogen	4,09	% s.s.		UNI EN 15104:2011			
total phosphorus	0,50	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
total potassium	5,87	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
total magnesium	0,33	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
total iron	207,80	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
total manganese	53,09	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
sulfur from total sulfates	0,12	% s.s.		Plant Analysis Handbook II:1996 ch. 5 + 6			
chlorophylls and carotenes +				Arnon, D (1949) Plant Physiology 24: 1- 15			
xanthophylls chlorophyll a	0,73	mg/g					
chlorophyll b	0,23	mg/g					
total chlorophyll	0,96	mg/g					
carotenes and xanthophylls	0,22	mg/g					
fresh weight	128,74	g		gravimetric			
dry weight	7,12	g		gravimetric			

U = expanded uncertainty calculated with 95% confidence level - K = coverage factor

VALAGUSSA MASSIMO

Laboratory manager Dr. agr. Massimo Valagussa Order of Chartered Agronomists and Chartered Foresters of the provinces of CO-LC-SO No. 130

ND: c=IT, o=CONAF, ou=Ord Prov Dr Agronomists Dr Foresters CO, ou=Section A, ou=Enrollment No. 130, title=4.11 Doctor of Agronomy, sn=VALAGUSSA, givenName=MASSIMO, serialNumber=ENVLGMSM62M02E507Q, cn=VALAGUSSA MASSIMO, dnQualifier=LOVM20160725958782 30
Date: 2019.09.24 14:26:54 +02'00'

Minoprio Analisi e Certificazioni S.r.l.
Via Verdi, 2 - c/o Tenuta Superiore della Fondazione Minoprio
tel: 031887127 - e-mail : info@macdab.it

Mod RP
Rev 00 of 03/23/10

TEST REPORT NO. 19371/1014

dated 24/09/2019

Sampling performed by: Principal
Sampling date: 17/09/2019
Sampling location: c/o client
Transportation carried out by: principal
Acceptance date: 17/09/2019
Rehearsal start date: 17/09/2019
End date of rehearsal: 24/09/2019

SAMPLE IDENTIFICATION
Matrix: plant tissue
n.lab: 19371/1014
Name: 4
Sample status on arrival: potted

Dear
Clinic & Research Ltd.
Belvedere Street, 11
22079 VILLA GUARDIA (CO)
C.A. Alessia Panizza

test name	result	unit of measurement	limit normative #	test method	U	K	chapter: opinions and interpretations ¤
total nitrogen	**2,87**	% s.s.		UNI EN 15104:2011			
total phosphorus	**0,45**	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
total potassium	**5,17**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
total magnesium	**0,23**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
total iron	**116,20**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
total manganese	**32,27**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
sulfur from total sulfates	**0,08**	% s.s.		Plant Analysis Handbook II:1996 ch. 5 + 6			
chlorophylls and carotenes +				Arnon, D (1949) Plant Physiology 24: 1- 15			
xanthophylls chlorophyll a	0,73	mg/g					
chlorophyll b	0,24	mg/g					
total chlorophyll	0,97	mg/g					
carotenes and xanthophylls	0,20	mg/g					
fresh weight	**88,27**	g		gravimetric			
dry weight	**5,40**	g		gravimetric			

U = expanded uncertainty calculated with 95% confidence level - K = coverage factor

VALAGUSSA MASSIMO

Laboratory manager Dr. agr. Massimo Valagussa Order of Chartered Agronomists and Chartered Foresters of the provinces of CO-LC-SO No. 130

AGrUiSFSAoMrAeSSsIMtOali
ND: c=IT, o=CONAF, ou=Ord Prov Dr Agronomists Dr Foresters CO, ou=Section A, ou=Enrollment No. 130, title=4.11 Doctor of Agronomy, sn=VALAGUSSA, givenName=MASSIMO, serialNumber=ENVLGMSM62M02E507Q, cn=VALAGUSSA MASSIMO, dnQualifier=LOVM201607259587823 0
Date: 2019.09.24 14:26:54 +02'00'

Minoprio Analisi e Certificazioni S.r.l.
Via Verdi, 2 - c/o Tenuta Superiore della Fondazione Minoprio
tel: 031887127 - e-mail : info@macdab.it

Mod RP
Rev 00 of 03/23/10

TEST REPORT NO. 19371/1015

dated 24/09/2019

Sampling performed by: Principal
Sampling date: 17/09/2019
Sampling location: c/o client
Transportation carried out by: principal
Acceptance date: 17/09/2019
Rehearsal start date: 17/09/2019
End date of rehearsal: 24/09/2019

SAMPLE IDENTIFICATION
Matrix: plant tissue
n.lab: 19371/1015
Name: H2O
Sample status on arrival: potted

Dear
Clinic & Research Ltd.
Belvedere Street, 11
22079 VILLA GUARDIA (CO)
C.A. Alessia Panizza

test name	result	unit of measurement	limit normative #	test method	U	K	chapter: opinions and interpretations ¤
total nitrogen	**4,36**	% s.s.		UNI EN 15104:2011			
total phosphorus	**0,49**	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
total potassium	**6,02**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
total magnesium	**0,31**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
total iron	**151,20**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
total manganese	**39,41**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
sulfur from total sulfates	**0,11**	% s.s.		Plant Analysis Handbook II:1996 ch. 5 + 6			
chlorophylls and carotenes +				Arnon, D (1949) Plant Physiology 24: 1- 15			
xanthophylls chlorophyll a	0,75	mg/g					
chlorophyll b total	0,25	mg/g					
chlorophyll	1,00	mg/g					
carotenes and xanthophylls	0,21	mg/g					
fresh weight	**140,77**	g		gravimetric			
dry weight	**7,61**	g		gravimetric			

U = expanded uncertainty calculated with 95% confidence level - K = coverage factor

VALAGUSSA MASSIMO

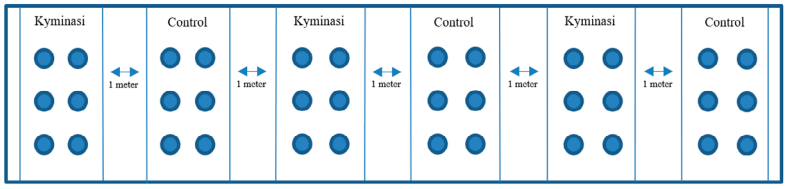
Laboratory manager Dr. agr. Massimo Valagussa Order of Chartered Agronomists and Chartered Foresters of the provinces of CO-LC-SO No. 130

ND: c=IT, o=CONAF, ou=Ord Prov Dr Agronomists Dr Foresters CO, ou=Section A, ou=Enrollment No. 130, title=4.11 Doctor of Agronomy, sn=VALAGUSSA, givenName=MASSIMO, serialNumber=ENVLGMSM62M02E507Q, cn=VALAGUSSA MASSIMO, dnQualifier=LOVM201607259587823 0
Date: 2019.09.24 14:26:54 +02'00'

06/10/2019 - A fourth test was aimed at demonstrating the differences between plants treated with normal water and those treated with Kyminasi Plants Crop Booster water. The test did not provide the desired result, but it was essential in understanding that the variations in the stimulation of nutrient absorption in plants do not allow for the synergies and antagonisms between nutrients. This is more complex than originally anticipated.

An experimental open field test is put in place to evaluate a crop's response to treatment with Kyminasi Plants water in terms of aerial biomass production and mineral content in the leaves.

Unfortunately, the test is not successful because the presence of the Kyminasi quantum waves (programming) is observed in the KPCB treated plants and in the control plants (untreated plants). This was investigated by Mr. Balmelli when he was informed early on in the experiment that there was no difference in growth rate. It is assumed that this "contamination" is due to the proximity between the treated and untreated rows, which are about one (1) meter apart and alternated between treated and control rows.



Layout of 4th Trial

This was further verified by Mr. Balmelli as he requested the researcher to provide plant samples from both Treated and Control fields so that they could be tested in the K-Project laboratory for the Kyminasi Plants programing accordingly and unfortunately, they both contained the programming and confirmed the trial was contaminated. Full report of the trial follows:

C19031

Subject: results of open field experimental activities of the effects on lettuce vegetative activity with application of irrigation water activation technology – ref. Offers MAC 175/2019 of 09/16/2019

PREMISE

In relation to the above, the task was conferred to Minoprio Analysis and Certifications Srl of Minoprio Foundation (CO) to carry out field trials in order to verify the possible effects on the vegetative activity of "technological application of water activation for irrigation" by you implemented.

The experimental field test carried out was identified following previous and preliminary tests experiments in greenhouses and laboratory analyses, as well as the information you provide on the technology object of verification.

The species chosen for the field trial (leaf lettuce, Canasta variety) is among those which can better highlight any positive effects of the technology being tested, as well as the most suitable for the seasonal period in which cultivation took place (September-October).

The experimental test was carried out at the Tenuta Superiore of the Minoprio Foundation, in Vertemate con Minoprio (CO).

Experimental methodology implemented, results and conclusions follow.

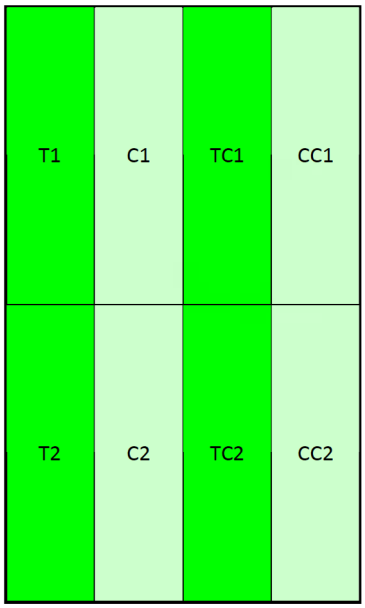
MATERIALS AND METHODS

The experimental field, measuring 16*5 meters, is located on the Tenuta Superiore of the Foundation Minoprio, oriented east-west with a slope of about 2%.

The implemented experimental theses are 4, each replicated 2 times (replica 1 and replica 2):

1. open test (C)
2. tunnel control (CC)
3. treated (irrigation water activation) in the open (T)
4. treated (irrigation water activation) in tunnel (TC)

Below experimental scheme implemented (in green the plots treated with activated water).



Considering the activation/non-activation of water as an experimental factor, the experimental theses become 2 (Control and Treated), each with 4 replicates (parcel unit size 9.6 m2).

In each plot (replica) 3 rows were foreseen, for a total of about 96 plants/replica.

Irrigation was carried out with a dripline for each single row, equipped with automatic drippers compensating, 0.30 cm pitch, flow rate 2.3 liters/h.

Expected measurements (for single replicates): fresh weight and dry weight + leaf analysis (N – P – K – Mg – Fe – Mn - S from sulphates - chlorophyll - carotenes + xanthophylls).

The data were subjected to statistical processing (Anova and Duncan's test) to evaluate the presence of statistically significant differences between the means.

In agreement with the client, part of the production was placed in a cold room for visual evaluation of any differences between the theses in the preservation of the fresh product.

The central rows of each thesis were kept under cultivation until November 20, for visual evaluation of any behavioral differences of the plants of the different theses.

The calendar of activities for preparing the experimental field and crop settings is as follows:

13 September: tillage and preparation of number 4 brave (in the direction of slope of the field), subsequently covered with a black waterproofing sheet mulch.

20 September: installation of the roofing tunnel with transparent sheeting on two banks and insertion of dripline under the mulch (3 irrigation lines/proda).

23 September: transplant of Canasta variety leaf lettuce seedlings (sown in cells of germination at the end of August at Floriculture Pironi di Vertemate con Minoprio), with sixth of plant 30*35 cm, three rows per border (total 12 rows on the four borders); manual watering for sprinkling.

25 September: installation of the control unit, meter, fittings and pipes for connection of the single drip lines, with 2 solenoid valves to define two separate irrigation zones, each of service to two separate yards (one open pit and one under tunnel); application to one of the two client-supplied water treatment element zones and setting automatic watering program for both zones with daily frequency, duration 30 minutes, departure at 10 in the morning.

September 27: extension of irrigation times for each zone to 60 minutes, again with daily frequency.

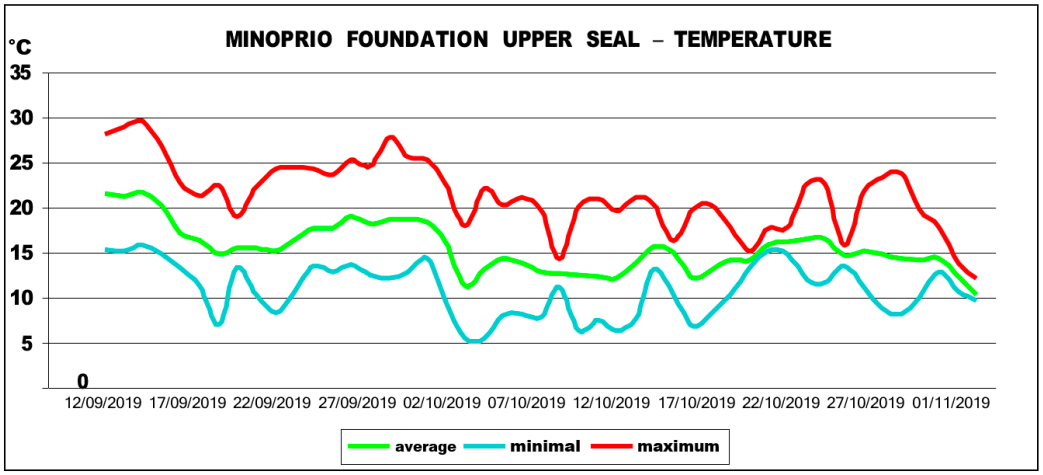
October 8: Reduced run times to 30 minutes for both zones, again frequently daily.

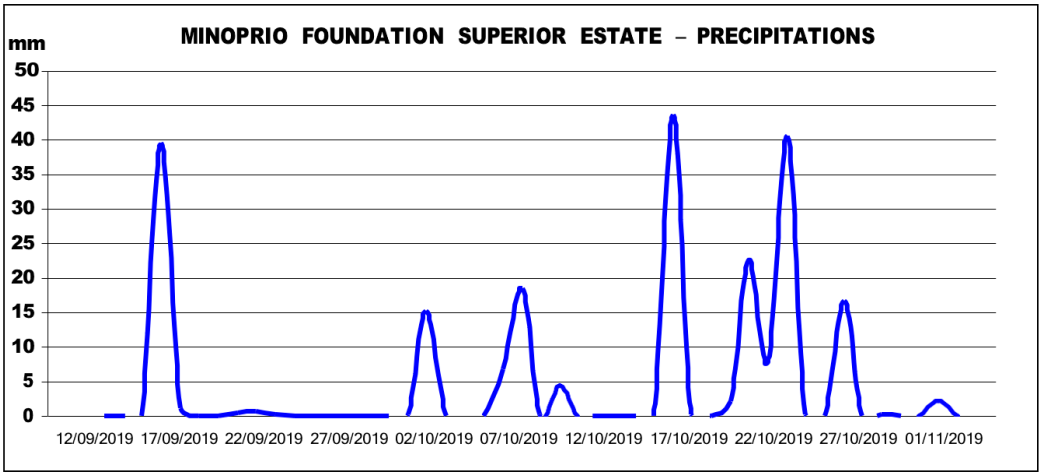
31 October: 4 plants/replica/thesis collected from central files for the determination of production (fresh weight and dry weight); collected 6 plants/theses from the middle row per placement in cold storage and

reduced irrigation times to 15 minutes on a daily basis.

November 4: fresh tissue collected from several plants of the central rows of each replica for laboratory analysis; soil sample collected from each edge to determine the value of pH.

The following graphs show the climatic trend in the period of the experimental test (source ARPA Lombardy – Vertemate weather station with Minoprio).





RESULTS AND STATISTICAL INTERPRETATIONS

Below are the summary tables of the results obtained and the outcome of their processing (analysis of variance and Duncan's test: different letters correspond to significantly different values for P=0.05). The statistical processing was carried out considering both 4 theses and 2 replicas (C-CC-T-TC) and 2 thesis and 4 replicas (C - T).

STATISTICAL WORKSHOP FOR 4 THESIS AND 2 REPLICAS (2 EXPERIMENTAL FACTORS PRESENT: ACTIVATION/NOT ACTIVATION WATER+COVERAGE FACTOR/NOT CULTIVATION COVERAGE)

Table 1 and Table 2 show the average production data of fresh and dry aerial biomass.

Table 1: Average Fresh Aerial Biomass Production (grams)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	2	365.705	13.0603	3.57126%	a
CC	2	281.275	42.0799	14.9604%	a
T	2	332.050	82.4628	24.8345%	a
CT	2	356.015	22.8466	6.41732%	a

(if present, different letters correspond to statistically different means for P=0.05)

Table 2: Average Dry Aerial Biomass Production (grams)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	2	15.665	0.544472	3.47572%	a
CC	2	10.765	1.68999	15.6989%	a
T	2	14.225	3.13248	22.021%	a
CT	2	14.390	0.452548	3.14488%	a

(if present, different letters correspond to statistically different means for P=0.05)

Tables 3 and 4 show the results of the analysis of the determination of total chlorophyll and of xanthophylls + carotenes.

Table 3: Total Chlorophyll Content (mg/g)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	2	0,.75	0.0777817	11.5232%	a
CC	2	0.520	0.127279	24.4768%	a
T	2	0.535	0.0636396	11.8953%	a
CT	2	0.630	0.0	0.0%	a

(if present, different letters correspond to statistically different means for P=0.05)

Table 4: Content of Carotenes and Xanthophylls (mg/g)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	2	0.085	0.00707107	8.3189%	a
CC	2	0.100	0.0141421	14.1421%	a
T	2	0.085	0.00707107	8.3189%	a
CT	2	0.110	0.0141421	12.8565%	a

(if present, different letters correspond to statistically different means for P=0.05)

Now follow a series of tables (from Table 5 to Table 11) with the results of the supply of nutritional elements.

Table 5: Total Nitrogen Content (N % ss)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
CC	2	4.840	0.0282843	0.584386%	a
T	2	4.635	0.0212132	0.457674%	a
CT	2	4.385	0.26163	5.96647%	a
c	2	4.060	0.0141421	0.348328%	a

(if present, different letters correspond to statistically different means for P=0.05)

Table 6: Total Phosphorus Content (P % Dry Matter)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
T	2	0.415	0.00707107	1.70387%	a
c	2	0.410	0.0	0.0%	a
CT	2	0.385	0.00707107	1.83664%	a
CC	2	0.385	0.00707107	1.83664%	a

(if present, different letters correspond to statistically different means for P=0.05)

Table 7: Total Potassium Content (K % ss)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	2	4.650	0.0424264	0.912396%	a
CC	2	5.680	0.438406	7.71842%	a
T	2	5.570	0.749533	13.4566%	a
CT	2	4.205	0.770746	18.3293%	a

(if present, different letters correspond to statistically different means for P=0.05)

Table 8: Total Iron Content (Fe mg/kg ss)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	2	66.510	8.47114	12.7366%	a
CC	2	92.015	18.9292	20.5719%	a
T	2	76.955	10.0338	13.0386%	a
CT	2	107.340	28.3691	26.4292%	a

(if present, different letters correspond to statistically different means for P=0.05)

Table 9: Total Manganese Content (Mn mg/kg ss)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
CC	2	23.035	6.2579	27.1669%	a
CT	2	21.160	0.565685	2.67337%	a
T	2	14.700	2.17789	14.8156%	a
c	2	13.135	0.417193	3.17619%	a

(if present, different letters correspond to statistically different means for P=0.05)

Table 10: Total Magnesium Content (Mg % dry matter)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	2	0.23	0.0	0.0%	a
CC	2	0.21	0.0424264	20.2031%	a
T	2	0.21	0.0141421	6.73435%	a
CT	2	0.21	0.0282843	13.4687%	a

(if present, different letters correspond to statistically different means for P=0.05)

Table 11: Sulfur Content from Sulphates ($S\text{-}SO_4$% ss)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	2	0.165	0.0212132	12.8565%	a
CC	2	0.225	0.0212132	9.42809%	a
T	2	0.185	0.0212132	11.4666%	a
CT	2	0.190	0.0282843	14.8865%	a

(if present, different letters correspond to statistically different means for P=0.05)

STATISTICAL WORKSHOP FOR 2 THESIS AND 4 REPLICAS (1 EXPERIMENTAL FACTOR PRESENT: ACTIVATION/NOT ACTIVATION WATER)

Table 12 and Table 13 show the average production data of fresh and dry aerial biomass.

