Nº 1 / JUNE 2022

MUY AGRICULTURA

Citrus special

servalesa®

SERGOMIL® ECO Y PEELS®
IMPROVES THE *skin firmness*
AND THE PRESERVATION OF FRUIT

Sustainable control of snails and slugs
TECHNOLOGY AND EFFICIENCY **ELIREX® IP**

¡THE REVOLUTION IS HERE,
MYCODRIP®!
MYCORRHIZAE FOR
APPLICATION IN **CITRUS**

DISCOVER OUR WAY OF DOING THINGS
ecological
AGRICULTURE

Biostimulants

KEY TECHNOLOGY FOR THE FUTURE OF CITRICULTURE

servalesa®

DEVELOPED FOR:

symbiom

HIGH CONCENTRATION OF *MYCORRHIZAL FUNGI*

EASY APPLICATION, HIGH SOLUBILITY

CAAE

Biokont®

ECO ATTITUDE

MUY AGRICULTURA

JUNE 22

WE ARE LEADERS IN
Biostimulants

BIOSTIMULANTS WOW!

At Servalesa, we develop sustainable and innovative biosolutions with the aim of actively participating in the evolution of the way agriculture is done. We exercise our transformative task by specialising and developing technology to meet the current and future needs of farmers.

The starting point in all Servalesa projects is to study and try to understand nature and its balance in order to detect the needs of the farmer. Based on this study, we at Servalesa put this knowledge at the service of research, managing to develop the most advanced technology to create our biostimulants.

This is how we have managed to develop three biostimulant product ranges that are unique on the market, with over ***45 biostimulants*** in the catalogue.

OUR PURPOSE

TO EVOLVE agriculture

In a world where consumers are increasingly sensitive to food quality, we must support farmers to ensure safe, sustainable and profitable agricultural production.

INTEGRATED MODEL OF
Biosolutions

To achieve our purpose, Servalesa bases its activity on a model that brings together four areas of research based on the different needs throughout the crop cycle. It is in these four areas that our research, scientific and technical development methodology is based. We'd now like to discuss our Integrated Biosolutions Model (I.B.M.).

With the I.B.M., we achieve a basis that will guide us in our research and development process of our biostimulants and other biosolutions suitable for use in different crop management strategies (conventional farming, zero waste, organic farming and biodynamic farming etc.)

STIMULATE

Through the use of technology designed to activate various key metabolic routes at critical moments in the crop cycle

- Abiotic stress management
- Optimisation of plant development
- Improvement of quality parameters

PROTECT

With the use of technology to address pests and diseases with sustainable alternatives.

- Pest management
- Disease management
- Optimisation of foliar treatments

NOURISH

Using technology based on micro and macro-elements with a high level of assimilation

- Completing phases of high nutritional demand
- Correcting shortcomings / deficiencies
- Optimising the nutritional balance of crops to achieve higher yields

REGENERATE

Soil, root and rhizosphere with microbiology-based technology developed by Biológica Nature and Symbiom.

- Biofertilisation [N_2 fixation and solubilisation of P_2O_5 and K_2O]
- Optimisation of water resources
- Protection of the root and rizosphere

servalesa®

Biofertilisation

- MYCODRIP®
- RIZOBACTER® PK
- RIZOBACTER® N

Organic matter

- ORGANSER® L
- HUMITERRA®
- ORGANTERRA® P

Bioregeneration and bioestimulation

- FUSVER®
- RENOV® SUPER 6
- RENOV® ACTIV
- RENOV® TRICCO
- MAS RAIZ®+

Salinity

- TOTUSAL®

WE ADAPT THE I.B.M. to citrus fruits

In the current context of citriculture, there are various socio-economic and environmental factors that present great challenges for growers in the future and even jeopardise the survival of many segments of the citrus sector around the world.

Citrus growing has long ceased to be an "easy" crop and there are now a number of "competitive disadvantages" that can have a direct impact on the yield of the crop and therefore on the price ultimately received by the farmer.

One of the great challenges facing citrus growing is to make its products competitive and differentiate them from citrus imports from other countries. However, although it is true that the industry is going through harder times in general terms, the shift towards zero waste management strategies (with a lower carbon footprint, organic farming and biodynamics etc.) could be a turning point for the sector due to various factors, such as greater social awareness of the environment and the healthiness of the food it consumes, but also due to the growing adoption by the retail sector of using it as a sales argument.

Another major challenge in the evolution of agriculture is the conceptualisation and understanding of crop management. During the last few decades, efforts have focused on the assessment and under-

Nourish

VERDEZIN® PRO
Product with microelements (Mg, Zn and Mn) with amino acids of high efficiency and assimilation

FOSFASER®
Product with a high concentration of high-assimilation phosphorus

NEKAMIL® STAR
Product with high concentration of potassium with sulphur

Regenerate

MYCODRIP®
Product with a high concentration of mycorrhizae of the genus Rhizophagus spp.

RENOV® TRICCO
Soil regenerator based on Trichoderma harzianum

AZOS® STAR
Atmospheric nitrogen fixer based on Azotobacter chroococcum

RENOV® SUPER 6
Soil regenerator based on a consortium of 6 rhizosphere bacteria (Bacillus subtilis, Bacillus pumilus, Bacillus siamensis, Bacillus amyloliquefaciens, Bacillus megaterium and Pseudomonas fluorescens)

standing of problems manifested in the aerial part of crops. However, there are indications from the scientific community that there are greater benefits for the farmer when integrated strategies and methods are used, taking into account all the factors surrounding the crop: the soil, the root system and, of course, the aerial part.

For all these reasons, integrating new management strategies with new technologies is key to obtaining higher-quality crops that can offer a differential value, without neglecting profitability for the farmer.

Among these new technologies, it is clear that biostimulants and other biosolutions with a sustainable profile are already playing a fundamental role in achieving crops free of chemical residues or productions for organic agriculture and, therefore, with added value.

We at Servalesa are focusing on citriculture, through the study and understanding of all the variables for the improvement of the yield and the optimisation of resources. Based on our Integrated Biosolutions Model (I.B.M.), we propose the tools in the diagram above, in which all the phases of the citrus crop cycle are supported.

ELIREX®IP

EFFECTIVE. SUSTAINABLE.

SNAIL AND SLUG CONTROL TECHNOLOGY

COLZACTIVE® IP Max®

CAE INSUMOS UNE 315500

Active material	**2.42% ferric phosphate anhydrous IP Max**
Shape	Cylindrical
Colour	Blue
Granulometry	110,000 granules/kg
Directions for mode of action	Alteration of calcium metabolism = blocking of the digestion process
Plague	**Snails and slugs**
Crops	all
Absorbed	7 kg/ha
Number of applications	4 / year
PHI	3 days

Listed in the Official Register of Phytosanitary Products under No. ES-01169

SUSTAINABLE CONTROL OF SNAILS AND SLUGS WITH *ELIREX® IP*

Snails and slugs are species present throughout the world all year round, especially in citrus groves, where a climate of mild and constant temperatures prevails and relative humidity is usually higher than 60%. These are ideal conditions for the very high reproductive capacity of this pest.

Both snails and slugs are normally nocturnal, and culturally have been pests managed as a secondary problem. This is why, in most cases, the economic losses due to damage caused by snails or slugs are not quantified. Because of this lack of knowledge, it is often too late when the time comes to treat them, causing irreversible damage. This lack of understanding of the pest and its management has led to a multitude of products being wrongly considered as "low effectiveness" and has resulted in misguided applications with unnecessarily high doses of active material, causing economic and agronomic damage.

In addition, it should be noted that in citrus-growing areas, snail and slug laying periods are more spaced out over time, starting in September until the end of November, and from February until approximately the end of May. Therefore, the consequences of poor pest management can result in a significant increase of the pest causing uncontrolled damage to fruits; as such it is fair to state that snails and slugs represent a real threat to citrus cultivation, and can cause considerable economic damage.

Very often, application is only considered when there is fruit on the tree. This would be the wrong way to manage the pest, as during the period when there is no fruit, the pest continues to reproduce and the populations numbers consequently increase for the next cycle. The key to successful management is to anticipate the pest's vital movements. This means we should seek to prevent reproduction and egg-laying and subsequent climbing of the trees. These pest movements usually coincide with the beginning of autumn, when breeding begins, and in spring, when they tend to climb trees in search of food. It may be the case that the weather is favourable to their development and that both stages occur simultaneously in autumn and winter.

Snails and slugs represent a real threat to the cultivation of citrus fruits, which may cause considerable economic damage.