Table 12: Average Fresh Aerial Biomass Production (grams)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	4	323.490	54.984	16.9971%	a
T	4	344.033	51.3043	14.9126%	a

(if present, different letters correspond to statistically different means for P=0.05)

Table 13: Average Dry Air Biomass Production (grams)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	4	13.2150	3.00901	22.7697%	a
T	4	14.3075	1.8298	12.7891%	a

(if present, different letters correspond to statistically different means for P=0.05)

Tables 14 and 15 show the results of the analysis of the determination of total chlorophyll and of xanthophylls + carotenes.

Table 14: Total Chlorophyll Content (mg/g)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	4	0.5975	0.124197	20.7862%	a
T	4	0.5825	0.0660177	11.3335%	a

(if present, different letters correspond to statistically different means for P=0.05)

Table 15: Content of Carotenes and Xanthophylls (mg/g)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	4	0.0925	0.0125831	13.6033%	a
T	4	0.0975	0.0170783	17.5162%	a

(if present, different letters correspond to statistically different means for P=0.05)

Now follow a series of tables (from Table 16 to Table 22) with the results of the supply of nutrional elements.

Table 16: Total Nitrogen Content (N % Dry Matter))

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	4	4.45	0.450703	10.1282%	a
T	4	4.51	0.209284	4.64045%	a

(if present, different letters correspond to statistically different means for P=0.05)

Table 17: Total Phosphorus Content (P % Dry Matter)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	4	0.3975	0.015	3.77358%	a
T	4	0.4000	0.0182574	4.56435%	a

(if present, different letters correspond to statistically different means for P=0.05)

Table 18: Total Potassium Content (K % Dry Matter)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	4	5.1650	0.646761	12.522%	a
T	4	4.8875	1.00317	20.5253%	a

(if present, different letters correspond to statistically different means for P=0.05)

Table 19: Total Iron Content (Fe mg/kg ss)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	4	79.2625	18.9788	23.9442%	a
T	4	92.1475	24.6896	26.7936%	a

(if present, different letters correspond to statistically different means for P=0.05)

Table 20: Total Manganese Content (Mn mg/kg ss)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	4	18.085	6.76622	37.4135%	a
T	4	17.930	3.94946	22.0271%	a

(if present, different letters correspond to statistically different means for P=0.05)

Table 21: Total Magnesium Content (Mg % Dry Matter)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	4	0.22	0.0270801	12.3091%	a
T	4	0.21	0.0182574	8.69401%	a

(if present, different letters correspond to statistically different means for P=0.05)

Table 22: Sulfur Content from Sulphates ($S\text{-}SO_4$% ss)

Thesis	Count	Average	Standard Deviation	Coefficient of Variation	Homogeneous Groups
c	4	0.1950	0.0387298	19.8615%	a
T	4	0.1875	0.0206155	10.9949%	a

(if present, different letters correspond to statistically different means for P=0.05)

Table 23 shows the intervals of sufficiency (reference values) for the foliar endowment in elements for lettuce (ref. Leaf diagnosis in horticulture, M. Valagussa, 2009).

Table 23: Sufficiency Ranges for Lettuce

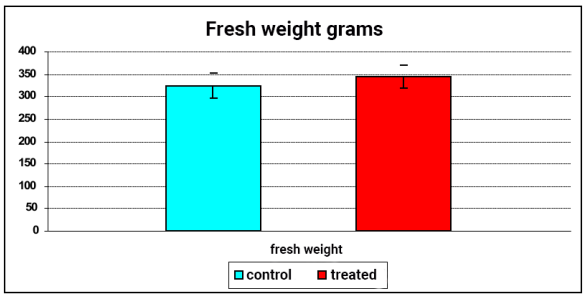
Parameter	UM	Sufficiency Range
N total	% seq	4.0 - 5.5
P total	% seq	0.4 - 1.0
K total	% seq	6.0 - 9.0
Fe total	mg/kg dry matter	50 - 100
Mn total	mg/kg dry matter	15 - 250
mg total	% seq	0.5 - 3.5
$S\text{-}SO_4$	% seq	0.2 - 0.4

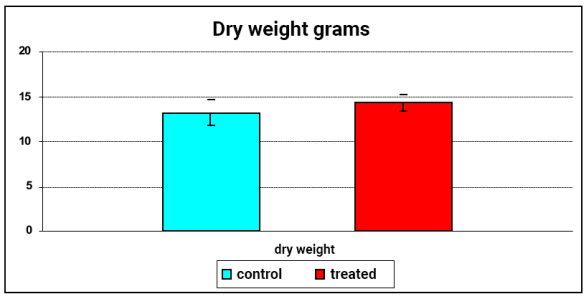
Table 24 shows the pH values detected in post-harvest on the four (4) different theses.

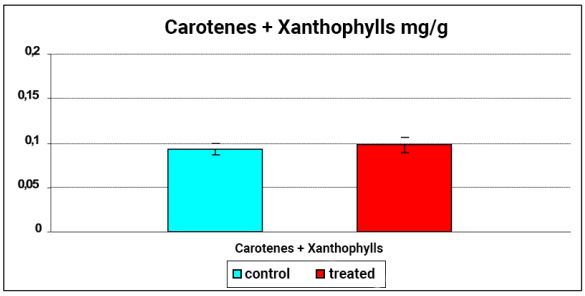
Table 24: pH (H_2O) Ground

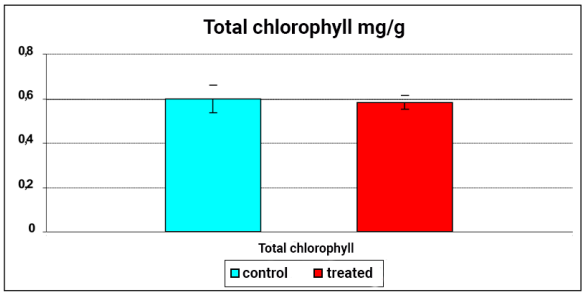
Thesis	pH Unit
c	7.4
T	7.6
CC	7.7
CT	7.6

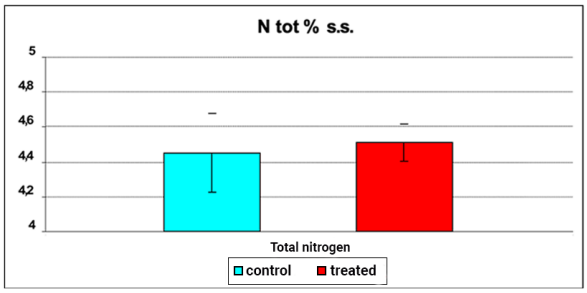
Below are the results shown graphically relating only to the "water treatment/non-treatment" factor (2 thesis, 4 replies); the bar on the histograms represents the standard error.

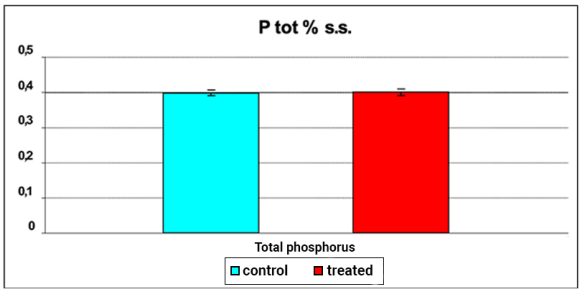


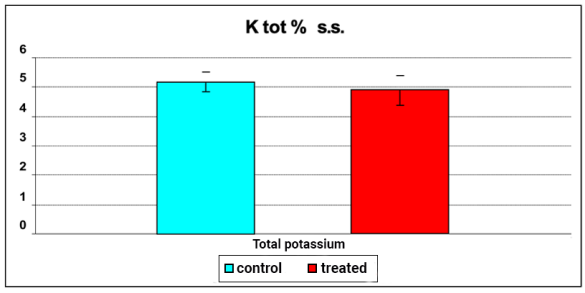


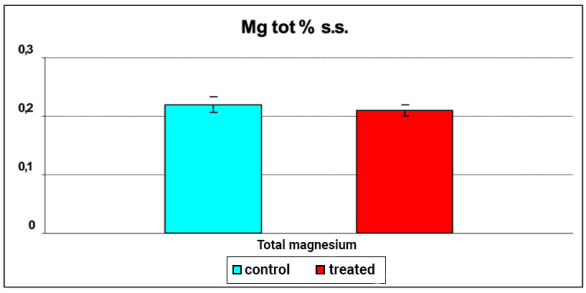


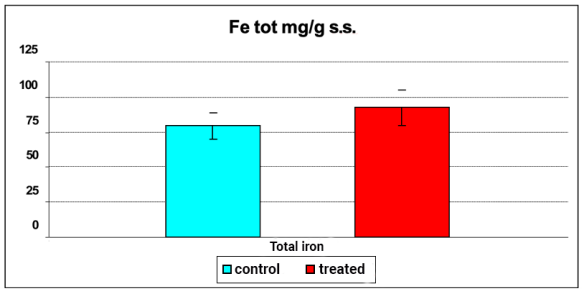


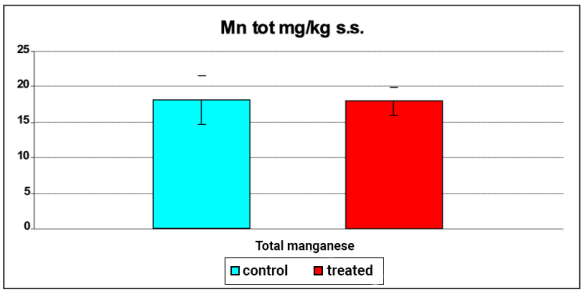


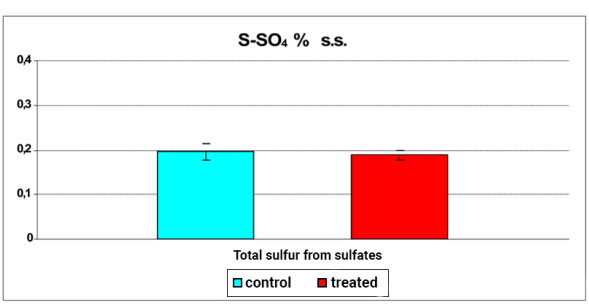












COMMENT ON RESULTS AND FINAL CONSIDERATIONS

Statistical processing of the results obtained from the field trial does not allow for any differences to be highlighted as statistically significant, neither in terms of production nor in terms of nutritional conditions, among the plants from plots irrigated with activated water versus those irrigated with untreated water. Considering the different field conditions (open pit cultivation and tunnel cultivation), i.e., two experimental factors (coverage/non-coverage and water treatment/non-treatment) emerge, for some parameters (leaf content of nitrogen, phosphorus and manganese) statistically significant differences. For the nitrogen content (Table 4) the plants of the CC thesis (covered control) stand out positively compared to those of the open control (C) and those treated on the roof (TC). For what concern contained in phosphorus, both open pit theses have significantly higher endowments compared to plants grown under cover. The differences noted for the manganese parameter are more subtle: cover-grown control plants differ from air-grown control plants open, while there are no differences compared to those treated (covered and not). Also, in terms of the pH of the soil, during cultivation no significant changes were found (it is possible that this effect is manifest after longer periods of treatment). Differences in assimilation were not confirmed of elements that had been detected in the preliminary tests last spring. Observation too of the plants placed in the cold room to evaluate any differences in the preservation of the product fresh did not show significant differences.

It is believed that the non-positive results obtained do not depend on the growing season (the month of October has had optimal climatic conditions for the cultivation of lettuce), from any reduced distribution of water (the daily quantity of water distributed in the field was on average equal to 20 liters/m^2 from the 27/09 to 07/10 and 10 liters/m^2 from 08/10 to 31/10), without any interruption, even on rainy days. On the other hand, the outcome of the cultivation was positive, with a qualitative and quantitative production of

excellent level; with respect to the sufficiency intervals of the elements (Table 23) it was possible to highlight one slight deficiency for potassium and magnesium.

Attached are the Test Reports of the determinations made.

We remain at your disposal for any clarifications and further information.

for Minoprio Analysis and Certifications agronomist Massimo Valagussa

Vertemate con Minoprio, 19 November 2019

MAC

Minoprio Analisi e Certificazioni S.r.l.
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Minoprio tel: 031887127 - e-mail : info@maclab.it

Against RP
Rev 00 of 23/03/10

REPORT OF TRIAL N. 19444/1354 **dated 19/11/2019**

Sampling performed by: Minoprio Analisi e Certificazioni Srl
Sampling date 31/10/2019
Sampling location c/o client

Transportation carried out by: principal
Acceptance date: 04/11/2019
Rehearsal start date: 04/11/2019
End date of rehearsal: 14/11/2019

SAMPLE IDENTIFICATION
Matrix: plant tissue
n.lab: 19444/1354
Name: T1 - TREATED

Sample status on arrival: potted

Spett.le
Clinic & Research Srl

via Belvedere, 11
22079 VILLA GUARDIA (CO)

c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	U	K	chapter: opinions and interpretations *
nitrogen total	**4,65**	% s.s.		HIM IN 15104:2011			
phosphorus total	**0,41**	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
potassium total	**6,10**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
magnesium total	**0,20**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
iron total	**84,05**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
manganese total	**13,16**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
sulfur and sulphates total	**0,17**	% s.s.		Plant Analysis Handbook II:1996 ch. 5 + 6			
chlorophyll and carotenes +				on D (1949) Plant Physiology 24: 1- 15			
xanthophyll chlorophyll a	0,38	mg/g					
chlorophyll b	0,20	mg/g					
chlorophyll total	0,58	mg/g					
carotenes and xanthophyll	0,09	mg/g					
fresh weight	**273,74**	g		gravimetric			
dry weight	**12,01**	g		gravimetric			

U = Extended uncertainty calculated with 95% confidence level - K = coverage factor

Responsible Laboratory
dr. agr. Massimo Valagussa
Order Doctors Agronomists and Doctors Forestry
of the province Of CO-LC-SO n.130

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Via Verdi, 2 - c/o Tenuta Superiore della Fondazione
Minoprio tel: 031887127 - e-mail : info@maclab.it

Against RP
Rev 00 of 23/03/10

REPORT OF TRIAL N19444/1355

dated 19/11/2019

Sampling performed by: Minoprio Analisi e Certificazioni Srl
Sampling date: 31/10/2019
Sampling location: c/o client

Transportation carried out by: client
Acceptance date: 04/11/2019
Rehearsal start date: 04/11/2019
End date of rehearsal: 14/11/2019

SAMPLE IDENTIFICATION
Matrix: plant tissue
n.lab: 19444/1355
Name: T2 - TREATED

Sample status on arrival: potted

Spett.le
Clinic & Research Srl

via Belvedere, 11
22079 VILLA GUARDIA (CO)

c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	U	K	chapter: opinions and interpretations *
nitrogen total	**4,62**	% s.s.		HIM IN 15104:2011			
phosphorus total	**0,42**	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
potassium total	**5,04**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
magnesium total	**0,22**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
iron total	**69,86**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
manganese total	**16,24**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
sulfur and sulphates total	**0,20**	% s.s.		Plant Analysis Handbook II:1996 ch. 5 + 6			
chlorophyll and carotenes +				on D (1949) Plant Physiology 24: 1- 15			
xanthophyll chlorophyll a	0,33	mg/g					
chlorophyll b	0,16	mg/g					
chlorophyll total	0,49	mg/g					
carotenes and xanthophyll	0,08	mg/g					
fresh weight	**390,36**	g		gravimetric			
dry weight	**16,44**	g		gravimetric			

U = Extended uncertainty calculated with 95% confidence level - K = coverage factor

Responsible Laboratory
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tel: 031887127 - e-mail : info@maclab.it

Mod RP
Rev 00 del 23/03/10

TEST REPORT N. 19444/1356

dated 19/11/2019

Sampling performed by: Minoprio Analisi e Certificazioni Srl
Sampling date: 31/10/2019
Sampling location: c/o dient

Transportation carried out by: client
Acceptance date: 04/11/2019
Rehearsal start date: 04/11/2019
End date of rehearsal: 14/11/2019

SAMPLE IDENTIFICATION
Matrix: plant tissue
n.lab: 19444/1356
Name: C1 CONTROL

Sample status on arrival: potted

Spett.le
Clinic & Research Srl

via Belvedere, 11
22079 VILLA GUARDIA (CO)

c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	U	K	chapter: opinions and interpretations *
nitrogen total	**4,07**	% s.s.		UNI EN15104:2011			
phosphorus total	**0,41**	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
potassium total	**4,62**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
magnesium total	**0,23**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
iron total	**60,52**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
manganese total	**13,43**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
sulfur and sulphates total	**0,15**	% s.s.		Plant Analysis Handbook II:1996 ch. 5 + 6			
chlorophyll and carotenes + xanthophyll				Amon, D (1949) Plant Physiology 24: 1-15			
chlorophyll a	0,40	mg/g					
chlorophyll b	0,21	mg/g					
chlorophyll total	0,62	mg/g					
carotenes and xanthophyll	0,08	mg/g					
fresh weight	**356,47**	g		gravimetric			
dry weight	**15,28**	g		gravimetric			

U = Extended uncertainty calculated with 95% confidence level - K = coverage factor

Responsible Laboratory
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TEST REPORT N. 19444/1357 dated 19/11/2019

Sampling performed by: Minoprio Analisi e Certificazioni Srl
Sampling date: 31/10/2019
Sampling location: c/o client
Transportation carried out by: client
Acceptance date: 04/11/2019
Rehearsal start date: 04/11/2019
End date of rehearsal: 14/11/2019

SAMPLE IDENTIFICATION
Matrix: plant tissue
n.lab: 19444/1357
Name: C2 - CONTROL

Sample status on arrival: potted

Spett.le
Clinic & Research Srl

via Belvedere, 11
22079 VILLA GUARDIA (CO)

c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	$\mathcal{U}$	K	chapter: opinions and interpretations *
nitrogen total	**4,05**	% s.s.		UNI EN 15104:2011			
phosphorus total	**0,41**	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
potassium total	**4,68**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
magnesium total	**0,23**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
iron total	**72,50**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
manganese total	**12,84**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
sulfur and sulphates total	**0,18**	% s.s.		Plant Analysis Handbook II:1996 ch. 5 + 6			
chlorophyll and carotenes + xanthophyll				Amon, D (1949) Plant Physiology 24: 1-15			
chlorophyll a	0,46	mg/g					
chlorophyll b	0,27	mg/g					
chlorophyll total	0,73	mg/g					
carotenes and xanthophyll	0,09	mg/g					
fresh weight	**374,94**	g		gravimetric			
dry weight	**16,05**	g		gravimetric			

$\mathcal{U}$ =Extended uncertainty calculated with 95% confidence level - K = coverage factor

Responsible Laboratory
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TEST REPORT N. 19444/1358 dated 19/11/2019

Sampling performed by: Minoprio Analisi e Certificazioni Srl
Sampling date: 31/10/2019
Sampling location: c/o client
Transportation carried out by: client
Acceptance date: 04/11/2019
Rehearsal start date: 04/11/2019
End date of rehearsal: 14/11/2019

SAMPLE IDENTIFICATION
Matrix: **plant tissue**
n.lab: 19444/1358
Name: TC1 - TREATED COVERED

Sample status on arrival: **potted**

Spett.le
Clinic & Research Srl

via Belvedere, 11
22079 VILLA GUARDIA (CO)

c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	$\mathcal{U}$	K	chapter: opinions and interpretations *
nitrogen total	**4,57**	% s.s.		UNI EN 15104:2011			
phosphorus total	**0,38**	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
potassium total	**4,75**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
magnesium total	**0,19**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
iron total	**127,40**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
manganese total	**20,76**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
sulfur and sulphates total	**0,21**	% s.s.		Plant Analysis Handbook II:1996 ch. 5 + 6			
chlorophyll and carotenes + xanthophyll				Amon, D (1949) Plant Physiology 24: 1-15			
chlorophyll a	0,43	mg/g					
chlorophyll b	0,20	mg/g					
chlorophyll total	0,63	mg/g					
carotenes and xanthophyll	0,10	mg/g					
fresh weight	**372,17**	g		gravimetric			
dry weight	**14,71**	g		gravimetric			

$\mathcal{U}$ = Extended uncertainty calculated with 95% confidence level - K = coverage factor

Responsible Laboratory
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Mod RP
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TEST REPORT N. 19444/1359 dated 19/11/2019

Sampling performed by: Minoprio Analisi e Certificazioni Srl
Sampling date: 31/10/2019
Sampling location: c/o client
Transportation carried out by: client
Acceptance date: 04/11/2019
Rehearsal start date: 04/11/2019
End date of rehearsal: 14/11/2019

SAMPLE IDENTIFICATION
Matrix: plant tissue
n.lab: 19444/1359
Name: TC2 - TREATED COVERED