To try to minimise damage caused by snails and slugs, it is advisable to carry out two applications per season at key times of reproduction and tree climbing with a molluscicide. In this way, it is possible to substantially reduce the reproduction rate of the pest, its population and, consequently, the damage to the fruit. In years with continuous wet or wet spells, more applications are likely to be necessary. In the case of plots with high population levels, the recommendation would be to apply molluscicide frequently to reduce their reproduction rate and achieve optimal pest management.

HOW CAN WE MONITOR THE PEST IN CITRUS PLOTS IN AN OPTIMAL WAY?

Monitoring of snails and slugs

Servalesa has a team specially trained in pest management and a unique monitoring system that makes it possible to study, control and view the status of pests in plantations. This allows us to anticipate the vital movements of the pest in order to achieve optimal pest management and to determine its progress.

Servalesa's technical and development team has specific thresholds for citrus fruit, which vary according to the variety or phenological stage of the tree.

ELIREX® IP: EFFECTIVE AND SUSTAINABLE

COLZACTIVE® IP Max®

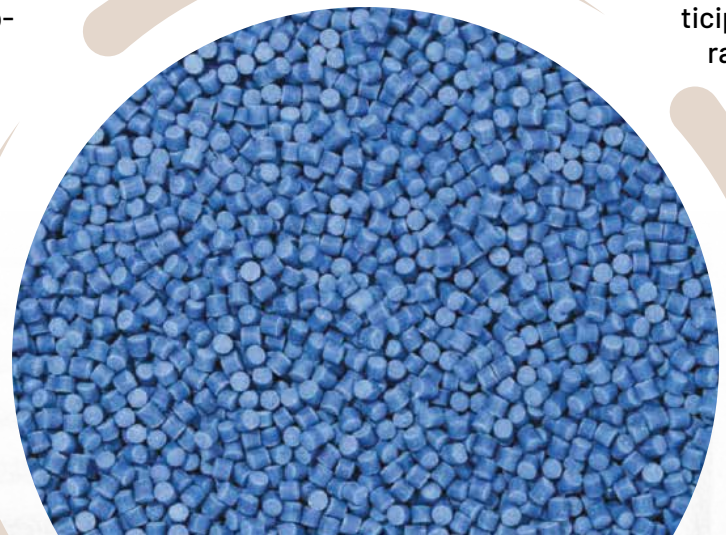
ELIREX®IP

Servalesa is proud to present **ELIREX® IP,** a molluscicide based on state-of-the-art technology for the sustainable control of snails and slugs. It is a product based on 2.42% ferric phosphate in the form of micro-granulated cylindrical granules with a formulation that is unique on the market, thanks to two technologies: **COLZACTIVE** and **IP^{Max}**.

Our **COLZACTIVE** technology gives the bait unique properties, making it highly attractive and palatable. In this way, more efficient consumption of the lethal dose by snails and slugs is achieved.

For its part, our **IP^{Max}** technology is based on optimising the efficiency of the active substance, ferric phosphate, giving the bait a unique effectiveness.

Another trait that makes our **ELIREX® IP** molluscicide unique on the market is its unique manufacturing process. Known as the "wet route", it gives the granule high resistance to humidity due to its slow drying. The granule designed for **ELIREX® IP** is the most resistant bait in the field in conditions of high temperatures and rain. The unbeatable physical characteristics of the granules, which prevent them from breaking up, are of particular importance and make it highly advantegeous to use **ELIREX® IP:** on the one hand, it offers the possibility of anticipating treatments before rainfall; on the other hand, it allows it to be applied mechanically, whereby a homogeneous and optimal distribution of the product per hectare may be achieved.

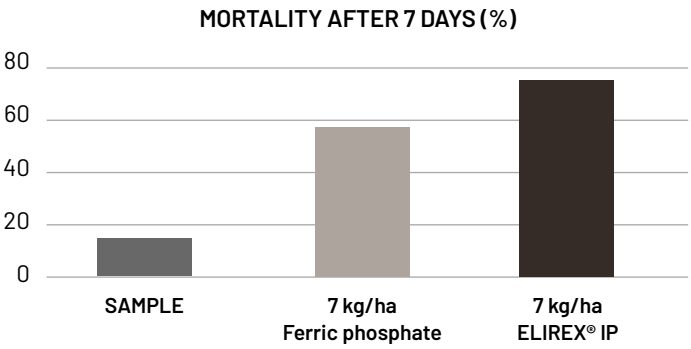


servalesa®

ELIREX® IP is the first ferric phosphate-based molluscicide that is as efficient as conventional molluscicides, thanks to its unique formulation and granulometry when applying the product. The action method is based on the alteration of calcium metabolism and subsequent blocking of the digestion process.

- Efficiency of the active substance
- The quality of the formulation is achieved through a unique production process
- Increased number of baits/m^2
- Increased granulometry
- Increased attractiveness
- Increased palatability
- Improved durability
- Rapid effectiveness
- Sustainable and effective alternative to conventional molluscicides

ELIREX® IP is a product that respects the operator, the auxiliary fauna and the environment. It is effective in conventional farming and suitable for use in organic farming. **ELIREX® IP** is registered for a multitude of crops.



Application dose: 7 kg/ha

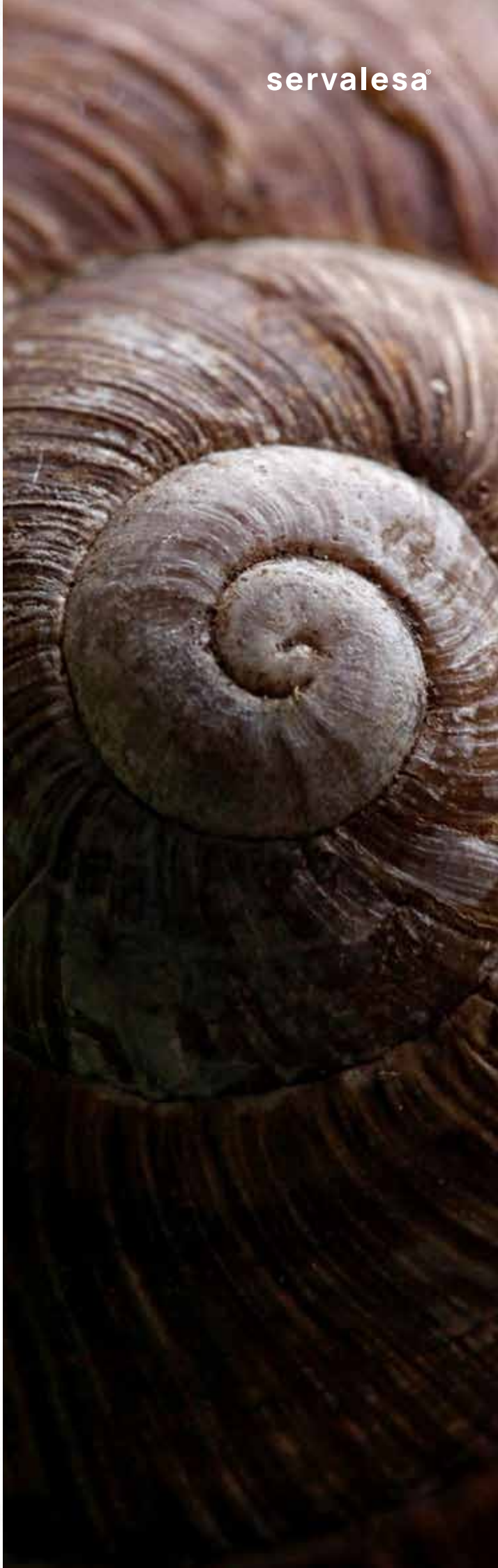
Active substance: ferric phosphate

Granulometry: 110,000 granules/kg

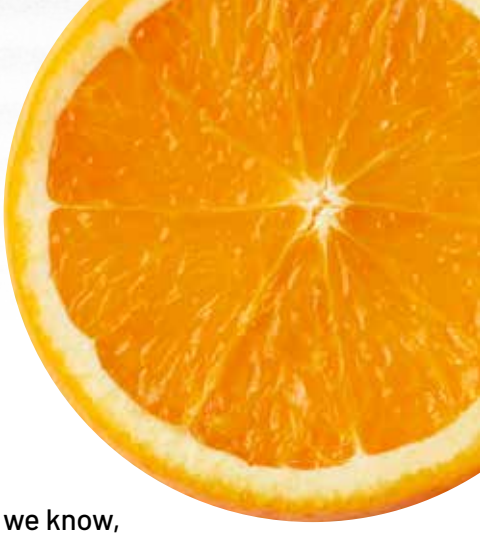
Colour: blue

Crops: more than 60 crops

Listed in the Official Register of Phytosanitary Products under No. ES-01169



MICROBIOLOGY APPLIED TO Citriculture



We are witnessing a paradigm shift. We have been forced not only to change the direction of our gaze, but also its meaning. Because we have gone from wanting to win the sky to being on the verge of losing the atmosphere. And suddenly, we look at the ground. And we definitely look at it with different eyes. Soil is essential for life. But above all, this is the novelty of the discourse: life is essential to the soil.