Sample status on arrival: potted

Spett.le
Clinic & Research Srl

via Belvedere, 11
22079 VILLA GUARDIA (CO)

c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	$\mathcal{U}$	K	chapter: opinions and interpretations *
nitrogen total	**4,20**	% s.s.		UNI EN 15104:2011			
phosphorus total	**0,39**	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
potassium total	**3,66**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
magnesium total	**0,23**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
iron total	**87,28**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
manganese total	**21,56**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
sulfur and sulphates total	**0,17**	% s.s.		Plant Analysis Handbook II:1996 ch. 5 + 6			
chlorophyll and carotenes + xanthophyll				Amon, D (1949) Plant Physiology 24: 1-15			
chlorophyll a	0,45	mg/g					
chlorophyll b	0,18	mg/g					
chlorophyll total	0,63	mg/g					
carotenes and xanthophyll	0,12	mg/g					
fresh weight	**339,86**	g		gravimetric			
dry weight	**14,07**	g		gravimetric			

$\mathcal{U}$ =Extended uncertainty calculated with 95% confidence level - K = coverage factor

Responsible Laboratory
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Mod RP
Rev 00 del 23/03/10

TEST REPORT N. 19444/1360 dated 19/11/2019

Sampling performed by: Minoprio Analisi e Certificazioni Srl
Sampling date: 31/10/2019
Sampling location: c/o client

Transportation carried out by: client
Acceptance date: 04/11/2019
Rehearsal start date: 04/11/2019
End date of rehearsal: 14/11/2019

SAMPLE IDENTIFICATION
Matrix: plant tissue
n.lab: 19444/1360
Name: CC1 - CONTROL COVERED

Sample status on arrival: potted

Spett.le
Clinic & Research Srl

via Belvedere, 11
22079 VILLA GUARDIA (CO)

c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	$\mathcal{U}$	K	chapter: opinions and interpretations *
nitrogen total	**4,86**	% s.s.		UNI EN 15104:2011			
phosphorus total	**0,38**	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
potassium total	**5,99**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
magnesium total	**0,18**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
iron total	**78,63**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
manganese total	**18,61**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
sulfur and sulphates total	**0,21**	% s.s.		Plant Analysis Handbook II:1996 ch. 5 + 6			
chlorophyll and carotenes + xanthophyll				Amon, D (1949) Plant Physiology 24: 1-15			
chlorophyll a	0,43	mg/g					
chlorophyll b	0,18	mg/g					
chlorophyll total	0,61	mg/g					
carotenes and xanthophyll	0,11	mg/g					
fresh weight	**311,03**	g		gravimetric			
dry weight	**11,96**	g		gravimetric			

$\mathcal{U}$ = Extended uncertainty calculated with 95% confidence level - K = coverage factor

Responsible Laboratory
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tel: 031887127 - e-mail : info@macdab.it

Mod RP
Rev 00 del 23/03/10

TEST REPORT N. 19444/1361 dated19/11/2019

Sampling performed by: Minoprio Analisi e Certificazioni Srl
Sampling date: 31/10/2019
Sampling location: c/o client

Transportation carried out by: client
Acceptance date: 04/11/2019
Rehearsal start date: 04/11/2019
End date of rehearsal: 14/11/2019

SAMPLE IDENTIFICATION
Matrix: plant tissue
n.lab: 19444/1361
Name: CC2 - CONTROL COVERED

Sample status on arrival: potted

Spett.le
Clinic & Research Srl

via Belvedere, 11
22079 VILLA GUARDIA (CO)

c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	$\mathcal{U}$	K	chapter: opinions and interpretations *
nitrogen total	**4,82**	% s.s.		UNI EN 15104:2011			
phosphorus total	**0,39**	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
potassium total	**5,37**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
magnesium total	**0,24**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
iron total	**105,40**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
manganese total	**27,46**	mg/kg s.s.		EPA 3051A:2007 + EPA 7000B:2007			
sulfur and sulphates total	**0,24**	% s.s.		Plant Analysis Handbook II:1996 ch. 5 + 6			
chlorophyll and carotenes + xanthophyll				Amon, D (1949) Plant Physiology 24: 1-15			
chlorophyll a	0,31	mg/g					
chlorophyll b	0,12	mg/g					
chlorophyll total	0,43	mg/g					
carotenes and xanthophyll	0,09	mg/g					
fresh weight	**251,52**	g		gravimetric			
dry weight	**9,57**	g		gravimetric			

$\mathcal{U}$ = Extended uncertainty calculated with 95% confidence level - K = coverage factor

Responsible Laboratory
dr. agr. Massimo Valagussa
Order Doctors Agronomists and Doctors Forestry
of the province Of CO-LC-SO n.130

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tel: 031887127 - e-mail : info@macdab.it

Mod RP
Rev 00 del 23/03/10

TEST REPORT N. 19445/1362 dated 19/11/2019

Sampling performed by: Minoprio Analisi e Certificazioni Srl
Sampling date: 04/11/2019
Sampling location: Vertemate con Minoprio - CO

Transportation carried out by: MAC SRL
Acceptance date: 04/11/2019
Rehearsal start date: 04/11/2019
End date of rehearsal: 06/11/2019

SAMPLE IDENTIFICATION
Matrix: soil
n.lab: 19445/1362
Name: T

Sample status on arrival: polybag

Spett.le
Clinic & Research Srl

via Belvedere, 11
22079 VILLA GUARDIA (CO)

c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	$\mathcal{U}$	K	chapter: opinions and interpretations *
pH H2O	**7,6**	pH units		DM 13/09/1999 SO n.185 GU 248 21/10/1999 Met III.1			

$\mathcal{U}$ = Extended uncertainty calculated with 95% confidence level - K = coverage factor

Responsible Laboratory
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TEST REPORT N. 19445/1363 dated 19/11/2019

Sampling performed by: Minoprio Analisi e Certificazioni Srl
Sampling date: 04/11/2019
Sampling location: Vertemate con Minoprio - CO

Transportation carried out by: MAC SRL
Acceptance date: 04/11/2019
Rehearsal start date: 04/11/2019
End date of rehearsal: 06/11/2019

SAMPLE IDENTIFICATION
Matrix: soil
n.lab: 19445/1363
Name: C

Sample status on arrival: polybag

Spett.le
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via Belvedere, 11
22079 VILLA GUARDIA (CO)

c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	$\mathcal{U}$	K	chapter: opinions and interpretations *
pH H2O	**7,4**	pH units		DM 13/09/1999 SO n.185 GU 248 21/10/1999 Met III.1			

$\mathcal{U}$ = Extended uncertainty calculated with 95% confidence level - K = coverage factor

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Rev 00 del 23/03/10

TEST REPORT N. 19445/1364 dated 19/11/2019

Sampling performed by: Minoprio Analisi e Certificazioni Srl
Sampling date: Sampling location: 04/11/2019 Vertemate con Minoprio - CO

Transportation carried out by: MAC SRL
Atceptance date: 04/11/2019
Rehearsal start date: 04/11/2019
End date of rehearsal: 06/11/2019

SAMPLE IDENTIFICATION
Matrix: soil
n.lab: 19446/1364
Name: TC

Sample status on arrival: polybag

Spett. le
Clinic & Research Srl

via Belvedere, 11
22079 VILLA GUARDIA
(CO)

e.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	$\mathcal{U}$	K	chapter: opinions and interpretations *
pH H2O	**7,6**	pH units		DM 13/09/1999 SO n.185 GU 248 21/10/1999 Met III.1			

$\mathcal{U}$ = Extended uncertainty calculated with 95% confidence level - K = coverage factor

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TEST REPORT N. 19445/1365 **dated 19/11/2019**

Sampling performed by: Minoprio Analisi e Certificazioni Srl
Sampling date: 04/11/2019
Sampling location: Verternate con Minoprio - CO

Transportation carried out by: MAC SRL
Acceptance date: Rehearsal 04/11/2019
start date: 04/11/2019
End date of rehearsal: 06/11/2019

SAMPLE IDENTIFICATION
Matrix: soil
n.lab: 19445/1365
Name: CC

Sample status on arrival: polybag

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Clinic & Research Srl

via Belvedere, 11
22079 VILLA GUARDIA (CO)

c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	U	K	chapter: opinions and interpretations *
pH H2O	7,7	pH units		DM 13/09/1999 SO n.185 GU 248 21/10/1999 Met III.1			

U = Extended uncertainty calculated with 95% confidence level - K = coverage factor

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NEW DATA DISCOVERY BASED ON FAILED TRIAL

This new experience stimulates further research on the quantum wave transmission through rain and underground water, as well as through the minerals contained in the soil itself. It is concluded that, based on the characteristics of the technology that fall within the biophysical field and not the chemical one we are used to in agriculture, the open field tests have a high risk of "contamination" for the purposes of comparative tests, a risk much less present in the potted tests.

For example, increasing absorption of some nutrients can also increase the absorption of others. A well-known example of this is the synergy between Nitrogen and Phosphorus and Nitrogen and Potassium.

Other nutrients can create antagonisms with other nutrients,

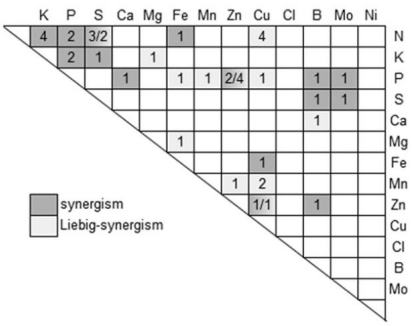
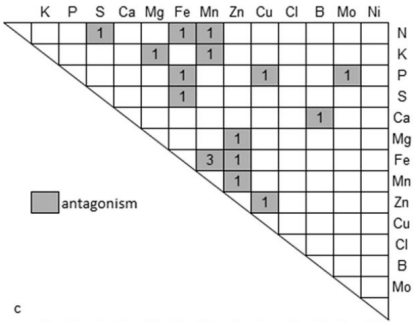


Figure 3 Nutrient Synergies Effects of Nutrient Antagonism and Synergism



thereby inadvertently reducing the absorption of those secondary nutrients. An example of this is Phosphorus and Iron. Both nutrients are needed for plant health, however, when one of the two is predominant, the other is reduced, depriving the plant of the metabolic and beneficial effects produced by the mineral in question. The reduction of the secondary nutrients could also increase or decrease the absorption of other tertiary nutrients. This is a ripple effect that required thousands of calculations and hundreds of tests in order to find the most valuable formula for the majority of plants. As a result, Mr. Balmelli created a series of new prototypes based on the various technologies developed over the years, modified, based on his latest discoveries.

08/02/2019 – These TESTS AND DISCOVERIES are compared through laboratory analyses.

09/24/2019 – From the previous analyses, four (4) different possible variants of the chosen prototype emerge, which are further compared by means of laboratory tests. As a result of these tests, the best variant is identified, which is given the name, “Tech 6.”

10/19/2019 – Tech 6 is released and Harvest Harmonics Corp, the international distributor, begins the commercialization of the Crop Booster product. Many field trials are started in United States, Central and South America. By the end of 2019, several university trials are scheduled for 2020 and sales are beginning to expand. Acceptance of the new technology has taken a normal slow start.

2020

The onset of the COVID 19 pandemic effectively cancels almost all university trials except one in Lima, Peru. The majority of new field trials started internationally as well as in the United States are also canceled as farmers are preoccupied with the pandemic.

The remaining ongoing case studies in North, Central, and South America yield positive results.

11/19/2020 (Como, Italy) – It is decided to carry out a comparative

test in pots on three types of lettuce. As this is a period of the year with a harsh climate and a significant lack of light, the KPCB qualities relating to the assimilation and use of light by plants are enhanced and the tests provide very positive results. Laboratory analyses are performed both on the plants and on the characteristics of the substrate. (See pictures below)

Full Report from the agronomist on the treated plants follows:

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Mod RP
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TEST REPORT N. 20463/1285 dated 19/11/2020

Sampling performed by: Client
Sampling location: c/o client
Transportation carried out by: client
Acceptance date: 11/11/2020
Rehearsal start date: 11/11/2020
End date of rehearsal: 19/11/2020

SAMPLE IDENTIFICATION
Matrix: plant tissue
n.lab: 20463/1285
Name: wide leaf water (control)
Sample status on arrival: other

Spett.le
Clinic & Research Srl
via Belvedere, 11
22079 VILLA GUARDIA (CO)
c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	U	K	chapter: opinions and interpretations *
nitrogen total	**3,29**	% s.s.		UNI EN 15104:2011			
phosphorus total	**0,45**	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
potassium total	**7,51**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
fresh weight	**141,02**	g		gravimetric			

U = Extended uncertainty calculated with 95% confidence level - K = coverage factor

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TEST REPORT N. 20463/1286 dated 19/11/2020

Sampling performed by: Client
Sampling location: c/o client
Transportation carried out by: client
Acceptance date: 11/11/2020
Rehearsal start date: 11/11/2020
End date of rehearsal: 19/11/2020

SAMPLE IDENTIFICATION
Matrix: plant tissue
n.lab: 20463/1286
Name: wide leaf K (treated)
Sample status on arrival: other

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c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	U	K	chapter: opinions and interpretations *
nitrogen total	**3,31**	% s.s.		UNI EN 15104:2011			
phosphorus total	**0,53**	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
potassium total	**7,37**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
fresh weight	**157,03**	g		gravimetric			

U = Extended uncertainty calculated with 95% confidence level - K = coverage factor

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Mod RP
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TEST REPORT N. 20463/1287 dated 19/11/2020

Sampling performed by: Client
Sampling location: c/o client
Transportation carried out by: client
Acceptance date: 11/11/2020
Rehearsal start date: 11/11/2020
End date of rehearsal: 19/11/2020

SAMPLE IDENTIFICATION
Matrix: plant tissue
n.lab: 20463/1287
Name: narrow leaf water (control)
Sample status on arrival: other

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via Belvedere, 11
22079 VILLA GUARDIA (CO)
c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	U	K	chapter: opinions and interpretations *
nitrogen total	**5,30**	% s.s.		UNI EN 15104:2011			
phosphorus total	**0,78**	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
potassium total	**7,65**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
fresh weight	**169,59**	g		gravimetric			

U = Extended uncertainty calculated with 95% confidence level - K = coverage factor

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TEST REPORT N. 20463/1288 dated 19/11/2020

Sampling performed by: Client
Sampling location: c/o client
Transportation carried out by: client
Acceptance date: 11/11/2020
Rehearsal start date: 11/11/2020
End date of rehearsal: 19/11/2020

SAMPLE IDENTIFICATION
Matrix: plant tissue
n.lab: 20463/1288
Name: narrow leaf K (treated)
Sample status on arrival: other

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22079 VILLA GUARDIA (CO)
c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	U	K	chapter: opinions and interpretations *
nitrogen total	**5,04**	% s.s.		UNI EN 15104:2011			
phosphorus total	**0,66**	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
potassium total	**8,07**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
fresh weight	**259,74**	g		gravimetric			

U = Extended uncertainty calculated with 95% confidence level - K = coverage factor

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Mod RP
Rev 00 del 23/03/10

TEST REPORT N. 20463/1289 dated 19/11/2020

Sampling performed by: Client
Sampling location: c/o client
Transportation carried out by: client
Acceptance date: 11/11/2020
Rehearsal start date: 11/11/2020
End date of rehearsal: 19/11/2020

SAMPLE IDENTIFICATION
Matrix: plant tissue
n.lab: 20463/1289
Name: oriental water (control)
Sample status on arrival: other

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via Belvedere, 11
22079 VILLA GUARDIA (CO)
c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	$\mathcal{U}$	K	chapter: opinions and interpretations *
nitrogen total	**5,09**	% s.s.		UNI EN 15104:2011			
phosphorus total	**0,77**	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
potassium total	**9,90**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
fresh weight	**2,82**	g		gravimetric			

$\mathcal{U}$ = Extended uncertainty calculated with 95% confidence level - K = coverage factor

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TEST REPORT N. 20463/1290 dated 19/11/2020

Sampling performed by: Client
Sampling location: c/o client
Transportation carried out by: client
Acceptance date: 11/11/2020
Rehearsal start date: 11/11/2020
End date of rehearsal: 19/11/2020

SAMPLE IDENTIFICATION
Matrix: plant tissue
n.lab: 20463/1290
Name: oriental K (treated)
Sample status on arrival: other

Spett.le
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c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	$\mathcal{U}$	K	chapter: opinions and interpretations *
nitrogen total	**5,75**	% s.s.		UNI EN 15104:2011			
phosphorus total	**0,84**	% s.s.		EPA 3051A:2007 + Hoffmann 1966			
potassium total	**5,75**	% s.s.		EPA 3051A:2007 + EPA 7000B:2007			
fresh weight	**37,86**	g		gravimetric			

$\mathcal{U}$ = Extended uncertainty calculated with 95% confidence level - K = coverage factor

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Personal comment of the agronomist referring to the tests on potted salads:

DATA PLANT TISSUES AND FRESH PRODUCTION

Thesis	N % s.s.	P % s.s.	K % s.s.	P fresh g
Wide leaf water	3.29	0.45	7.51	141.02
Wide leaf K	3.31	0.53	7.37	157.03
Narrow leaf water	5.30	0.78	7.65	169.59
Narrow leaf K	5.04	0.66	8.07	259.74
Oriental water	5.09	0.77	9.90	2.82
Oriental K	5.75	0.84	5.75	37.86

SUFFICIENCY LIMIT		
N	P	K
2.5	0.4	5

"Obviously, since there are no replies for the individual theses, it is not possible to attribute statistical significance to any differences. In relation to the results obtained on what has been analyzed, here is my comment:

1) The fresh productions are certainly different (plus others in thesis K, however, let's leave aside the thesis of oriental lettuce which was visibly different).

2) All cultivated plants have an optimal endowment of elements and there is no clear behavior of the same as the thesis varies: the single element can be slightly higher or lower both with and without treatment (again the case of lettuce oriental is anomalous and not very significant: the high presence of potassium in the little tissue present cannot be explained).

3) In the light of the above, my reflection is the following: the increase in production is not the consequence of a greater assimilation of mineral elements (which in my opinion were present in abundance in the substrate), but most likely due to a greater metabolic efficiency of the plant (e.g. better use of water, better photosynthetic activity). In relation to your request to evaluate the different water absorption capacity between plants, what comes to mind is to evaluate the RWC (relative water content) data of plants in different phases on different experimental theses (different treatments).

This data would allow us to understand how much water the leaves contain in different phases of cultivation/day/period.

This data can therefore tell us whether plants absorb more or less water.

Try to do in the greenhouse.

Another hypothesis, similar to the previous one but with a different method, is the evaluation of the water potential of plants using the Scholander chamber.

The two techniques can also be combined."

Sincere greetings
Dr. Agr. Massimo Valagussa
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TEST REPORT N. 20464/1291 dated 20/11/2020

Sampling performed by: Client
Sampling location: c/o client
Transportation carried out by: client
Acceptance date: 11/11/2020
Rehearsal start date: 11/11/2020
End date of rehearsal: 20/11/2020

SAMPLE IDENTIFICATION
Matrix: cultivation substrate
n.lab: 20464/1291
Name: substrate water (control)
Sample status on arrival: potted

Spett.le
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22079 VILLA GUARDIA (CO)
c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	U	K	chapter: opinions and interpretations *
pH	6,8	pH units		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			4,5-7
electrical conductivity	1,58	mS/cm		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤1,5
nitric nitrogen (N-NO3)	65,48	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤125
ammonia nitrogen (N-NH4)	10,50	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤30
phosphorus	7,08	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤62
calcium	86,70	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤240
magnesium	18,60	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤73
potassium	288,04	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤235
sodium	60,21	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤80
iron	0,10	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤2,25
manganese	0,02	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤0,55
copper	0,04	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤0,32

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TEST REPORT N. 20464/1291 CONTINUED dated 20/11/2020

test name	result	unit of measurement	normative limit #	test method	U	K	chapter: opinions and interpretations *
zinc	0,05	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤0,65
cation exchange capacity	59,6	meq/100g s.s.		DM 13/09/1999 SO n.185 GU 248 21/10/1999 Met XIII.2			

U = Extended uncertainty calculated with 95% confidence level - K = coverage factor

chapter: opinions and interpretations * = Potting soil and substrate - RHP Foundation - 2003 - standard reference values

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of the province Of CO-LC-SO n.130

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tel: 031887127 - e-mail : info@macdab.it

Mod RP
Rev 00 del 23/03/10

TEST REPORT N. 20464/1292 dated 20/11/2020

Sampling performed by: Client
Sampling location: c/o client
Transportation carried out by: client
Acceptance date: 11/11/2020
Rehearsal start date: 11/11/2020
End date of rehearsal: 20/11/2020

SAMPLE IDENTIFICATION
Matrix: cultivation substrate
n.lab: 20464/1292
Name: substrate K (treated)
Sample status on arrival: potted

Spett.le
Clinic & Research Srl
via Belvedere, 11
22079 VILLA GUARDIA (CO)
c.a. Alessia Panizza

test name	result	unit of measurement	normative limit #	test method	U	K	chapter: opinions and interpretations *
pH	**7,0**	pH units		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			4,5-7
electrical conductivity	**1,01**	mS/cm		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤1,5
nitric nitrogen (N-NO3)	**54,19**	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤125
ammonia nitrogen (N-NH4)	**7,72**	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤30
phosphorus	**5,61**	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤62
calcium	**51,81**	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤240
magnesium	**10,89**	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤73
potassium	**190,76**	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤235
sodium	**43,70**	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤80
iron	**0,13**	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤2,25
manganese	**0,02**	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤0,55
copper	**0,03**	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤0,32

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Mod RP
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TEST REPORT N. 20464/1292 CONTINUED dated 20/11/2020

test name	result	unit of measurement	normative limit #	test method	U	K	chapter: opinions and interpretations *
zinc	**0,04**	mg/l extract		Sorneveld et al. Comm. Soil Sci. Plant Anal. 5:183-202 1974 + 25:3199-3208 1994			≤0,65
cation exchange capacity	**60,3**	meq/100g s.s.		DM 13/09/1999 SO n.185 GU 248 21/10/1999 Met XIII.2			

U = Extended uncertainty calculated with 95% confidence level - K = coverage factor

chapter: opinions and interpretations * = Potting soil and substrate - RHP Foundation - 2003 - standard reference values

Responsible Laboratory
dr. agr. Massimo Valagussa
Order Doctors Agronomists and Doctors Forestry
of the province Of CO-LC-SO n.130

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Personal comment of the agronomist referring to tests on substrate:

SUBSTRATE DATA

		H_20	K
pH	**pH Unit**	6.8	7
Electric Conductivity	mS/cm	1.58	1.01
Nitric Nitrogen ($N\text{-}NO_3$)	mg/l extract	65.48	54.19
Ammoniacal Nitrogen ($N\text{-}NH_4$)	mg/l extract	10.5	7.72
Phosphorus	mg/l extract	7.08	5.61
Calcium	mg/l extract	86.7	51.81
Magnesium	mg/l extract	18.6	10.89
Potassium	mg/l extract	288.04	190.76
Sodium	mg/l extract	60.21	43.7
Iron	mg/l extract	0.1	0.13
Manganese	mg/l extract	0.02	0.02
Copper	mg/l extract	0.04	0.03
Zinc	mg/l extract	0.05	0.04
Cation Exchange Capacity	meq/100g s.s.	59.6	60.3

"There are no significant differences. The trend that can be seen is that the substrate wetted with water only has a higher electrical conductivity (salinity indicator = element content), as well as the water-soluble macroelements.

It could be interpreted as if with the treatment (thesis K) the plants have removed more elements from the substrate.

In light of the above, the leaf analysis data must also be interpreted differently, in support of the above:

It is true that the content of elements in the leaves did not show differences in values, but it is true that the productivity was instead different (greater with K).

Therefore, if one calculated the total of elements removed by the plants (% elements with respect to the dry production) one would obtain the result that the plants in the K pots removed more elements in total than the H2O plants.

For the CSC (CEC) no difference.

Regarding the issue of Chile that you were telling me about, it is the topic we had discussed in the past, namely the possible ability of your treatment to maintain and have the land maintained a suitable structure. The structure of the soil is given by the ability of the mineral part of the soil (primarily clay) to bind with the organic substance (clay-humic complex).

If this is an effect, it is very important (more than a fertilization).

On substrate it is useless to make these measurements because they have no sense for the type of matrix. If, on the other hand, you wanted to verify this influence on open field soils, you could do it simply by determining the apparent density of the soil (apparent density, or weight of the soil per unit of volume, including empty spaces). In practice it is necessary to take soil samples with cylinders of known volume, dry them and determine the dry weight. Knowing the volume, it is easy to calculate the apparent density (kg/m^3). In theory, you should find lower values on treated soils than on compacted (unstructured) soils."

Dr. Agr. Massimo Valagussa
MAC - Minoprio Analysis and Certifications Srl

2020 yields more positive testimonies than any previous year, especially in the South America area. Universities in Ecuador and Peru decide to undertake a path of scientific validation of the KPCB.

COVID 19 lockdowns create several unique challenges for distribution and trials. Three planned university trials in the United States and two trials in South America were cancelled.

The National Agrarian University of La Molina in Lima, Peru, with limited staff cancelled most of its trials but decided to continue the trial for Kyminasi Plants Crop Booster and only measured yield. See case study section.

As restrictions began to lift, several distribution systems were developed for both small and large farming operations.

The Crop Booster by Kyminasi Plants is launched in full and hundreds of farms around the world begin using it to increase yields, reduce pests and improve the quality of their fruits and vegetables.

CHAPTER 4 - FAQ

IT APPEARS FROM THE RESULTS OF THE CASE STUDIES AND SCIENCE TRIALS THAT KYMINASI PLANTS TECHNOLOGY HAS A DIRECT EFFECT ON MYCORRHIZAE FUNGI, MICROBES AND HUMUS. IS THIS TRUE AND IF SO, HOW DO YOU EXPLAIN THIS?

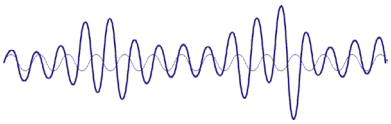
Mycorrhizae fungi, microbes, and humus all depend on phosphorus, sulfur, nitrogen, carbon, and sunlight for survival and expansion. In the Kyminasi Plants technology, there is specific programming (treatments) that increase the metabolism connected to these substances. This enhances the regeneration and survival of the mycorrhizae fungi, microbes, and humus.

IS IT CORRECT TO SAY THAT KPCB TECHNOLOGY FALLS WITHIN THE BRANCH OF QUANTUM PHYSICS?

Yes, this statement is formally correct. The quantum physics phenomenon is now programmable through the use of cytoalgorythmics, as fully documented in this thesis.

KPCB TECHNOLOGY TAKES ADVANTAGE OF THE PRINCIPLES OF BIORESONANCE. WHAT IS THIS?

Bioresonance arises from the principles of biophysics and is a technique used in quantum medicine that studies and interprets the vibrations emitted by living cells and which is therefore based on resonance. Through specific equipment, it is possible to recognize the frequencies of the electromagnetic waves emitted by a living organism (human, animal, plant) and to intervene on the same waves/frequencies (with which it resonates) to restore healthy frequencies, and thus restore a biological balance. The resonance phenomenon occurs when an organism capable of vibrating with a certain frequency begins to vibrate when it is hit by a wave of the same frequency.



In 1665, the Dutch physicist and mathematician, Christian Huygens, observed that by arranging two pendulums side by side and on the same wall, they tended to tune their oscillatory movement, as if "they wanted to assume the same rhythm". From his studies derives the phenomenon that today we call "resonance". The concept of resonance, when observed in the biological field, takes the name of bioresonance.

COULD THE CYTOALGORITHMICS ON WHICH KPCB TECHNOLOGY IS BASED BE COMPARED TO BINARY CODE? AND WHAT ARE CYTOALGORITHMICS?

We would not compare KPCB Cytoalgorithmics to a binary code (0/1) as it is much more like a vocabulary, such as that of the Italian or English language. For example, imagine each letter, word, or symbol is equivalent to a specific frequency so that by combining different letters, words, and symbols in exact order, we can achieve a sentence. This is like a real COMMUNICATION that gets a reaction once received from the treated biological system (in this case, the plant), just as it happens with people. The KPCB frequencies transmitted are the same type as those present in nature, so the soil and plants receive them without any communication barriers or problems and, above all, understand them. This is a simplistic view of our technology but simplifying it helps in understanding its basics.

On the more complex side, sometimes, for a biological system to implement an action through communication, communication itself does not have to be direct but must be reversed or distorted or presented in a way to avoid a barrier, to obtain the desired effect... However, this is the complicated part of our technology, and there is no need to go into it in depth – it's just what we've had to go through over the last 30 years to decode the physical mechanisms of biological systems that, like everything in this universe, are subject to aberration.

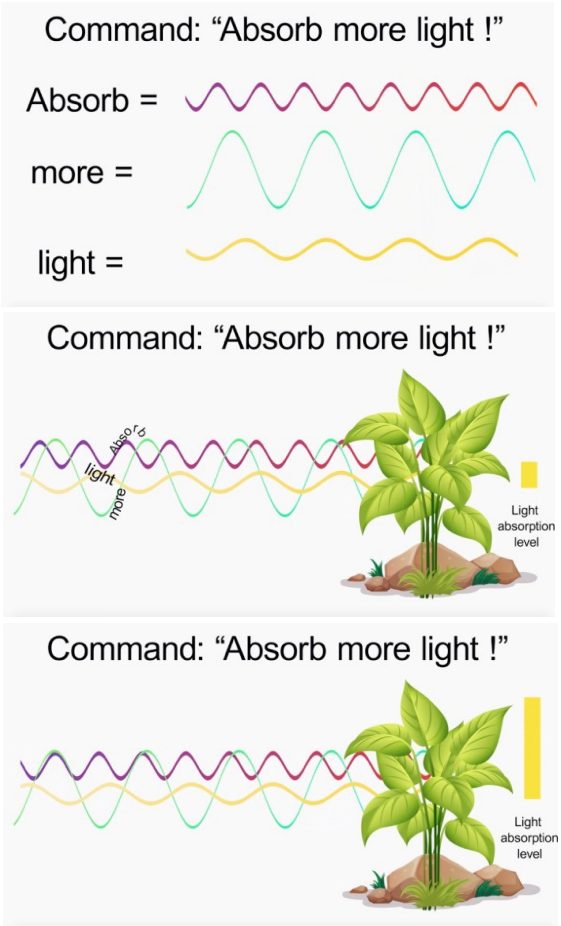
CYTOALGORITHMICS are characterized by their elementary nature, not understood as simplicity, but as a concept that can be broken down no further and which leaves no room for interpretation. They consist of a finite number of steps that take place in a given time, leading to a unique result. CYTOALGORITHMICS have different natures and purposes. Here are a few examples of the cytoalgorithmic technologies that needed to be developed to further expand research and obtain the documented new science:

- “Research CYTOALGORITHMICS” – to find missing data starting from known data
- “Heuristic CYTOALGORITHMICS” – which allow a result to be predicted, based on intuition and a temporary state of circumstances
- “Quantum CYTOALGORITHMICS” – which use quanta to store and process information
- “Repeated Sequence CYTOALGORITHMICS” – cellular programming that is repeated multiple times to achieve the intended result. The repetition of the same programming adjusts the biological system in a stepwise manner until it is at its optimum function.

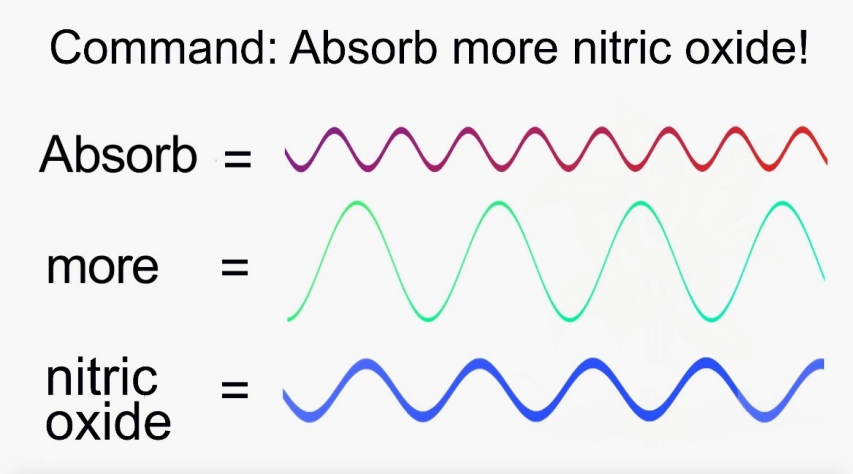
- “Coordination CYTOALGOITHMICS” – coordinates various programs of cytoalgorithmics into an organized sequence for optimal efficiency.
- "CYTOALGORITHMICS with self-driving code" – programs able to modify their own code based on the given parameters. This could be compared to a kind of artificial intelligence, wherein the programming language can evolve and “learn” based on experience with the environment and the biological systems.
- "Data compression CYTOALGORITHMICS" – programs that compress files to make data transfer more efficient.
- "Entropic CYTOALGORITHMICS" (without loss of information) – programs that protect the information during moments of transfer from becoming distorted or erroneous.

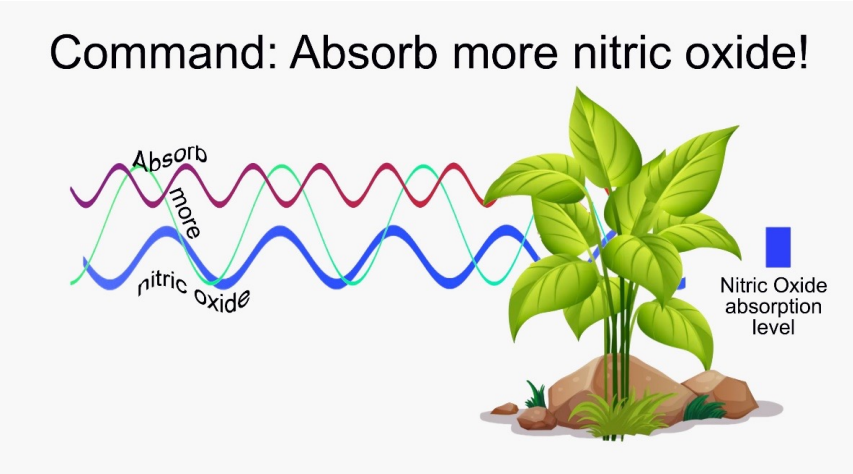
EXAMPLE OF CYTOALGORITHMIC LANGUAGE APPLIED TO PLANTS FROM THE SINGLE ASPECT OF LIGHT ABSORPTION:

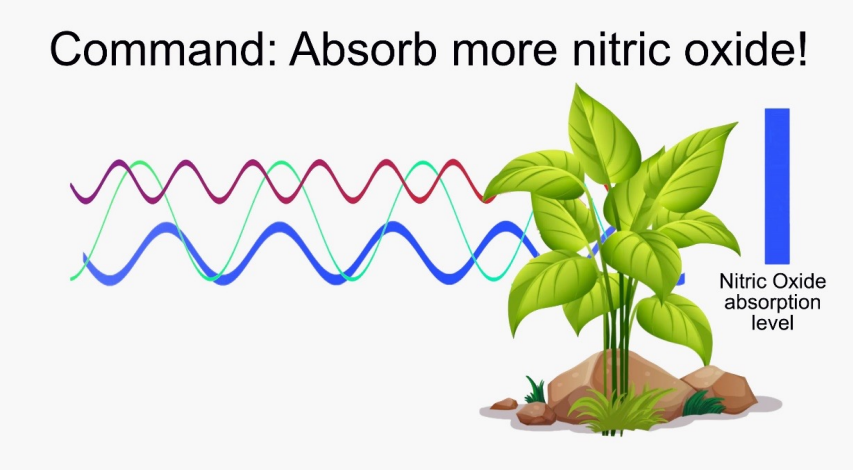
The frequencies in the KPCB system that are responsible for fine-tuning light absorption in the leaves have the effect of opening the absorption pathways in the chloroplasts of the plant. This has a similar effect to commanding the plant to absorb more light:



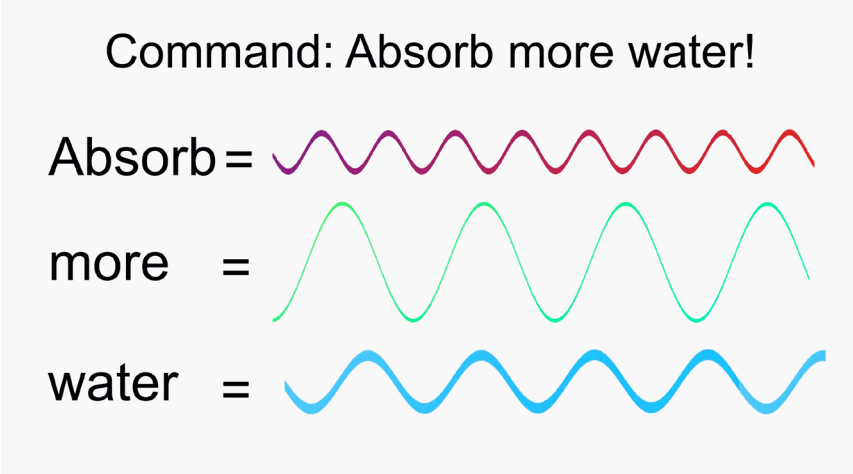
Here is an example of frequencies that increase nitric oxide absorption:

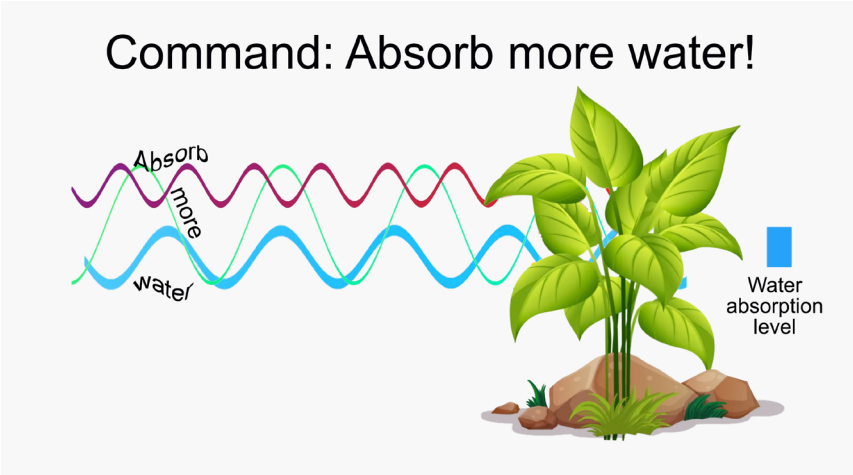


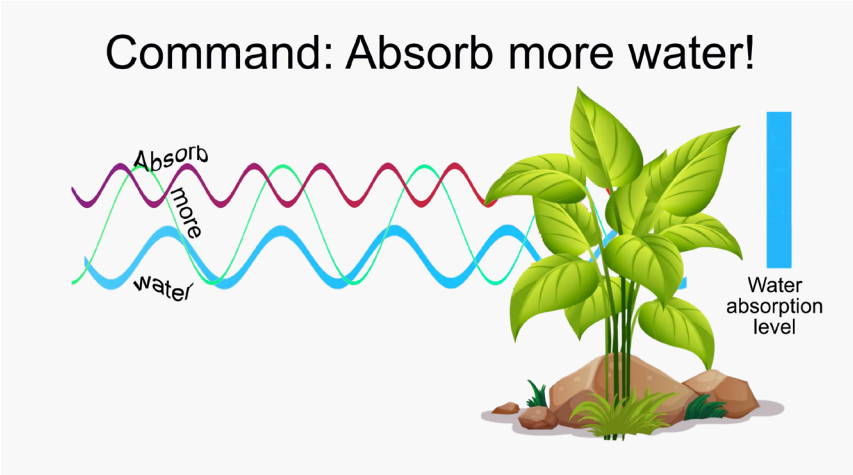




And again for water absorption:



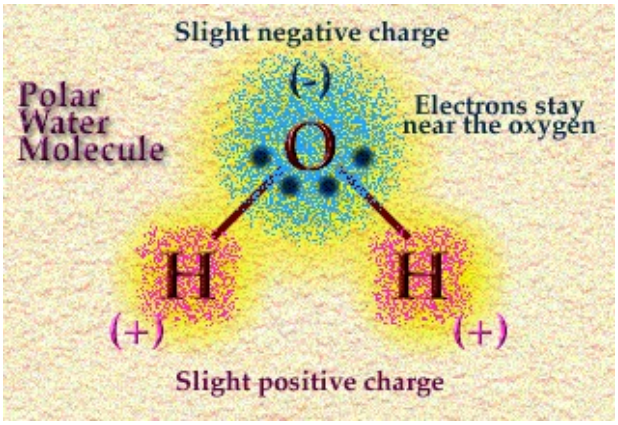




HOW DOES WATER CARRY SIGNALS?

Water has many qualities such as being a conductor and also an information vector. For example, dolphins and whales communicate through water using signals at specific frequencies. We drew on this natural technology.

Water is a polar molecule because there is an unequal arrangement of electrons that causes a slightly positively charged side and a slightly negatively charged side. When water is flowing, this creates an electromagnetic field that allows for the passive transfer of frequencies from KPCB micro-transmitters to the plants.