One gram of soil hosts, for example, tens of thousands of bacterial taxa or more than two hundred metres of fungal hyphae: a heterogeneous, prolific collection of microbiota, which we have systematically neglected, to the point of extinction. Gradually, following the indications of science, the soil has ceased to be seen by farmers and technicians as merely an inert substrate or a crude base for our crops, and has become a reservoir of life which must be preserved if we intend to harvest. Life is as difficult to define as it is easy to identify, and the soil is the part of the lithosphere where life reigns: the soil is not opaque, we have just been blind to it until recently.

Justus von Liebig, in the mid-19th century, backed by his three laws (the law of the minimum, the law of diminishing returns and the law of nutrition by solubility), changed the course of agriculture by proposing inorganic compounds as fertilisers, ignoring the importance of organic matter and the functions of soil microbiota, but laying the foundations for the subsequent Green Revolution, which enshrined the use of chemical fertilisers, pesticides and herbicides to obtain huge yields to appease world hunger. Liebig, on the eve of his death, lucid according to witnesses and heroic from a historical perspective, wrote:

> *"I have sinned against wisdom. I believed, in my obsession, that a link in the amazing chain of laws that governs and constantly renews life on the surface of the Earth had been forgotten. It seemed to me that this oversight should be remedied by the fragile and insignificant human being"*

Now we know, once reductionist and simplistic models have been discarded as unproductive, that life in the soil is self-regulating and self-organising, adopting a reticular structure where each of its nodes tends to assert itself without jeopardising the health of the ecosystem. The greater the complexity, the lesser the vulnerability. The forest is exemplary. In its soil, various genera of fungi and bacteria proliferate and coexist: *Trichoderma, Azotobacter, Glomus, Bacillus and Pseudomonas, to give some examples, together with Armillaria, Fusarium, Phytopthora and Verticillium;* these include atmospheric nitrogen fixers, phosphorus and potassium solubilisers, and pathogens or biological control agents.

lationships are forged: symbiosis, parasitism, predation and mutualism. Competition for space, for nutrients and sometimes dominates. But in any case, abusive behaviour under the deep guise of cooperation is restricted. Thus, the forest floor keeps changing in order to persist. In it, no one is idle, the whole microbiota weaves the web endlessly: energy, matter and information flow. Bypassing the pitfalls of the much-vaunted equilibrium (thermodynamic death), the forest floor, through harmony, perpetuates life.

We are witnessing a paradigm shift. Biológica Nature foresaw this thirty years ago. With morale in the doldrums, agriculture is presented with an opportunity to regenerate. At Servalesa, we are convinced that a healthy orchard becomes a forest again.

BIOLÓGICA NATURE

MYCODRIP® B'Nature	High concentration of mycorrhizae of the genus *Rhizophagus spp.*
RENOV® TRICCO B'Nature	Soil regenerator based on *Trichoderma harzianum*
RIZOBACTER® N B'Nature	Atmospheric nitrogen fixer based on *Azotobacter chroococcum*
RIZOBACTER® PK B'Nature	Atmospheric nitrogen fixer based on *Azotobacter chroococcum*
RENOV® SUPER 6 B'Nature	Phosphorus and potassium solubiliser
	Soil regenerator based on a consortium of 6 rhizosphere bacteria (*Bacillus subtilis, Bacillus pumilus, Bacillus siamensis, Bacillus amyloliquefaciens, Bacillus megaterium, Pseudomonas fluorescens*)

THE REVOLUTION IS HERE MYCODRIP®!

Soil contains life, and it is the organisms that live in it that make its natural fertility possible. One of the challenges for agriculture is to continue to make strides in research in order to expand knowledge about these organisms and their interactions with soils. This research serves the development of new technologies to meet the current needs of agriculture.

The use of beneficial micro-organisms has emerged as a solution to the multiple problems faced by root systems due to their sustainable profile and beneficial action after application, which is also enhanced over time.

Mycorrhizae are part of this set of technologies that are now available to farmers and Servalesa, with MYCODRIP®, aims to continue to evolve and develop its catalogue with technology adapted to the needs of agriculture, positioning products with differential value and of course, with proven effectiveness.