Water Polarity Diagram:

(Blamire, Brooklyn College- New York, 2003)

IT IS STATED THAT "THE KPCB TECHNOLOGY WILL ALLOW A BETTER ASSIMILATION OF LIGHT IN PLANTS AND THAT IT WILL AMPLIFY THE SIGNAL OF LIGHT. “HOW DOES KPCB AFFECT CHLOROPHYLL OR ITS SUPPORTING PROTEINS, KNOWN AS THE "LIGHT COLLECTION COMPLEX"?

First, we utilized the frequency of sunlight in our KPCB frequency database, using a procedure that is one of our technological trade secrets and, therefore, cannot be disclosed. The plant receives the amplified frequency of light through water treated with KPCB, and when this resonates with the actual light the plant receives from the sun, the plant will have a greater drive to use the sunlight.

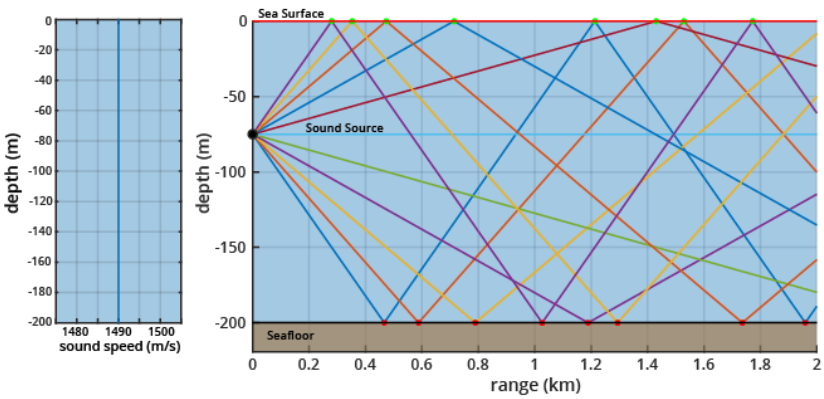
WHEN IT COMES TO AMPLIFYING A SIGNAL THROUGH THE KPCB DEVICE, WHAT IS IT AMPLIFYING?

We are creating frequency harmonics of the original signals (i.e. environmental signals). In the case of light, for example, the plant normally uses the sunlight it receives in proportion to how much it receives. As for our technology, on the other hand, the frequency of the light we send to the plant creates an amplification of the actual light that is absorbed. This helps the crop to have better management of the light itself, and for a longer duration. As a result, when the KPCB treated plant is no longer receiving light, it will then take advantage of the resonance light in order to gain growth time as compared to the untreated plants.

CONSIDERING THE AMPLITUDE OF A WAVE DECREASES WITH DISTANCE DUE TO A DISTRIBUTION OF ENERGY OVER A GROWING AREA, ARE THE SIGNALS STRONGER NEAR THE SOURCE? AND DO THEY BECOME WEAKER WITH DISTANCE?

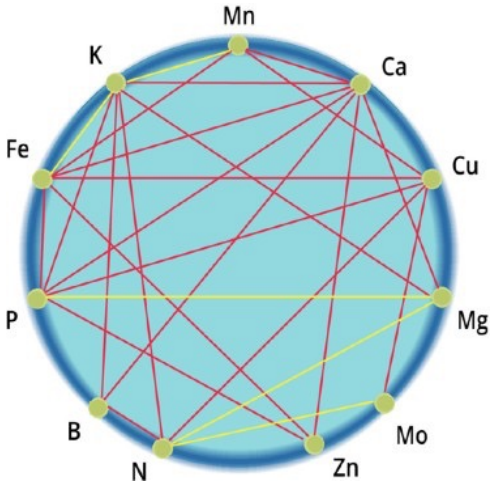
No, KPCB signals are not stronger when they are closer or farther from the micro-transmitter source. It is important to keep in mind that waves propagate much faster in water than in air and our frequencies, on the contrary, tend to increase as they propagate in water. Obviously, there will then be a maximum distance limit within which the signal will begin to decrease until they disappear. From the tests carried out so far, we have been able to show that the KPCB signal remains at full strength up to 5,200 feet, or about 1.5 kilometers. Our tests showed that the signals were absent at 6,000 ft. We, therefore, concluded that the signals will lose strength between 5,200 and 6,000 feet.

(University of Rhode Island and Inner Space Center, 2021)



PLANTS USE 14 DIFFERENT MINERAL NUTRIENTS TO GROW. APPARENTLY, NOT ALL NUTRIENT STIMULATION FREQUENCIES HAVE BEEN INCLUDED IN THE KPCB TECHNOLOGY. WHAT IS THE REASON FOR THIS?

Vitamins and minerals within a biological system influence each other, with synergistic or antagonistic effects, depending on their presence and combination. For this reason, we had to focus on finding an effective and acceptable balance. Whenever we change the balance between minerals, there are decreases or excesses in the quantities of some of the minerals.

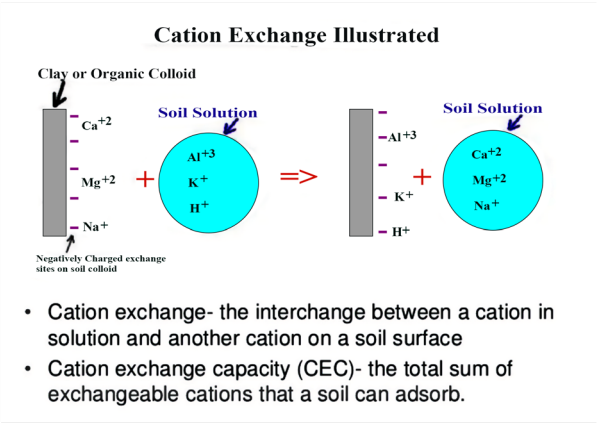


Due to the complexity of this topic, so far, we have focused on the best mineral balance so that it works for most crops. This step alone required extraordinary work by research and development with hundreds of tests and improvements to achieve the desired goal.

SOME EVIDENCE OF NUTRIENT RETENTION HAS BEEN OBSERVED WITH AN INCREASE IN THE CATION EXCHANGE CAPACITY OF KPCB-TREATED SOILS. HOW DO YOU EXPLAIN THIS?

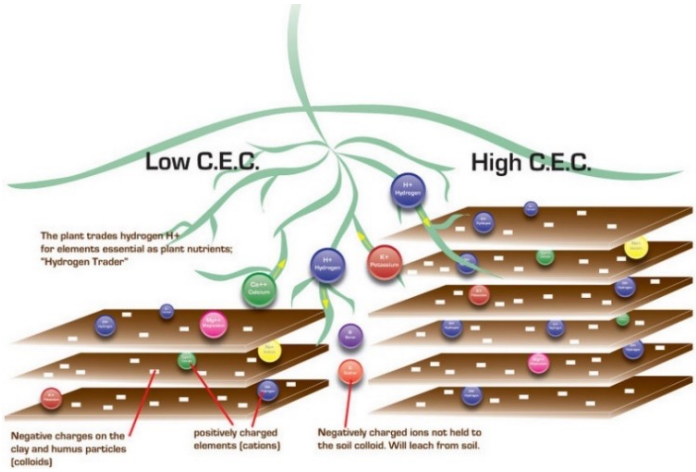
A greater ability of the plant to efficiently use minerals can cause it to absorb less, leaving more in the soil. It is an interesting theory, but we are unable to state it with certainty. In addition, it cannot be ruled out that the major minerals present in the soil may be due to a chain reaction of synergies between minerals that, starting with those reinforced by KPCB technology, automatically lead to an increase in others found in the soil.

This would explain how the soil would be induced to retain these nutrients (reduced runoff) regardless of the lower absorption in plants. The two theories are not necessarily mutually exclusive, but indeed they could both be valid.



CEC Diagram 1:
(Rhodus, Ohio State University, 2016)

As for nitrogen, an indispensable element for crops, the technology provides that the nitrogen present in the air is better absorbed into the soil, as well as reducing its evaporation from the soil. Furthermore, from some laboratory analyses of the substrate of pot cultures, it was discovered that a smaller amount of nutrients remained in the substrate at the end of the scientific test in the treated pots, compared to those irrigated with simple water. It was hypothesized that the treated plants had a greater capacity to absorb nutrients present in the substrate than the control plants. Regardless of the exact physiology, the increasing cation exchange capacity (CEC) of KPCB-treated soil is positive as it is a measure of soil fertility and the soil's ability to retain nutrients against erosion.



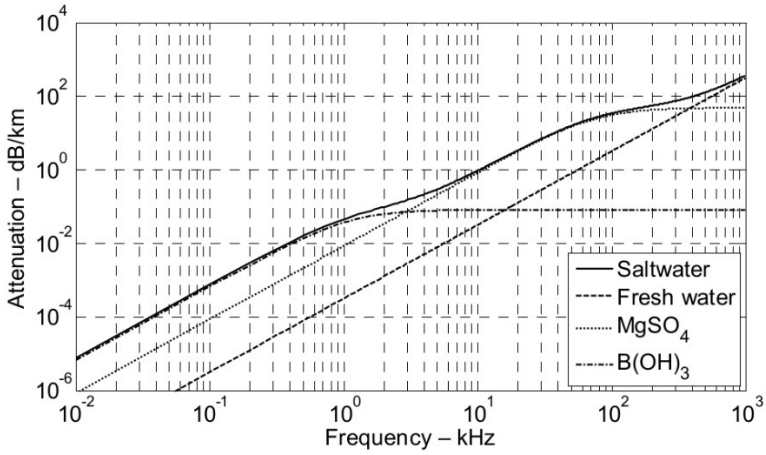
CEC Diagram 2:
(Superior New Zealand, 2022)

IT IS WELL KNOWN THAT SALINE WATER INHIBITS RADIO WAVES. BASED ON THIS, CAN WE EXPECT THAT KPCB SIGNALS CAN BE LESS EFFECTIVE IN AREAS WITH SALINE WATER?

The physics of KPCB technology allows for sodium to increase the effectiveness of our signals because saltwater increases the speed of the propagation of KPCB frequencies. This demonstrates that KPCB CYTOALGORITHMICS are not exactly like the radio waves that we are used to, but much more like subtle wave harmonics that follow different laws of physics and enter the world of quantum physics. Case studies have shown that our system tends to reduce excess sodium and electrical conductivity in the soil, thereby reducing the toxic effects of these substances.

Salt Water Frequency Diagram:

Beghi, Polytechnic University of Milan, Italy, 2013.

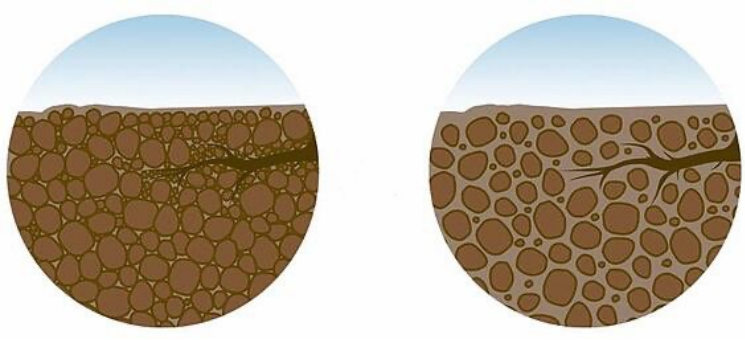


WHY DOES KPCB TREATED WATER INFILTRATE SOIL FASTER AND WHICH ASPECTS OF KPCB PROGRAMMING COULD MAKE THE SOIL LESS COMPACT?

We believe that with our KPCB technology there is a reaction in the soil of chemical bonds through negative electromagnetic charges, which interact with calcium, phosphorus, potassium, magnesium, and silicon (contained in the clays).

We have also observed an optimized soil water retention mechanism. We can assume that our frequencies activate a mechanism of greater molecular aggregation of the soil so that the agglomerates of soil leave between them empty spaces through which water can infiltrate more easily.

To give an example, you could imagine two glass vases: small grains are inserted in one while marbles are inserted in the other. The vase with the marbles will allow greater imbibition and capillarity to the water because it leaves more empty space between one marble and the other.



This marble vase is filled by the water upwards, starting from the bottom of the vase. However, the vase with the small grains would probably have a superficial imbibition on the upper layers but little capillarity, depending on how small and compact the grains are. Similar objects can be found in agriculture from a chemical point of view. An example is the application of potassium-based polymer spherical nanoparticles that settle into the soil and increase the soil structure, depending on the temperature. It is likely that our KPCB frequencies achieve the same result and better structuring of the soil, but without using any additional system.

DURING THE COMPARATIVE TEST OF NEWLY PLANTED SEEDS, IT WAS NOTED THAT SEEDS TREATED WITH KPCB DID NOT REQUIRE AS MUCH WATER AS THE CONTROL SEEDS. WHAT COULD BE THE EXPLANATION?

KPCB technology increases the absorption and utilization of water. As such, seeds grown in a KPCB treated environment naturally require less water as demonstrated by many case studies.

IS THE PROCESS OF SOWING SEEDS DIFFERENT WITH KPCB TECHNOLOGY?

All seeds need water, oxygen and the right temperature to germinate. Plant seeds should be minimally irrigated with KPCB treated water until a root and foliar system has been developed. As the root system develops and begins to absorb more water, our technology creates an efficiency of water absorption.

All environments with or without KPCB technology are subject to proper management of water. Without a foliar system to allow for transpiration of water, seedlings with excessive water could potentially "drown". This does not happen because of an insufficiently developed root

system but because of an underdeveloped foliar system.

An important part of understanding KPCB technology is that it keeps the presence of water in balance through foliar transpiration. The advantage of KPCB technology is that we increase the growth of the foliar system as well as the root system in seedlings. It is highly recommended that when using the KPCB technology during seed sowing, minimal water application should be used and the amount of water should be monitored.

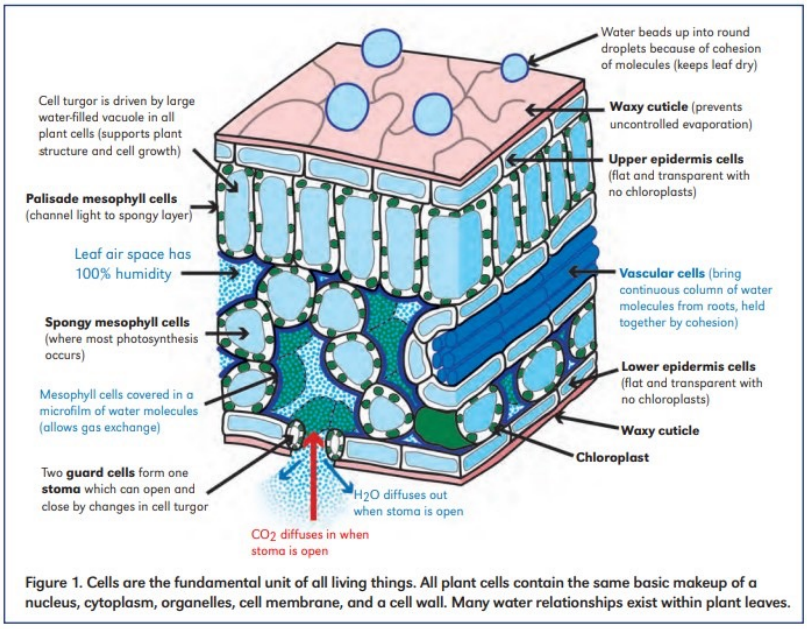


Figure 1. Cells are the fundamental unit of all living things. All plant cells contain the same basic makeup of a nucleus, cytoplasm, organelles, cell membrane, and a cell wall. Many water relationships exist within plant leaves.

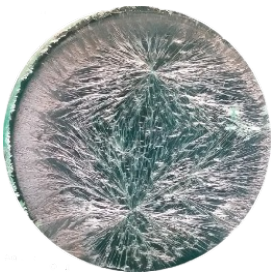
Transpiration Diagram:

(Holding, et al., University of Nebraska- Lincoln Extension, 2013)

WATER CRYSTALLIZATION ANALYSES REVEALED AN IMPROVEMENT IN KPCB-TREATED WATER. HOW DOES THIS TYPE OF ANALYSIS WORK, AND WHAT DOES IT HIGHLIGHT?

Crystallization analyses consist of freezing a water sample at low temperatures in a short time to create an image just like a "photograph" of the structure. This photograph has no relevance from a chemical point of view, only from a physical point of view. The pictures demonstrate that the KPCB water is more structured and finely distributed to further demonstrate a reduction in water cluster sizes to make water more efficiently absorbable. The consistency of its structure demonstrates the positive value of KPCB frequencies as observed in the pictures beside.

Normal Irrigation Water Non-Structured (Above Left)



KPCB Irrigation Water Structured (Above Right)

IS THE PROCESS OR MEASURMENT OF WATER SAVINGS WELL DOCUMENTED?

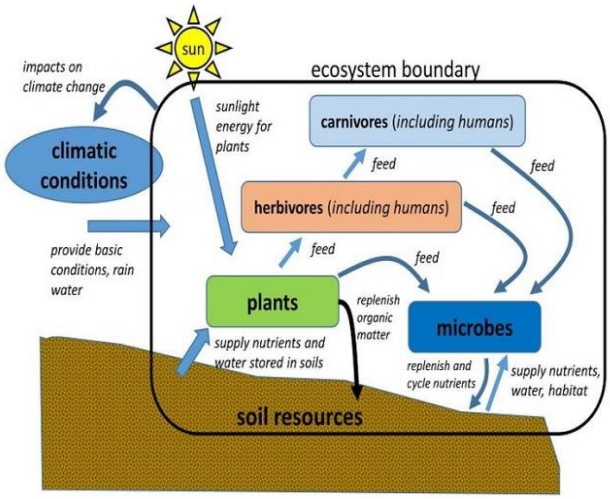
The absorbability and efficiency of water usage have been consistently measured by farmers and scientists using tensiometers for measuring the soil water potential. Water savings is a very hot topic internationally, and more and more farmers are converting to smart farms that measure water usage and humidity levels to efficiently use water. These smart farms are consistently validating our technology. The efficiency of water absorption, along with the efficiency of nutrient absorption, has been well documented by the scientific trials that have been independently studied and support the internal research used to develop the technology.

CAN THE KPCB WATER NEGATIVELY OR POSITIVELY EFFECT, HUMANS, ANIMALS, INSECTS, OR OTHER LIVING ORGANISMS?

KPCB will not negatively or positively affect any other living organism directly, as the programming is calibrated only for plants. However, directly and indirectly, the programming is designed to improve soil health,

Ecology Diagram:

(Carleton College- Science Education Resource Center, 2018)



microbial life, and other beneficial bacteria that, in turn, improve the overall environment and positively benefit all macrofauna, and microfauna. These positive effects improve the health of all living organisms. Ultimately, any living organism that feeds off of the treated plants directly benefits from the increased nutrient density of the plants and their products. This has already been demonstrated by farmers and universities internationally.

Source:
Harvest Harmonics Corp.