WHAT ARE MYCORRHIZAE?

This is the symbiotic association between some soil fungi and plant roots where both manage to benefit from this association. The fungus in turn provides the plant with minerals and water, while the plant provides the fungus with carbohydrates and vitamins for its optimal development.

HOW DOES MYCORRHISATION OCCUR?

The importance of spores should be emphasised. The process starts with the germination of spores that extend hyphae. These spores grow until they find and penetrate the host root: either through the epidermis or root hairs. Once inside, the hyphae extend between the cells to form arbuscules, where nutrient transfer occurs between the fungus and the plant.

Once internal colonisation has taken place, the mycelium (the set of hyphae) has the capacity to grow beyond the root system (as an extension), significantly increasing its absorption surface.

Biofertiliser BASED ON A HIGH CONCENTRATION OF MYCORRHIZAL ***fungal spores***

WHAT IS MYCODRIP®?

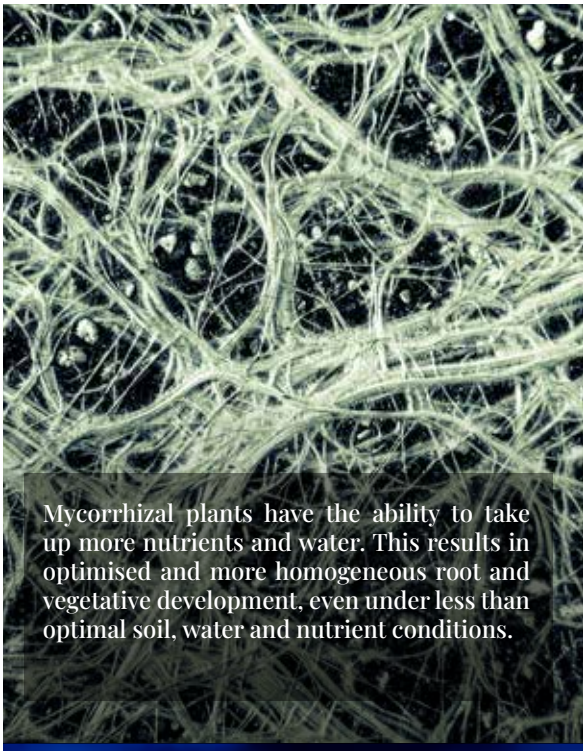
MYCODRIP® is a biofertiliser based on a high concentration of mycorrhizal fungal spores, produced under sterile conditions of the genus Rhizophagus spp. with a minimum of 4,000 spores/g, developed by Symbiom, Servalesa's technological partner.

The mycorrhizal fungi have been previously extracted and isolated from soils with high salinity and alkaline pH to ensure the adaptability, resistance and effectiveness of the spores in soils under extreme conditions.

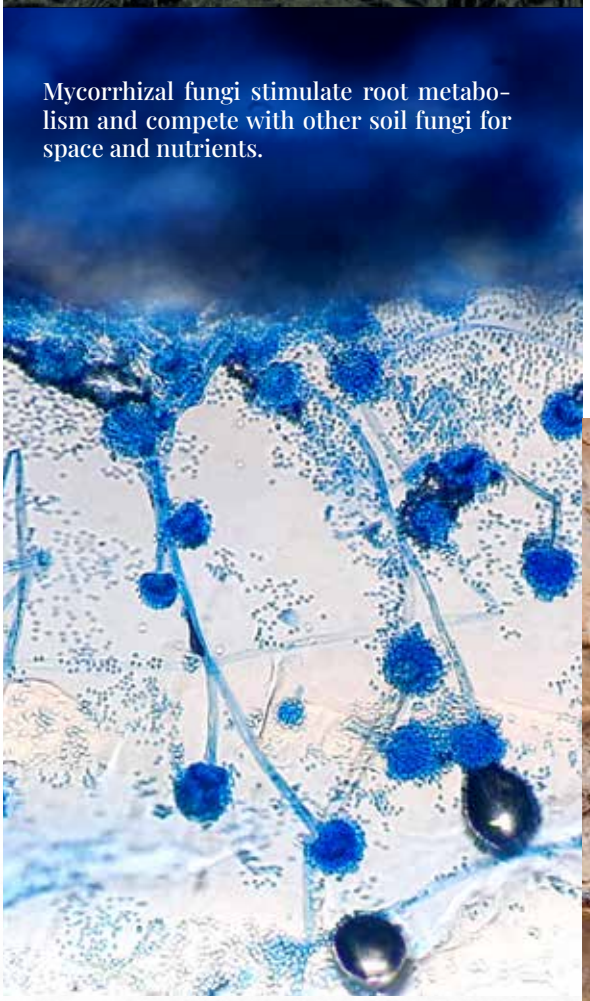
WHY IS THE HIGH CONCENTRATION OF SPORES IN MYCODRIP® NOTABLE?