REFERENCES AND CITATIONS

1. Coherence Domains in Living Systems - George Czerlinski and Rene Ryba. Available at: https://www.hilarispublisher.com/open-access/trevor-coherence-domains-in-living-systems-2090-8369-1000110.pdf
2. The Super-Coherent State of Biological Water - Claudio Messori - DOI: 10.4236/oalib.1105236 Available at: https://www.scirp.org/journal/paperinformation.aspx?paperid=90862
3. The origin and the special role of coherent water in living systems - Emilio Del Giudice, Vladimir Voeikov, Alberto Tedeschi and Giuseppe Vitiello - D. Fels, M. Cifra and F. Scholkmann (Editors), Fields of the Cell, 2015, ISBN: 978-81-308-0544-3, p. 95–111.
4. Wave–particle duality - Wikipedia
5. Subatomic particle - Wikipedia
6. Wave packet - Wikipedia
7. Vision Influence on Whole-Body Human Vibration Comfort Levels – Table 1 - Resonance frequencies of human body organs - Maria L´ucia Machado Duarte and Matheus de Brito Pereira- DEMEC, Mechanical Engineering Departament, UFMG, Federal University of Minas Gerais, Av. Antonio Carlos, 6627, Pampulha, Belo Horizonte/MG, 31270-901, Brazil – Jan 2006.
8. Cell-specific frequency as a new hallmark to early detection of cancer and efficient therapy: Recording of cancer voice as a new horizon - Mohsen Jafari, Mohammad Hasanzadeh - https://doi.org/10.1016/j.biopha.2019.109770 - https://www.sciencedirect.com/science/article/pii/S0753332219353922
9. Electromagnetic interactions in regulations of cell behaviors and morphogenesis - Guogui Sun, Jiong Li, Wei Zhou, Rosalie G. Hoyle and Yue Zhao. Available at: https://www.frontiersin.org/articles/10.3389/fcell.2022.1014030/full
10. Electromagnetic cellular interactions - Michal Cifra, Jeremy Z.Fields and AshkanFarhadi - https://doi.org/10.1016/j.pbiomolbio.2010.07.003
11. Electromagnetic cell communication and the barrier method - Daniel Fels - Institute of Botany, University of Basel, Switzerland - Available at: https://emmind.net/openpapers_repos/Endogenous_Fields-Mind/General/EM_Various/2015_Electromagnetic_cell_communication_and_the_barrier_method.pdf
12. Bio-photons and Bio-communication1 - R. VANWIJK - Department of Molecular Cell Biology, Utrecht University, Utrecht, The Netherlands; and International Institute of Biophysics, Neuss, Germany - Available at: https://tarjomefa.com/wp-content/uploads/2016/01/4274-engilish.pdf
13. 13.Emission of Biophotons and Adjustable Sounds by the Fascial System: Review and Reflections for Manual Therapy - Bruno Bordoni, Fabiola Marelli, Bruno Morabito, and Beatrice Sacconi - Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5871034/
14. Ultraweak Biophotons: general aspects and new experimental data - Elisabetta Pace Laboratori Nazionali di Frascati – INFN – Frascati. Italy - Available at: https://agenda.infn.it/event/19468/attachments/67250/82567/EPace.pdf
15. An introduction to human biophoton emission - Roeland Van Wijk and Eduard P A Van Wijk - PMID: 15947465, DOI: 10.1159/000083763 - Available at: https://pubmed.ncbi.nlm.nih.gov/15947465/
16. Cellular Communication through Light - Daniel Fels - https://doi.org/10.1371/journal.pone.0005086
17. Properties of biophotons and their theoretical implications - Fritz-Albert Popp - Indian J Exp Biol
18. Biophotons and Emergence of Quantum Coherence—A Diffusion Entropy Analysis - Maurizio Benfatto et al. - Entropy 2021, 23(5), 554; https://doi.org/10.3390/e23050554 - Available at: https://www.mdpi.

com/1099-4300/23/5/554
19. New perspectives in cell communication: Bioelectromagnetic interactions - C.Rossi, A.Foletti and A.Magnani - Available at: https://www.sciencedirect.com/science/article/abs/pii/S1044579X11000289?via%3Dihub
20. Biophotons: Ultraweak Light Impulses Regulate Life Processes in Aging - Hugo Josef Niggli - Article in Journal of Gerontology & Geriatric Research · January 2014 - DOI: 10.4172/2167-7182.1000143
21. Illuminating Water and Life - Mae-Wan Ho - Entropy 2014, 16(9), 4874-4891; https://doi.org/10.3390/e16094874 - Available at: https://www.mdpi.com/1099-4300/16/9/4874
22. Adachi, Shunsuke & Ohkubo, Satoshi & San, Nan & Yamamoto, Toshio. (2020). Genetic determination for source capacity to support breeding of high-yielding rice (Oryza sativa). Molecular Breeding. 40. 10.1007/s11032-020-1101-5. (Institute of Plant Science and Resources- Okayama University)
23. Andersen, E.J.; Ali, S.; Byamukama, E.; Yen, Y.; Nepal, M.P. Disease Resistance Mechanisms in Plants. Genes 2018, 9, 339. https://doi.org/10.3390/genes9070339 (South Dakota State University)
24. Ananthaswamy, A., 2022. What Does Quantum Theory Actually Tell Us about Reality?. [online] Scientific American Blog Network. Available at: <https://blogs.scientificamerican.com/observations/what-does-quantum-theory-actually-tell-us-about-reality/>.
25. Beghi, Marco, editor. Modeling and Measurement Methods for Acoustic Waves and for Acoustic Microdevices. IntechOpen, 2013. 10.5772/2581. (Polytechnic University of Milan, Italy)
26. Blamire, J., 2003. The Water Molecule. [online] Brooklyn College- New York. Available at: <http://www.brooklyn.cuny.edu/bc/ahp/LAD/C3a/C3a_water.html> [Accessed 15 June 2022].
27. Brugemann, H., 1994. Bioresonance & Multiresonance Therapy. 1st ed. Heidelberg, Germany: Karl F Haug Verlag GmbH & Co.
28. Buet, A., Galatro, A., Ramos-Artuso, F. and Simontacchi, M., 2019. Nitric oxide and plant mineral nutrition: current knowledge. Journal of Experimental Botany, [online] 70(17), pp.4461-4476.
29. Carleton College, 2018. Simplified diagram of a typical ecosystem. [online] Carleton College- Science Education Resource Center. Available at: <https://serc.carleton.edu/details/images/173883.html> [Accessed 15 June 2022].
30. 3Greer, K., 2019. Soil Compaction = Not Good for Trees. [online] Russell Tree Experts. Available at: <https://www.russelltreeexperts.com/arbor-ed/2019/6/27/soil-compaction-not-good-for-trees> [Accessed 15 June 2022].
31. Hansson, J. and Suggs, C., 1976. The effect of seat vibration on vehicle operator's lever and pedal control capabilities. Journal of Sound and Vibration, 46(4), p.613. Available at: <https://doi.org/10.1016/0022-460X(76)90693-3>
32. Holding, D. and Streich, A., 2013. Plant growth processes: transpiration, photosynthesis, and respiration. University of Nebraska- Lincoln Extension, [online] (EC1268). Available at: <https://extension.unl.edu/Plant%20Growth%20Processes%20ec1268.pdf> [Accessed 15 June 2022].
33. Macmillan Publishers, n.d. Plants Acquire Mineral Nutrients from the Soil. [online] Macmillan Higher Education. Available at: <https://www.macmillanhighered.com/BrainHoney/Resource/6716/digital_first_content/trunk/test/hillis2e/hillis2e_ch25_2.html> [Accessed 14 June 2022].
34. Neill, S., 2002. Hydrogen peroxide and nitric oxide as signaling molecules in plants. Journal of Experimental Botany, 53(372), pp.1237-1247. 4. Vian et al, 2016
35. Niu, L. and Liao, W., 2016. Hydrogen Peroxide Signaling in Plant Development and Abiotic Responses: Crosstalk with Nitric Oxide and Calcium. Frontiers in Plant Science, [online] 7. Available at: <https://www.frontiersin.org/articles/10.3389/fpls.2016.00230/full> [Accessed 8 June 2022].

36. Rietra, Rene P. et al, 4 December 2017. Effects of Nutrient Antagonism and Synergism on Yield and Fertilizer Use Efficiency. Online: https://www.tandfonline.com/doi/full/10.1080/00103624.2017.1407429
37. Rhodus, D., 2016. Plant Facts. [online] Plantfacts.osu.edu. Available at: <https://plantfacts.osu.edu/web/> [Accessed 15 June 2022]. (Ohio State University)
38. Stanislaw Karpiński & Magdalena Szechyńska-Hebda (2010) Secret life of plants, Plant Signaling & Behavior, 5:11, 1391-1394, DOI: 10.4161/psb.5.11.13243
39. Superior New Zealand, 2022. Understanding the Science Behind Superior. [online] Superior.net.nz. Available at: <https://www.superior.net.nz/pages/8-3/Understanding-the-Science> [Accessed 15 June 2022].
40. University of Rhode Island and Inner Space Center, 2021. How does sound travel in shallow water?. [online] Discovery of Sound in the Sea. Available at: <https://dosits.org/science/advanced-topics/shallow-water-propagation/> [Accessed 15 June 2022].
41. VanDerZanden, A., 2022. Plant growth and development. [online] Oregon State University Extension Service. Available at: <https://extension.oregonstate.edu/gardening/flowers-shrubs-trees/plant-growth-development> [Accessed 13 June 2022].
42. Vian, A., Davies, E., Gendraud, M. and Bonnet, P., 2016. Plant Responses to High Frequency Electromagnetic Fields. BioMed Research International, [online] 2016. Available at: <https://www.hindawi.com/journals/bmri/2016/1830262/>. (North Carolina State University)
43. Wahout, J., n.d. Photosynthesis: How plants make food from sunlight, air, and water. [online] Pressbooks.umn.edu. Available at: <https://pressbooks.umn.edu/classroompartners/chapter/photosynthesis/> [Accessed 13 June 2022].
44. Wassenaar, M., van Ieperen, W. and Driever, S., 2022. Low Red to Far-red ratio increases resistance to CO2 diffusion and reduces photosynthetic efficiency in low light grown tomato plants. Environmental and Experimental Botany, [online] 200, p.104918. Available at: <https://www.sciencedirect.com/science/article/pii/S009884722200140X>.
45. Yu, Manda & Lamattina, Lorenzo & Spoel, Steven & Loake, Gary. (2014). Function of nitric oxide in plant biology: A redox signal in deconvolution. The New Phytologist. 202. 10.1111 / nph. 12739.

CHAPTER 5 - CASE STUDIES IN CHRONOLOGICAL ORDER

2015

PEPPER

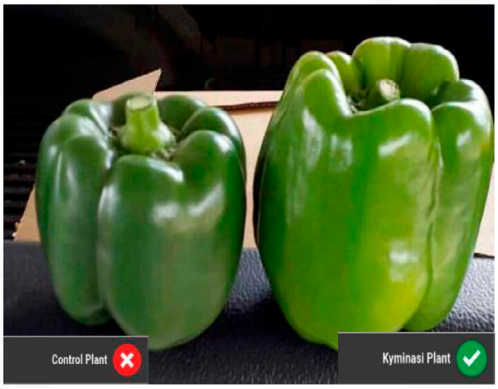
70% Yield Increase & 25% Increase in Size of Peppers in Panama

Date: May 2015 (Summer)

Location: Bajo Boquete, Panama – Pepper King Farms

Details:
- Largest indoor grower of bell peppers in Panama
- Crop Booster technology was installed in a pepper greenhouse and yields were compared with control pepper greenhouses

Results:
- Crop Booster peppers were larger in size and greater in weight due to wider membrane development
- 10 – 15 day longer shelf life with Crop Booster



Comparison	Control Peppers	Crop Booster Peppers
% Pepper Size (Larger)	0%	20-30%
% Pepper Yield Increased (by Weight Based on Thicker Flesh)	0%	70%

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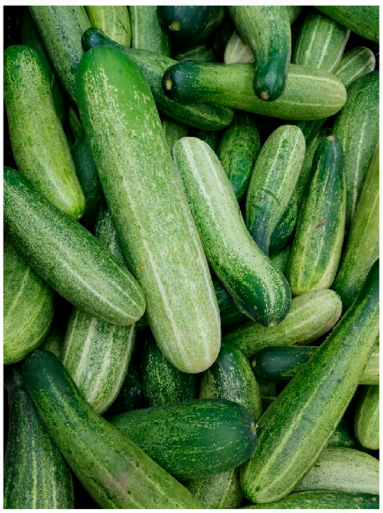
2016

CUCUMBER

18% Yield Increase of Hydroponic Cucumbers in Russia

Date: January 2016 (Winter)
Location: Stavropol Krai, Russia – Becha Agriculture Farms
Details:
- Crop Booster technology was installed in two greenhouses of German cucumbers.
- 26,900 square feet (approximately 2/3 acre)
- Crop Booster was installed on Nov 7, 2015, when the plants were mature and already fruiting. The experiment ended on Dec 30, 2015.
- The plants were grown in a non-soil-based medium in a highly controlled hydroponic system. The irrigation system was a drip system running at 3 gallons per minute.

Results:
- The experiment was done at a time of the lowest outdoor luminance levels. The plants were grown without any artificial light source.



Comparison	Control Plants	Crop Booster Plants
Cucumber Yield (kg)	14,491	17,816
Cucumber Yield (pounds)	30,865	39,277
Cucumber Yield (kg/sq m)	5.57	6.61
Cucumber Yield (lb/sq ft)	1.141	1.354
% Cucumber Yield Increased	0	18%

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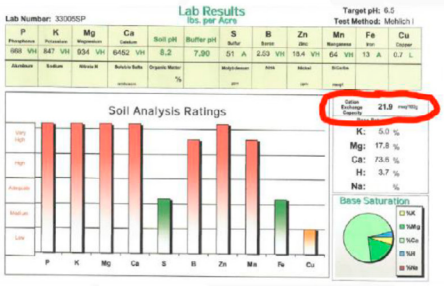
2017

TOMATO

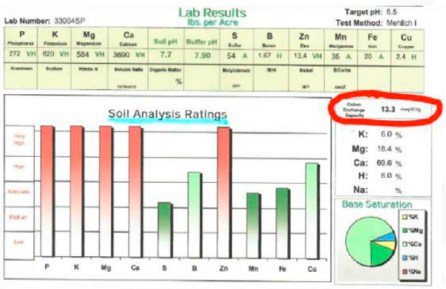
65% Increase in Soil Cation Exchange Capacity (CEC) on Tomatoes in the USA

Crop Booster



May 15th, 2017

Control



Comparison	Control Soil CEC	Crop Booster Soil CEC	Crop Booster Increase	Crop Booster % Increase
Soil Cation Exchange Capacity CEC (milli-equivalents per 100 grams of soil)	13.3	21.9	8.6	65%

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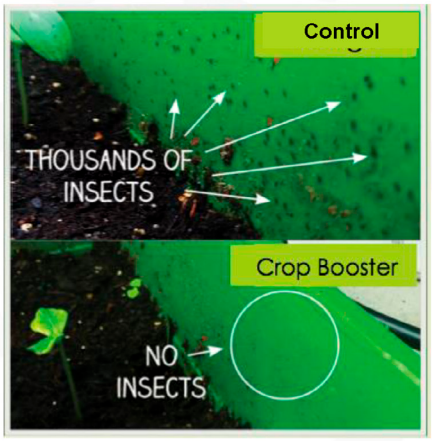
Improved Disease Resistance and Reduction of Insects on Mixed Plants in the USA

WHEATGRASS
CUCUMBER
PERIWINKLE

Date: August 2017 (Summer)
Place: Clearwater, Florida, USA – Harvest Harmonics Headquarters
Details:

- Time-lapse experiment on plants grown with an indoor LED system
- Mixture of organic soil and loam soil for the medium
- Wheatgrass, cucumbers, and periwinkle flowers were grown from seed (10 seeds per variety per planter)
- Control vs. Crop Booster plant comparison
- Hurricane Irma forced evacuation and abandonment of experiment for 5 days During this time, the plants were not cared for
- Crop Booster planter and the control planter were side by side



Results:

Comparison	Control Planter	Crop Booster Planter
Insect/ Pest Count (on the Plants, in the Growing Medium and Around the Inner Walls of the Planter)	Thousands of Insects	Insect-Free
Disease Resistance	Not Increased	Increased

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TOMATO

Increased Disease Resistance of Tomatoes Against Fungi in the USA

Date: September 2017 (Fall)
Place: Tonasket, Washington, USA – Edible Acres Farm

Details:
- Edible Acres is a 12-acre organic farm in Tonasket, Washington, USA
- The owner, Art Heinemann, is highly respected in this region for the high quality of his fruits and vegetables
- Heirloom tomatoes were compared between a control group and a test group that was irrigated with Crop Booster technology
- An early frost brought a fungus that killed all the control plants
- 97% of the Crop Booster plants survived

Results:
- When light levels increased a couple of weeks later, the Crop Booster plants grew and started producing healthy fruit

Comparison	Control Group	Crop Booster Group
Tomato Plants That Survived Fungal Attack (and Low Light Levels)	0%	97%
Disease Resistance	Not Increased	Increased

Kyminasi Plants

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2018

ALFALFA
KALE
SPINACH

25% to 30% Yield Increase of Alfalfa, Kale, & Spinach in South Africa

Date: July 2018 (Winter)
Place:
Johannesburg, South Africa – Raoul Farms

Details:
- Crop Booster technology was installed in April 2018
- Southern Hemisphere
- Temperate weather conditions
- Crops were harvested in July 2018

Results:

Comparison (Spinach, Kale & Alfalfa)	Control Plants	Crop Booster Plants
Foliage Color	Lighter Green	Darker/ Brighter Green
Foliage Density	Less Dense	More Dense
Plant Size	Smaller	Larger
Germination Rate	Significantly Lower %	Significantly Higher %
Spinach Yield Increase	0%	30%
Kale Yield Increase	0%	30%
Alfalfa Yield Increase	0%	25%

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2019

PEPPER

40% Increase in Brix Rating of Peppers in the USA

Date: September 2019 (Fall)
Place: Tonasket, Washington, USA – Edible Acres Farm
Details:
- Edible Acres is a 12-acre organic farm in Tonasket, Washington, USA
- In June 2019, Art planted bell peppers and hot red peppers for a Crop Booster trial

Results:
- Crop Booster technology increased yields while improving the size and flavor of peppers
- 40% higher Brix on Crop Booster peppers
- The Crop Booster plants were transitioning into perennials, which is highly unusual for this area as peppers usually only develop into perennials in warmer regions

Comparison	Control Plants	Crop Booster Plants
Pepper Size	Smaller	Larger
Pepper Shape	Non-consistent	Consistent
Pepper Ripeness	Non-consistent	Consistent
Brix (Degrees)	5 to 7	10
Brix (Degrees) % Increase	0%	40%
End of Blooming	Before September	September
Woody Stem Development	None	Significant

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Melon

30% Yield Increase with Improvement of 4 and 5 Degrees Brix on Melons in the USA

Date: September 2019 (Fall)
Place: Tonasket, Washington, USA – Edible Acres Farm

Details:
- Crop Booster technology was installed on a melon field
- The farmer planted the melons late in the season

Results:
- Crop Booster technology improved overall watermelon production by 30%
- Increase in Brix by 4 - 5 points

Comparison	Control Plants	Crop Booster Plants
% Melon Yield Increased	0%	30%
Brix Level Increased (Degrees)	0	4 - 5

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EGGPLANT

Reduction in Fertilizer Use & 30% Increased Yield of Eggplants in the USA

Date: September 2019 (Fall)
Place: Tonasket, Washington, USA – Edible Acres Farm

Details:
- Edible Acres is a 12-acre organic farm in Tonasket, Washington, USA
- In June 2019, Art planted several varieties of eggplant to do a Crop Booster trial

Results:
- The Crop Booster plants were dark green in color and full of vigor
- Art commented that the Crop Booster plants were behaving as if they were receiving a high-powered fertilizer, despite using less fertilizer than ever before
- Art counted 12 eggplants per Crop Booster plant and noted that, even with the increased yields, the eggplant quality was incredible with Crop Booster use

Comparison	Control Plants	Crop Booster Plants
Eggplant Yield Increase	0 %	30 %
End of Blooming	Before September	September

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TOMATOES

Improved Fruit Quality & Storage of Tomatoes in the USA

Date: September 2019 (Fall)
Place: Tonasket, Washington, USA – Edible Acres Farm

Details:
- Edible Acres is a 12-acre organic farm in Washington, USA
- In 2019, the owner, Art, grew heirloom tomatoes and compared plant health between an untreated control group and a test group that was irrigated with Crop Booster technology

Results:
- While many heirloom tomatoes are picked green before being brought to market, the Crop Booster treated tomatoes can be picked when fully ripened and sold as a fresher, more nutritious fruit with maximum flavor
- This is because Crop Booster not only improves quality but also improves overall storage and preservation qualities

Comparison	Control Plants	Crop Booster Plants
Tomato Flavor	Reduced depth, juice, & flavor	Greater depth, juice, & flavor
Shelf- Life	Reduced	Improved

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PEPPER

Greater Vigor & 97% Yield Increase of Bell Peppers in Peru

Date: December 2019
Place: Paijan, Peru – Guillermo Cáseres Farm

Details:
- Farm with 30 hectares of peppers and onions
- Crop Booster technology was installed on 2.5 hectares of Ajipanka pepper fields

Results:
- After only 16 days of using the Crop Booster, the pepper plants grew faster and more uniformly than the control plants
- The Crop Booster treated pepper plants produced more vigorous growth and the foliage was a darker green color than the control plants

Comparison	Control Plants	Crop Booster Plants
% Extra Production (in Weight)	0%	97%
Total Pepper Yield (grams)	798	1,575
Average Pepper Weight (grams)	21	35
# of Peppers Produced per plant	38	45
% Pepper Flower Increased	0%	30%

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BROCCOLI

22% Increase in Germination Rate of Broccoli in Peru

Date: December 2019 (Summer)
Place: Valle del Moche, Peru

Details
- Jaime Sanchez installed the Crop Booster on a nursery that germinates vegetables such as broccoli, squash, and tomatoes for plant sales
- The germination and growth rates of broccoli seeds were compared between Crop Booster and control plants

Results:
- The Crop Booster treated seeds germinated faster than the control seeds and were ready for shipment after only 18 days
- The farm manager stated that the Crop Booster treated broccoli plants looked at least 23 days old at that point

Comparison (Broccoli)	Control Plants	Crop Booster Plants
Germination Rate Increase	0 %	22 %

Kyminasi Fields

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2020

PEPPER

87.5% Increase in Pepper Yield in Peru

Date: January 2020 (Summer)

Place: Valle de Moche, Peru – Mr. Jaime Sanchez's Field

Details:
Crop Booster technology was installed on a pepper field

Results:
Jaime used the Crop Booster technology this summer for 75 days and achieved an average of 30 peppers per plant

Comparison	Control Plants	Crop Booster Plants
Average Number of Peppers per Plant	16	30
Average Pepper Yield Increase	0%	87.5%

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TURF GRASS

Increased Grass Vigor and Turf Regrown in 14 Days in Peru

Date: January 2020 (Summer)

Place: Trujillo, Peru

Details:
- Crop Booster technology was installed on a soccer field and a public park
- The owner of the field had been spending $500 in inputs every 3 - 4 months to encourage the turf to grow healthier and become greener in color; he still had no positive results before Crop Booster use.