The effectiveness of MYCODRIP® is based on the high concentration of spores, as these have a higher resistance in the soil and are the key to a higher rate of symbiosis with the root.

BENEFITS OF APPLYING MYCORRHIZAE



Mycorrhizal plants have the ability to take up more nutrients and water. This results in optimised and more homogeneous root and vegetative development, even under less than optimal soil, water and nutrient conditions.



Mycorrhizal fungi stimulate root metabolism and compete with other soil fungi for space and nutrients.

Mycorrhised plants increase production, calibre and quality and have a greater capacity to overcome stress phases.

A larger root system will increase the tolerance of the crop to problems that may occur during the cycle.

THE HEART OF SERVALESA TECHNOL

Biostimulants

In both conventional and organic farming, there is one type of product the use of which has increased exponentially, with benefits are becoming increasingly evident: biostimulants. Their use helps to improve crop yields and quality and consequently encourages farmers to produce more efficiently. In other words, to produce more with fewer resources.

This is due to the compositions of agricultural biostimulants which include different chemical compounds or micro-organisms that help plants to improve and regulate their physiological and biochemical processes in order to make crops more efficient. This shows the big difference between a biostimulant and a fertiliser. Fertilisers provide the plant with the nutrients it needs to develop properly. Biostimulants, on the other hand, do not provide nutrients directly, but stimulate the plant's own physiological processes to improve the availability and uptake of nutrients.

However, agricultural biostimulants not only improve crop yield and quality, but also optimise the consumption of other resources, such as fertilisers and manure. In addition, they promote plant tolerance to abiotic stressand assist by speeding up the recovery period. For all these reasons, it is fair to state that biostimulants are a driver for more effective, efficient and therefore more sustainable agriculture.

Focusing on citrus fruit, the use of biostimulants can be even more decisive in achieving more sustainable citriculture.

The citrus-growing areas are characterised by water scarcity and poor water quality, as well as variable soil conditions. These are factors that may hamper citrus crop production in the medium to long term. Looking at it from this perspective, we can conclude that biostimulants become a strategic tool to activate the plant's metabolism and achieve a more efficient citrus crop, with a greater response to abiotic stresses, promoting a cutting-edge and sustainable citriculture.

FOLSER®
Biostimulants

FOLSER® is a cutting-edge biostimulant with an exclusive formulation composed of a vitamin extract, plant extracts of marine origin, a balance of nutrients and growth factors developed by Servalesa. **FOLSER®** helps to optimise flowering and improves fruit set, and also optimises the vigour and vegetative development of the plant.

The action method of **FOLSER®** is based on its capacity to stimulate and participate directly in the formation of new molecular units in the plant (amino acids and phytohormones etc.), especially at the time of maximum demand, which coincides with flowering and subsequent fruit set.

FOLSER® helps the formation of the plant's reproductive organs and the accumulation of auxins in the flower. This accumulation helps to optimise pollen tube elongation and therefore improve fruit set.

The application of **FOLSER®** benefits varieties with low fruit set, springs with irregular bioclimatic conditions and crops with a low leaf mass index.

OGY,

FEEDSER®
Biostimulants

FEEDSER® is a cutting-edge biostimulant with a formulation composed of a concentrate of glycine-betaine, calcium, potassium and growth factors developed by Servalesa. **FEEDSER®** helps to improve fruit growth, even in times of stress due to high temperatures, which normally coincides with this phenological moment in citrus fruits.

The action method of **FEEDSER®** is based on its exclusive formulation which provides the necessary elements to meet the crop's demand in the key growth phase.