Results:

Soccer Field Turf Grass Comparison (14 Days Of Crop Booster Use)	Control Plants	Crop Booster Plants
Grass Color	Brown, Light Green	Dark Vibrant Green
Grass Health	Unhealthy, Dry, Dead, and Bare Grass Spots	Healthy, Vigorous, Even Growth

Park Grass Comparison (11 Days Of Crop Booster Use)	Control Plants	Crop Booster Plants
Grass Color	Dull Light Green	Dark Vibrant Green

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Increased Overall Growth and Faster Growth Rate of Tangerines in Peru

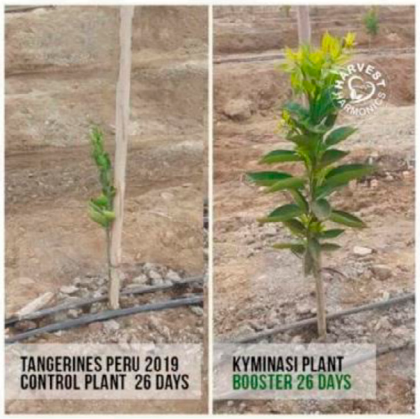
TANGERINE

Date: January 2020 (Summer)
Place: Chincha, Peru – La Calera Farm

Details:
- Crop Booster was installed on 1.5 hectares (3.75 acres) of a tangerine grove in December 2019
- The tangerine seedlings were about one month old when the scientific trial began

Results:
- The farmer suggested that the growth of the Crop Booster treated tangerine trees resembled 3-month-old trees even though they were 2-month-old trees

Tangerine Trees Comparison	Control Tangerine Trees	Crop Booster Tangerine Trees
Overall Growth	Slower and Flowered Later	Faster, Flowered Earlier, and More Leaves (After 26 Days of Treatment)
Increase in Growth Rate	0%	30%
Increase in Height (cm)	0	5
Leaf Color	Lighter Green	Brighter Green
Health of The Trees According to The Brighter Pigment	No Brighter Pigment – Less Healthy	Brighter Pigment – Healthier Trees



Control Plants ⬆⬆ Kyminasi Plants

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50% Increase in Root Volume and Increased Foliage of Cherry Trees in Peru

CHERRY

Date: January 2020 (Summer)
Place:
Jequetepeque Valley, Northern Peru – Agrícola Cerro Prieto

Details:
- For the past 3 years, this farm had tried to grow cherry trees without success
- Crop Booster technology was installed on 1 hectare of cherry trees

Results:

Cherry Trees Comparison	Control Cherry Trees	Crop Booster Cherry Trees
Observations After 26 Days	Nothing Different	Growing Successfully and Showed Signs of Health Improvement
% Development of Root Volume Increased	0%	50%
Foliage Growth	No Significant Growth	Significant Growth

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CHERRY

50% Increase in Root Volume and Increased Foliage of Cherry Trees in Peru

December 17th, 2019

January 10th, 2020

March 13th, 2020

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LEMON

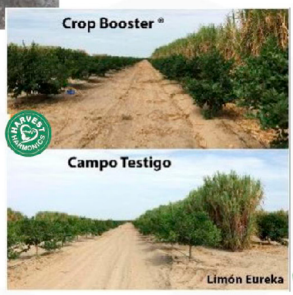
Reduction of Insects and Increased Root Size on Lemon Trees in Peru

Date: January 2020 (Summer)
Place: Olmos, Northern Peru – Trapani Farm

Details:
Crop Booster technology was installed on a field of lemons

Results:

Lemon Trees Comparison	Control Lemon Trees	Crop Booster Lemon Trees
Foliage and Overall Plant Color (After 9 Weeks)	Lighter Green Color	Brighter Green Color
Incidence of Pest	More Incidence	Less Incidence
% Presence of The Leaf Screwworm	16%	11%
% Increased Disease Resistance (After 12 Weeks)	0%	5%
Root Systems	Not Larger and Developed	Larger and Developed



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ROSE

Extended Shelf Life of Roses in Italy

Date: January 2020 (Winter)

Location: Como, Italy

Details:
A total of 144 roses were shipped from Ecuador, South America, and immersed in water that had been treated with the Crop Booster technology for 30 days

Results:

Roses Observations	Crop Booster Treated Roses
Survivor Roses (30 Days of Testing)	The Majority of the Roses Survived for Almost the Full Testing
Stems	Began Growing New Leaves and Shoots
Nutrients or Hormones Added	None

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WHEAT

Increased Nutrient Density and Yields of Wheatgrass

Date: December 2019 to January 2020

Place: Clearwater, FL, USA

Details:
The Crop Booster was installed on a wheatgrass microgreen plot

Results:

Wheatgrass Microgreen Comparison	Control Microgreens	Crop Booster Wheatgrass
Increase in Nutrient Density of Wheatgrass Microgreens	None	Increased
Plant Tissue Analysis: Phosphorus (P), Potassium (K) and Iron (Fe)	Less	More P and K 6x More Iron
Speed of Germination of Wheat Plants	More than 3 Days	3 Days Faster
% Higher Fresh Weight	0%	30% (After 7 Days of Treatment)

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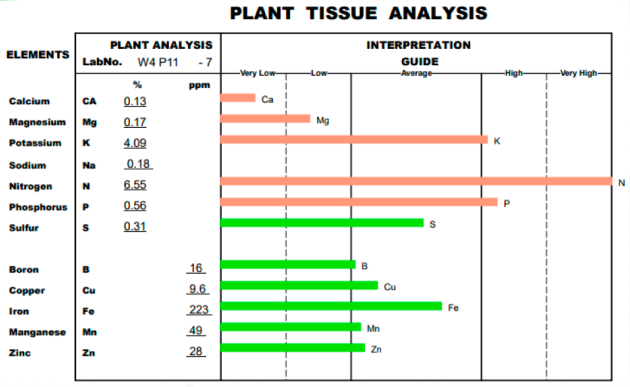
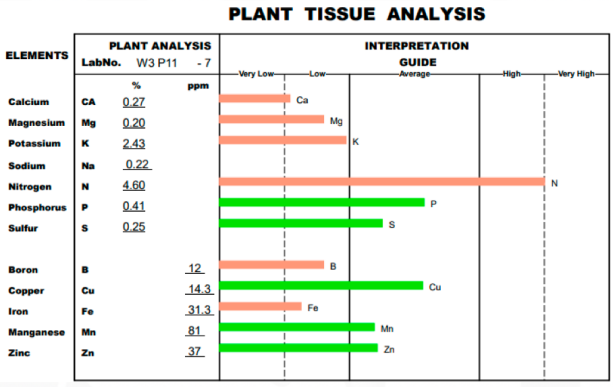
Increased Nutrient Density and Yields of Wheatgrass (continued)



Crop Booster



Control

30% More Root Development, 33% Greater Vigor, & 23% Higher Profit in Thompson Grape Vines in Chile

TABLE GRAPE

Date: February 2020 (Summer)
Place: Santa Cecilia, Chile – Rodrigo Artizia de Castro

Details: Crop Booster technology was installed on 1 hectare (2.5 acres) of Thompson grapes 44 days before harvest

Results:

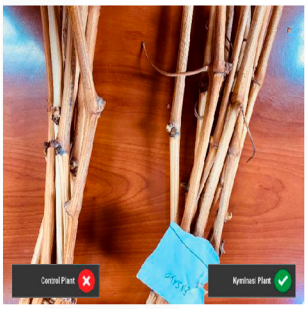
Grapes Comparison	Control Crop	Crop Booster Plants
Increase of Grape Yields	None	1,640 Kg (3,615 pounds)
Brix Level Increased	0 Degrees Brix	1 Degree Brix
Electrical Conductivity of the Soil	2.3 Decisiemens per meter (high)	1.7 Decisiemens per meter (normal)
Plant Tissue Analysis: Increase of Nitrogen (N), Phosphorus (P), Iron (Fe) and Boron (B)	0% Increase	14% More N 10% More P 47% More Fe 20% More B

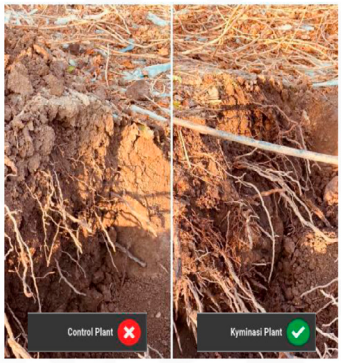
Results:

Total Kg Control	Total Kg Crop Booster
24,600	26,240
$1.46	$1.80
$35,916.00	$47,232.00

Total extra profit using KPB per Ha

$11,316.00





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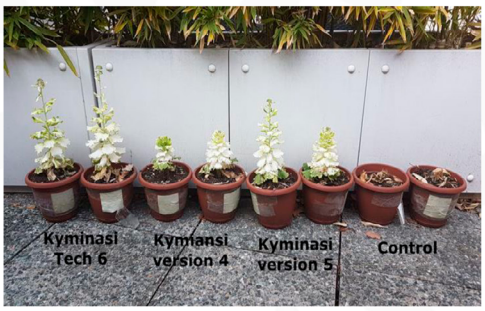
CABBAGE

Regrowth After 60 Days of Winter on Cabbage in Italy

Date: July 2019 to March 2020 (Summer to Winter)
Place: Como, Italy – Researchers at the Kyminasi Headquarters



Details:
- Ornamental cabbages purchased in the first week of December 2019
- Test of three (3) variations of the Crop Booster technology on cabbage plants against a set of control plants with untreated water
- The cabbage plants were watered for less than three weeks until December 21st
- The Tech 6 device had achieved the greatest growth compared to the others, so the experiment was considered complete
- The Kyminasi facility was closed for the holidays and, from then on, the plants no longer received the Crop Booster treated water. The plants were left on the open-air terrace and received rain and snow all winter.

Results:
The Crop Booster plants had enough energy to re-emerge and grow, even after an entire winter of cold and neglect

Season	Observations
Winter	The Control Plants on the right of the photo did not survive the winter.
Mid-February 2020	The Crop Booster Plants Started to Grow Back Despite the Harsh Winter Exposure
Mid-March 2020	The Crop Booster plants quickly produced tall growth as soon as the temperatures rose, and the first sunny days began.

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TRITICALE

15% Yield Increase of Triticale in Mexico

Date: November 2019 to March 2020 (Fall to Winter)

Place: Tlaxcala, Mexico – Rancho Santa Clara

Details:
- 250-hectare (625-acre) farm that grows corn, barley, and triticale
- Crop Booster technology was installed on a field of triticale and compared to an untreated control plot

Results:
- Harvest was expected in early March and the estimated yield increase was 20-30% more fresh weight

Comparison	Control Plants	Crop Booster Treated Plant
Color	Lighter Green	Darker Green
Chlorophyll Produced and Overall Health	Less	Better
Plants Growth	Less Dense, Lower Yield by Weight	Much Denser, Higher Yield by Weight

Control Fields ⬆⬆ Kyminasi Fields

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26.7% Yield Increase of Watermelons in Peru

UNIVERSITY
WATERMELON

National Agrarian University Lima, Peru

Date: April 2020 (Fall)
Place: Lima, Peru – **National Agrarian University**

Details:

- The Santanella cultivar of watermelon was planted in an alluvial valley with clay loam soil that had moderate organic matter content and an alkaline reaction
- Drip irrigation was used for this test
- Four different harvests were completed from multiple test plots

Results:

Comparison	Control	Crop Booster	Increase	% Increase
Average Yield (metric tons / hectare)	45.70	57.92	12.22	26.74%

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Over 20% Yield Increase, 8% Firmer Fruit, & Increased Salt Tolerance On Tomatoes In Israel

UNIVERSITY
TOMATO

Date: April 2020
Place: Negev, Israel – Ramat-Negev Desert Agro-Research Center (RNDARC)

Details:

- Crop Booster technology was installed in a Shiren cherry tomato greenhouse
- The irrigation water used for this trial was considered heavily brackish (high sodium) water

Results:

- In summary, we saw great results growing tomatoes in the desert of Israel, even under extreme salt stress
- This trial proved that the Crop Booster does add significant plant tolerance to salt in the soil and brackish water

Comparison	Control	Crop Booster	% Increase
Total Sum Of Average Fruit Weight (grams)	395.163	476.094	20.48%
Average Fruit Weight (grams)	12.828	14.878	15.982%
Average Number Of Fruit Per Plant	9.452	10.125	7.125%
The Total Sum Of Firm Fruit	380.0	352	8%
General Appearance (1-5) Rating	235.0	228.0	3.07%

RAMAT - NEGEV
DESERT AGRO-RESEARCH CENTER

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WINE & TABLE GRAPE

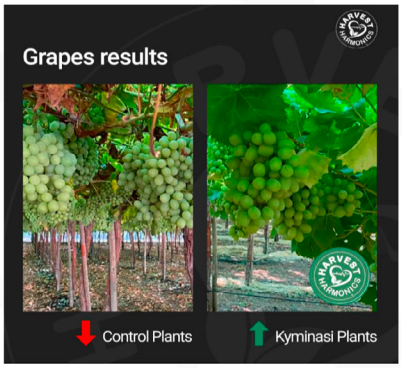
Improved Drought Tolerance & 75% Yield Increase of Grapes in Peru

Date: June 2020 (Fall)
Place: Casma, Peru – Frutos Hergu's Farm

Details:
- Crop Booster technology was installed on 5 hectares of Red Globe grapes
- Drought conditions in 2020 caused a 30% water deficit that adversely impacted yields in the Casma region of Peru where this farm is located

Results:
- Overall, the Crop Booster field produced 52.5% more grapes than the previous year's yield

Comparison	Control Grapes	Crop Booster Grapes
% Yield Increased of Grapes During an Extreme Drought	0%	75%
Grape Yield	24 metric tons	42 metric tons



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ASPARAGUS

49% Yield Increase of Asparagus in Peru

Date: June 2020 (Winter)
Place: Viru, Peru

Details:
- Crop Booster technology was installed on 5 acres of asparagus by one of the largest asparagus producers in Peru
- Results were monitored for 6.5 months

Results:
- Both fields were maintained under the same conditions and with similar production as in previous years

Comparison	Control Field	Crop Booster Treated Field
% Yield Increased	0%	49%

DATA Kgr/ha/day		
Harvest Days	KPB T0	Control T1
1	14	21
2	61	22
3	196	139
4	315	203
5	538	344
6	681	371
7	403	288
8	288	193
9	234	181
10	261	200
11	300	209
12	246	158
13	224	224
14	208	160
15	258	204
16	271	218
17	286	185
18	363	167
19	268	238
20	257	128
21	287	139
22	182	139
23	143	87
	6285	4217

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DRAGON FRUIT

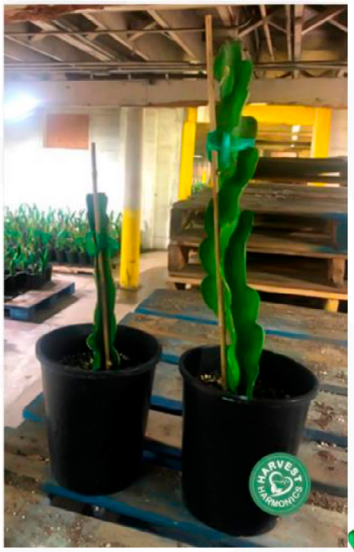
100% Faster Growth of Dragon Fruit in the USA

Date: July 2020 (Summer)
Place: Porterville, CA, USA

Details:
- Dragon fruit plants for resale to retail gardening chains
- Crop Booster technology was installed in Feb 2020 and watering began in May to see if it would help bring them to maturity sooner

Results:
- Owner is now seeking new markets in Arizona and Florida for his increased production

Dragon fruit Plants Comparison	Non-treated Control Plants	Crop Booster Plants
Root Development	16 to 21 days to be rooted	12 days
Time of 1-Gallon Plants to Be Ready for Sale	5-6 weeks	2-3 weeks
Time of 5-Gallon Plants to Be Ready for Sale	10 weeks	5 weeks
% Rooted Faster Increased	0%	33
% Grew Faster Increased	0%	100%



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ORANGE SEEDLINGS

100% Faster Growth of Oranges in the USA

Date: July 2020 (Summer)
Place: Porterville, California, USA – KR Citrus

Details:
- Grows the Navel and Valencia cultivars of oranges
- Crop Booster technology was installed in order to test if it would help bring their oranges to maturity faster

Results:

Orange Trees Comparison	Control Trees	Crop Booster Oranges Trees
Growth Regarding the Size and Canopy Density of New 1-Year-Old Tree (After 6 Weeks)	None	More than Normal
Development (Compared with Neighbor's Trees)	Not as Developed (Planted 2 years ago)	Significantly More Developed (1 year old)
% Faster Growth Increased	0%	100%

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PLUM

67% Reduction in Fertilizer Use, Increased Brix Rating, & Larger Fruit Size of Plums in the USA

Date: July 2020 (Summer)
Place: Visalia, California, USA – Gabe Alvarez Farms

Details:

- One of the fields was underperforming. The plums in that field were not growing to the expected size, despite extra care.
- Gabe installed the Crop Booster system on the troubled field about 9 days before harvest

Results:

- By harvest time, the Crop Booster fruit had increased to the same size as the other fields
- Crop Booster allowed Mr. Alvarez to harvest all his fields at the same time and he saved a lot of money in labor costs
- Gabe stated that he also saw larger plum sizes and better Brix ratings on his later varieties that year
- Gabe also reported better shelf-life on his Friar Plums and nectarines

Plum Trees Comparison	Control Plum Trees	Crop Booster Plum Trees
Health and Fruit Size (After 3 Days)	No salient remarks	Healthier, Fruit Size Increased
Fruit and Trees Growth (After 1 Week)	Smaller and Less Sweet	Larger and Sweeter
Degrees Brix	15-17	17-22
# Application of Nitrates, Fertilizers and Herbicides per Year	3 or More	1
$ Saved per Acre on Input Costs	$0	$74

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POTATO

16% Yield Increase of Potatoes in Bolivia

Date: July 2020 (Winter)
Place: Santa Cruz, Bolivia

Details:

- Crop Booster was installed on a field of potatoes in Bolivia

Results:

- After 97 days, the Crop Booster plants had a greater height than the control plants
- This additional biomass allowed the Crop Booster crop to engage in more photosynthesis

Comparison	Control Plants	Crop Booster Plants
# Additional Tuber Produced (Per Each Plant)	0	1
% Potato Yield Increased (Related to Additional Tuber)	0%	8.33%
# Additional Weight (Each Tuber)	0 grams	6 grams
% Tuber Size Increased	0%	7.38%
% Potato Crop Yield Increased	0%	16%

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STRAWBERRY

Improved Growth and Vigor of Strawberries in Ecuador

Date: August 2020 (Winter)
Place: Quito, Ecuador

Details:
- Mr. Danilo installed the Crop Booster technology on his strawberry field on July 15th, 2020
- The farm experienced an extreme summer with very intense heat

Results:
- The strawberry plants treated with Crop Booster began producing fruit significantly earlier than the control plants
- The farm owners decided to buy the Crop Booster for the rest of their field

Comparison	Control Plants	Crop Booster Strawberry Plants
Health of the Plant (After 1 Month)	Highly Heat-Stressed Plants	Healthier and Brighter Green Leaves

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LENTIL

100% Reduction in Fertilizer Use & 33% Yield Increase of Black Lentils in India

Date: August 2020 (Monsoon)
Place: Bulandshahr, Uttar Pradesh, India

Details:
- Black lentils were planted on two test plots of 1.2 acres each with similar soil conditions
- The Crop Booster treated field was not fertilized
- The farm was only irrigated 3 times with the Crop Booster system during the 9-week growing season

Results:
- With Crop Booster technology, the black lentils were ready to harvest 2 weeks before the control field and overall took less time to grow

Comparison	Control Field	Crop Booster Field
Black Lentil Yield (Kg)	90 kg	120 kg
% Yield Increase	0%	33%
Black Lentil Color	Lighter Black	Darker Black
Fertilizer Needed	Urea	None

Kyminasi Plants

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20% Yield Increase and Fewer Insects on Eggplants in India

EGGPLANT

Date: August 2020 (Monsoon)
Place: Bulandshahr, Uttar Pradesh, India

Details:
Crop Booster technology was installed on a 1-acre field of eggplants

Results:
- Significant improvements were visible on the Crop Booster treated eggplant crop after only one month of watering

Comparison	Control Crop	Crop Booster Treated Plants
Quality of the Eggplants	Smaller Size and Lighter Color	Larger Size and Brighter Fruit Color
Insects Observed	More	Fewer
% Yield Increased (First Harvest)	0%	20%

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Improved Fruit Quality & Larger Fruit Size of Blueberries in Peru

BLUEBERRY

Date: September 2020 (Spring)
Place: Peru – Hortifruit

Details:
- One of the largest producers of blueberries in the world
- Crop Booster technology was installed on 4 acres of blueberries in December 2019 and harvested in August 2020
- Post-harvest quality measurements were completed after 30 days of storage at 0°C

Results:
- Improved Shelf Life

Comparison	Control Crop	Crop Booster Blueberries
Flavor Quality (As Measured by The Brix/ Acidity Ratio)	Normal	Improved
% Of Fruit With Improved Size Quality (Having Diameters Over 19 mm)	78%	88%
% Of Fruit With No Observed Bruising	79%	83%
Increased Profit	$0	$12,497

CS2020

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TABLE GRAPE

Reduced Mite Infestation on Thompson Grapes in Chile

Date: September 2020 (Winter)

Place: Chile

Details:

- Kyminasi Plant - Crop Booster (Crop Booster) technology was installed on one hectare of Thompson seedless grapes in June of 2020.

Results:

- Crop Booster provided increased pest resistance for grape plants.
- Graphs are provided on the next slide.

Comparison	Control Field	Crop Booster Treated Plants
% Eriophyid Mites Present After 12 Weeks	48%	9.9%
% Loss in Grape Yield	30%	0%

CS2021

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TABLE GRAPE

Reduced Mite Infestation on Thompson Grapes in Chile

Crop Booster

Resultado general: Se encuentra un 50% de cargadores con presencia de eriófidos (*Colomerus vitis*). En los cargadores afectados se detecta un rango entre 9,1 y 30% de yemas infestadas. Promedio general un 9,9% de yemas infestadas y un 90,1% de yemas sanas.

REGISTRO ANÁLISIS POR CARGADOR

	T. SEEDLESS	UBICACIÓN Y CANTIDAD DE ÁCAROS EN CARGADOR											TOTALES				12703 PORCENTAJES		
		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Total Yemas	Total muertas	Sin Eriofidos	Con Eriofidos	% yemas con Eriofidos	% yemas muertas	% yemas sanas
CARGADORES	C1	15	10	0	0	0	0	0	20	0	0		10	0	7	3	30,0	0,0	70,0
	C2	0	0	5	0	0	0	0	0	0	0	0	11	0	10	1	9,1	0,0	90,9
	C3	0	0	0	0	0	0	0	0	0	0		10	0	8	2	20,0	0,0	80,0
	C4	0	0	0	0	0	0	0	0	0	0		10	0	10	0	0,0	0,0	100,0
	C5	10	0	0	0	0	0	0	0	0	0		10	0	8	2	20,0	0,0	80,0
	C6	0	0	0	0	0	0	0	0	0	0		10	0	10	0	0,0	0,0	100,0
	C7	0	0	0	0	0	0	0	0	0	0		10	0	10	0	0,0	0,0	100,0
	C8	0	0	0	0	0	0	0	0	0	0		10	0	8	2	20,0	0,0	80,0
	C9	0	0	0	0	0	0	0	0	0	0		10	0	10	0	0,0	0,0	100,0
	C10	0	0	0	0	0	0	0	0	0	0		10	0	10	0	0,0	0,0	100,0
																	9,0	0,0	90,1

Y= YEMAS; C= CARGADOR; M=MUERTA

(Crop Booster) 9.9% of Grapes Have Eriophyid Mites

Control

Resultado general: Se encuentra un 100% de cargadores con presencia de eriófidos (*Colomerus vitis*). En los cargadores afectados se detecta un rango entre 30 y 70% de yemas infestadas. Promedio general un 48% de yemas infestadas y un 52% de yemas sanas.

REGISTRO ANÁLISIS POR CARGADOR

	T. SEEDLESS	UBICACIÓN Y CANTIDAD DE ÁCAROS EN CARGADOR										TOTALES				12704 PORCENTAJES		
		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Total Yemas	Total muertas	Sin Eriofidos	Con Eriofidos	% yemas con Eriofidos	% yemas muertas	% yemas sanas
CARGADORES	C1	20	10	30	0	0	25	15	0	0	10	10	0	4	6	60,0	0,0	40,0
	C2	35	20	15	25	10	0	0	10	5	0	10	0	3	7	70,0	0,0	30,0
	C3	45	35	20	15	5	25	10	0	0	0	10	0	3	7	70,0	0,0	30,0
	C4	0	15	5	5	0	0	10	15	0	0	10	0	5	5	50,0	0,0	50,0
	C5	0	0	10	0	20	0	0	0	0	0	10	0	7	3	30,0	0,0	70,0
	C6	35	0	0	20	0	5	0	0	0	0	10	0	7	3	30,0	0,0	70,0
	C7	40	30	20	20	0	0	10	20	0	0	10	0	4	6	60,0	0,0	40,0
	C8	0	0	0	20	15	0	0	0	0	0	10	0	7	3	30,0	0,0	70,0
	C9	20	30	0	0	5	0	0	0	0	0	10	0	7	3	30,0	0,0	70,0
	C10	10	15	0	0	0	15	25	0	0	0	10	0	5	5	50,0	0,0	50,0
																48,0	0,0	52,0

Y= YEMAS; C= CARGADOR; M=MUERTA

(Control) 48% of Grapes Have Eriophyid Mites

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Reduced Mite Infestation on Thompson Grapes in Chile

TABLE GRAPE

Kyminasi Plant - Crop Booster

Resultado general: Se encuentra un 50% de cargadores con presencia de eriófidos *(Colomerus vitis)*. En los cargadores afectados se detecta un rango entre 9,1 y 30% de yemas infestadas. Promedio general un 9,9% de yemas infestadas y un 90,1% de yemas sanas.

REGISTRO ANÁLISIS POR CARGADOR

	T. SEEDLESS	UBICACIÓN YEMAS/BROTES EN CARGADOR											TOTALES				12703 PORCENTAJES		
		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Total Yemas	Total muertas	Sin Eriofidos	Con Eriofidos	% yemas con Eriofidos	% yemas muertas	% yemas sanas
CARGADORES	C1	15	10	0	0	0	0	0	20	0	0		10	0	7	3	30,0	0,0	70,0
	C2	0	0	5	0	0	0	0	0	0	0	0	11	0	10	1	9,1	0,0	90,9
	C3	5	0	0	5	0	0	0	0	0	0		10	0	8	2	20,0	0,0	80,0
	C4	0	0	0	0	0	0	0	0	0	0		10	0	10	0	0,0	0,0	100,0
	C5	10	5	0	0	0	0	0	0	0	0		10	0	8	2	20,0	0,0	80,0
	C6	0	0	0	0	0	0	0	0	0	0		10	0	10	0	0,0	0,0	100,0
	C7	0	0	0	0	0	0	0	0	0	0		10	0	10	0	0,0	0,0	100,0
	C8	5	0	0	0	0	5	0	0	0	0		10	0	8	2	20,0	0,0	80,0
	C9	0	0	0	0	0	0	0	0	0	0		10	0	10	0	0,0	0,0	100,0
	C10	0	0	0	0	0	0	0	0	0	0		10	0	10	0	0,0	0,0	100,0
																	9,9	**0,0**	**90,1**

Y= YEMAS; C= CARGADOR; M=MUERTA

9.9% of Grapes Have Eriophyid Mites

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100% Faster Soil Water Infiltration Rate with Cherries in Chile

CHERRY

Date: September 2020 (Winter)
Place: Buin, Chile

Details:
- The Crop Booster technology was installed on 4 hectares of cherry trees on August 30, 2020

Results:
- On September 2nd:

Comparison	Control Field	Crop Booster Trees
Depth of Infiltrated Water in Soil (cm)	70	70
Infiltration Time of the Water in Soil (hours)	16	8
% Rate of Water Infiltration Into the Soil Increased	0%	100%

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SOIL ELECTRICAL CONDUCTIVITY

Reduction of Excessive Soil Electrical Conductivity (EC) in Chile

Pag. 1/1

Headquarters Identification			N° P5 Trial Thompson S.		N° P5 Without Trial Thompson S.	
Sampling depth (cm)		:	70		70	
Laboratory N°		:	226585		226585	
Fertility						
pH	(water, ratio 1:2,5)	1:2,5	7,9	Slightly Alkaline	8,0	Alkaline
Electrical C.	(in extract)	dS/m	1,7	No Problem	2,3	Slightly Saline
Organic Matter		%	5,2	High	5,5	High
Nitrogen available	(N)	mg/kg	43	Adequate	46	Adequate
Phosphorus available	(P)	mg/kg	10	Medium	4	Very Low
Potassium available	(K)	mg/kg	244	Adequate	215	Adequate
Exchangeable Cations						
Calcium	(Ca)	meq/100g	19,5	High	22,5	High
		% CIC	81		80	
Magnesium	(Mg)	meq/100g	3,1	High	4,0	High
		% CIC	13		14	
Potassium	(K)	meq/100g	0,62	Adequate	0,55	Adequate
		% CIC	2,6		1,9	
Sodium	(Na)	meq/100g	0,60	Medium	1,1	High
		% CIC	2,5		3,9	
Addition of Bases	**(Ca+Mg+K+Na)**		23,8		28,1	
CEC (Cation Exchange Capacity)		meq/100g	24,2		28,3	
Microelements available						
Iron	(Fe)	mg/kg	18,9	Adequate	14,0	Adequate
Manganese	(Mn)	mg/kg	16,0	High	10,6	High
Zinc	(Zn)	mg/kg	2,6	Adequate	0,65	Medium
Copper	(Cu)	mg/kg	6,3	Adequate	6,7	Adequate
Boron	(B)	mg/kg	2,8	High	3,2	High

Equivalences. Electrical C. dS/m = mmhos/cm; Nutrients: mg/kg = ppm; Exchangeable Cations: cmol+/kg = meq/100g

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CORN

Greater Vigor and 35% Increase in Foliage of Corn in Colombia

Date: September 2020 (Summer)
Place: Ibague, Colombia

Details:
- Crop Booster technology was installed on 1 hectare of corn

Results:
- 22 days of growth after germination and only 4 drip irrigation applications with Crop Booster technology

Comparison	Control Plants	Crop Booster plants
% Corn Plants Foliage Yield Increased	0%	35%
Growth of Corn Stalks	Smaller and Thinner	15 cm taller, thicker and developed
Color of the Corn Plant	Lighter Green	Darker Green
Root System	Less abundant	More abundant

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100% Reduction in Fertilizer & Increased Brix Rating of Grapes

TABLE GRAPE

Date: September 2020
Place: Washington, USA
Details: KPCB technology was installed on a field of Suffolk Red grapes.
Results:

- No fertilizer applied
- 1 foliar application of compost tea
- Vigorous growth and production
- Early Brix reading: 19 brix
- Ripe Brix 26

Table Grapes	Prior Year	KPCB Year
#Degrees Brix (Not Fully Ripe)	0	19
#Degress Brix (Full ripeness)	0	25

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18% Yield Increase of Bell Peppers

PEPPER

Date: September 2020
Place: Washington, USA
Details: KPCB technology was installed on a bell pepper field.
Results:

- 17 large peppers per plant at the same time
- Longer harvest season
- Best Quality ever observed

Bell Peppers	Prior Year Comparison	KPCB
Quality	Average	Perfect
Quantity	14 per plant (avg)	17 per plant (avg)
Extended Season	No	Yes
Flowering Duration	August	September

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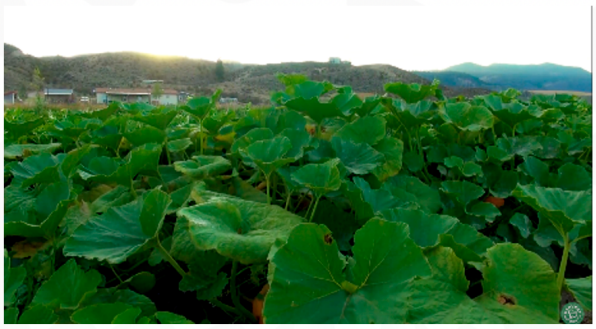
SQUASH

More Vigorous Growth, Increased Yield, and Improved Quality of Squash in the USA

Date: September 2020
Place: Tonasket, Washington, USA
Details: KPCB technology installed on squash
Results:

- After 5 weeks, the KPCB treated squash vines outgrew the farm's rows
- Leaves grew 3 ft off the ground
- Increased squash quality



Squash	Prior Year Comparison	KPCB
%Yield Increased	0%	15%
Observation	Vines 1 foot off the ground	Vines 3 feet off the ground
Plant Color	Normal	Deep Green

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ALMOND

300% Faster Soil Water Infiltration Rate & Over 65% Reduction in Water Use of Almonds in Chile

Date: November 2020 (Spring)
Place: Chile

Details:

- Crop Booster technology was installed on a grove of almond trees
- This orchard had been monitored with humidity sensors for four (4) years

Results:

- After two months:

Comparison	Control Water	Crop Booster Treated Water
Depth of Infiltrated Water in Soil (cm)	40	100
Infiltration Time of the Water in Soil (hours)	12	10
% Rate of Water Infiltration Into the Soil Increased	0%	300%
% Efficiently Increased	0%	200%
% Reduction in Water Usage of Almonds	0%	65%

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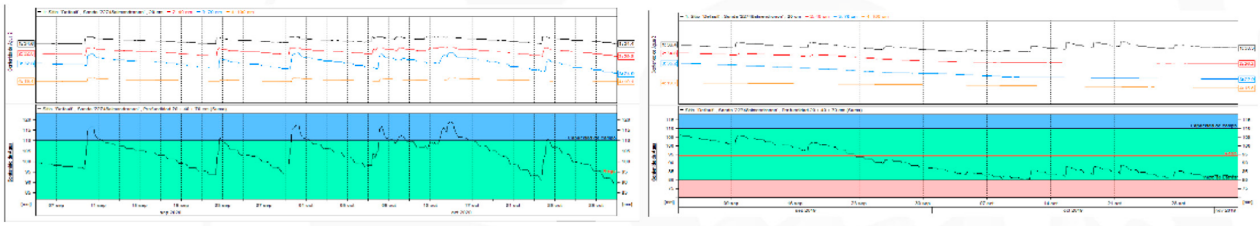
ALMOND

300% Faster Soil Water Infiltration Rate & Over 65% Reduction in Water Use of Almonds in Chile



Control (Above)

Crop Booster (Above)

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POTATO

32% Yield Increase of Potatoes in Bolivia

Date: November 2020 (Summer)
Place: Santa Cruz, Bolivia

Details:

- Crop Booster technology was installed on a potato field where the producer had faced severe environmental problems in the past

Results:

- The increased potato yields generated from Crop Booster technology allowed the farmer to overcome the past environmental damage in the rest of his fields

Comparison	Control Field	Crop Booster Treated Field
% Yield Increased	0%	32.29%

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MELON

25% Yield Increase and Less Presence of Miner Flies on Melons in Brazil

Date: December 2020 (Spring)
Place: Brazil

Details:

- The owner of the world's largest melon exporting company installed the Crop Booster technology on one of his fields

Results:

Comparison	Control Field	Crop Booster Treated Field
Total Boxes Produced	1,650	2,061
Kg of Each Box	13	13
% Yield Increased	0%	25%
Miner Fly Presence	Heavily infested	Minimal presence

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DAIRY/ MILK

100% Yield Increase of Milk & Increased Nutrients In Forage on a Pasture in Ecuador

Date: December 2020 (Winter)
Place: Riobamba, Ecuador

Details:

- Private research study by Guido Carrillo on a pasture field that provides forage for a cattle herd of 24 cows
- Goal is to improve the quality of the grass to increase milk production

Results:

- The increased nutrient content in the forage resulted in more milk produced and likely greater nutrient content in the milk
- The increased nutrient density of the Crop Booster forage allowed for a significant increase in the overall health of the cows

Comparison	Control	Crop Booster	Increase	% Increase
Month 1: Daily Milk Production (Liters)	400	450	50	12.5 %
Month 2: Daily Milk Production (Liters)	400	480	80	20 %
Month 3: Daily Milk Production (Liters)	400	540	140	35 %
Grass Rotation For Grazing (Days)	30	16	- 14	47 %
% Dry Matter	13.9 %	16.6 %	2.7	19.4 %
Iron (PPM)	96.8	124	27.2	28 %
Manganese (PPM)	25.8	46.2	20.4	79.1 %
Potassium (PPM)	2.88	3.26	0.38	13 %
Calcium (PPM)	0.4	0.45	0.05	12.5 %
Copper	7.8	10.5	2.7	34.6 %
Zinc (PPM)	15.8	26.4	10.6	67.1 %
Boron (PPM)	21.2	24.4	3.2	15.1 %

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CHERRY

Improved Fruit Quality & 25% Yield Increase of Cherries in Chile

Date: December 2020 (Spring)
Place: Chile

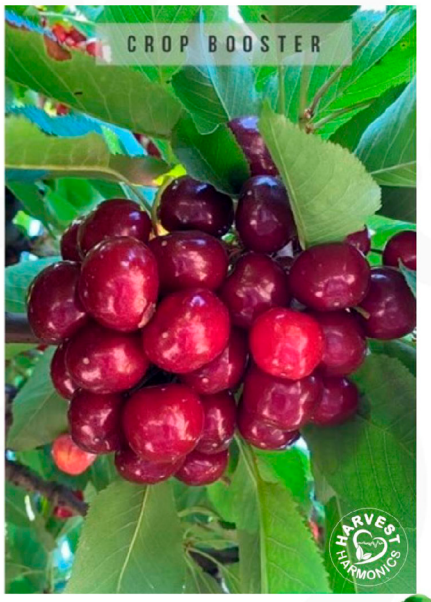
Details:

- Crop Booster technology was installed on a field of cherry trees

Results:

- 4,703 additional kg vs Control field
- $1 per kg additional sale price
- Additional profit of $46,953 per hectare for the farmer

Cherries	Control Yield	Crop Booster Yield
% Yield Increased	0%	25%
Kg of Cherry Produced	18,735	23,438
Profit ($6 per kg)	$93,675	$140,628



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SUMMARY

This document is the "First Thesis" and represents the hard work of one man, the independent researcher Fulvio Balmelli, but all his work to codify the biological language of the plant world has been accompanied over the last 100 years by the cumulative work of hundreds of innovators, scientists, inventors, business professionals and farmers around the world, who carried within them the dream of being able to understand and regenerate one of the main sources of survival for man on this planet. However, this is only the beginning. The next 10 years will see the release of a book series of at least 10 books showing the expansive research and development of thousands of contributing scientists internationally and a scientific encyclopedia dedicated to all the contributors.

As Crop Booster by Kyminasi Plants continues to produce stellar results on a variety of crops around the world and more is known about the short and long term benefits of using this technology, the data in this thesis and the principles of this technology will continue to expand and become “The Development of a Science”, our second book. The release of our next book will document all of the developments from January 2021 through December 31, 2022. It will include all participating farmer case studies, university science studies and governmental organization science studies accumulated in that timeframe.

We invite you, your colleagues, your farmers and any collaborators that have the will and desire to save planet Earth through regenerative, sustainable and now quantum physics agriculture to join us in our quest to providing Earth’s ecology with new organic life through advanced technology.

Sincerely,

Fulvio Balmelli
Alessia Panizza Balmelli
Francesco Arlia Jr.

Today our planet is suffering from the massive use of fertilizers, herbicides, and pesticides that damage our plants, our ecosystem, our food chain, and the environment.

Farmers have come to use these aggressive and costly methods to cope with the demand of the general public, resulting in the depletion of nutrients in our food over the last few decades, as several scientific studies show.

We believe that every inhabitant on Earth deserves to eat healthy food and live in a healthy environment.

We also believe that the farmers involved in the production of our food deserve to be able to make a living from their work.

Our goal is to help farmers around the world grow healthier, more productive plants.

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CROP BOOSTER