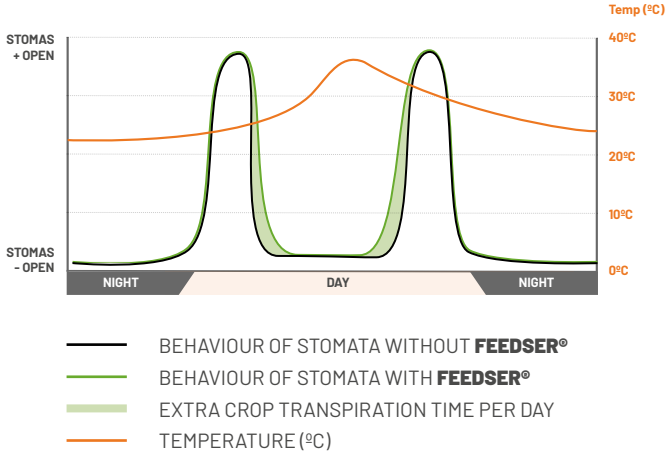
• Potassium: increases tissue turgidity and consistency, which predisposes the plant to cope with stressful incidents. On the other hand, it is a key element in the process of accumulation of sugars and amino acids metabolised in photosynthesis in sink organs.

• Calcium: important element for quality improvement by strengthening the cell wall structure. Calcium also plays a role in regulating the stomata of the crop and protects the plant against abiotic stesses.

• Glycine-betaine: substance with an osmoprotective and osmoregulatory effect, aimed at extending the opening of stomata at times when the crop is under stress due to high temperatures, achieving a greater accumulation of active plant time during this critical period and in this way, contributing to improve fruit growth.

The application of **FEEDSER®** is recommended to achieve larger sizes in both mandarins and oranges.

TRANSPIRATION MODEL OF A TREE
IN THE MONTH OF JUNE [MAX TEMP. 37ºC, MIN. TEMP 24ºC]



BETASER®
Biostimulants

BETASER® is a state-of-the-art biostimulant with an exclusive formulation made up of a high concentration of glycine-betaine, vegetable extracts of marine origin and growth factors developed by Servalesa. **BETASER®** is designed to protect the crop against abiotic stress phenomena (heat stress, water stress and salt stress etc.)

The action method of **BETASER®** is based on the ability to stimulate and influence the plant to protect it through osmoprotection (accumulation of solutes from the cell to the outside) by influencing the adjustment of the osmotic potential. This function is of particular interest in the event of expected low temperatures, to mitigate frost damage.

BETASER® also has an osmoregulatory capacity for stomata closure/opening and can be a complement to the application of **BETASER®** in extreme episodes of high temperatures during the summer.

SERGOMAX®
Biostimulants

SERGOMAX® is a cutting-edge biostimulant with aformulation based on molecular complexes of several metals (Cu, Mn and Zn). **SERGOMAX®** is intended to activate sap flow (after winter rest or after stressful incidents causing a vegetative standstill) and regenerates conductive vessels (xylem and phloem) while also achieving homogeneous growth and development of the different phases of the cycle.

The action method of **SERGOMAX®** is based on its capacity to bio-activate and induce metabolic processes in the plant to promote a strong flow of sap, generating a balance between the aerial and root parts. It also stimulates the synthesis of regenerative and antioxidant substances (such as polyphenols, phytoalexins and different types of proteins).

High efficiency NUTRITION IN Citrus trees

In many cases, the soil is unable to supply the plant with certain mineral elements. This may be because it lacks them, or because they are not in a state where they are assimilable. In these conditions, there is poor absorption of these elements that can produce serious alterations in the tree.

Accordingly, nutrition in citrus fruit is a vital factor in determining the yield and quality of the final crop. However, it is important to take into account a multitude of factors that can have a positive or negative influence when drawing up an adequate nutrition plan: extractions carried out by the crop, vegetative growth (the canopy), pruning, leaching losses, fixation/blocking of elements in the soil according to its characteristics, restitution of plant material reincorporated into the soil etc.

A proper nutrition plan (either by fertigation or foliar application) is essential to avoid deficiencies that can affect yields and crop quality. To do this, it is essential to understand the crop in order to know when and how to provide nutrients at the optimum times:

NITROGEN

It is the key element and the most important determinant of performance. It is a component of chlorophyll and is associated with crop functions such as growth, leaf production, sprouting, fruit set and fruit development. It is also worth mentioning products with a high organic nitrogen content, such as **SERVANITRO® STAR**.

PHOSPHOROUS

It carries out vital functions such as photosynthesis, enzyme activity and sugar formation. It is an important element in flower formation, fruit set, cell division and fruit quality. As a product, it is worth mentioning **FOSFASER®,** formulated with a high content of highly assimilable phosphorus.

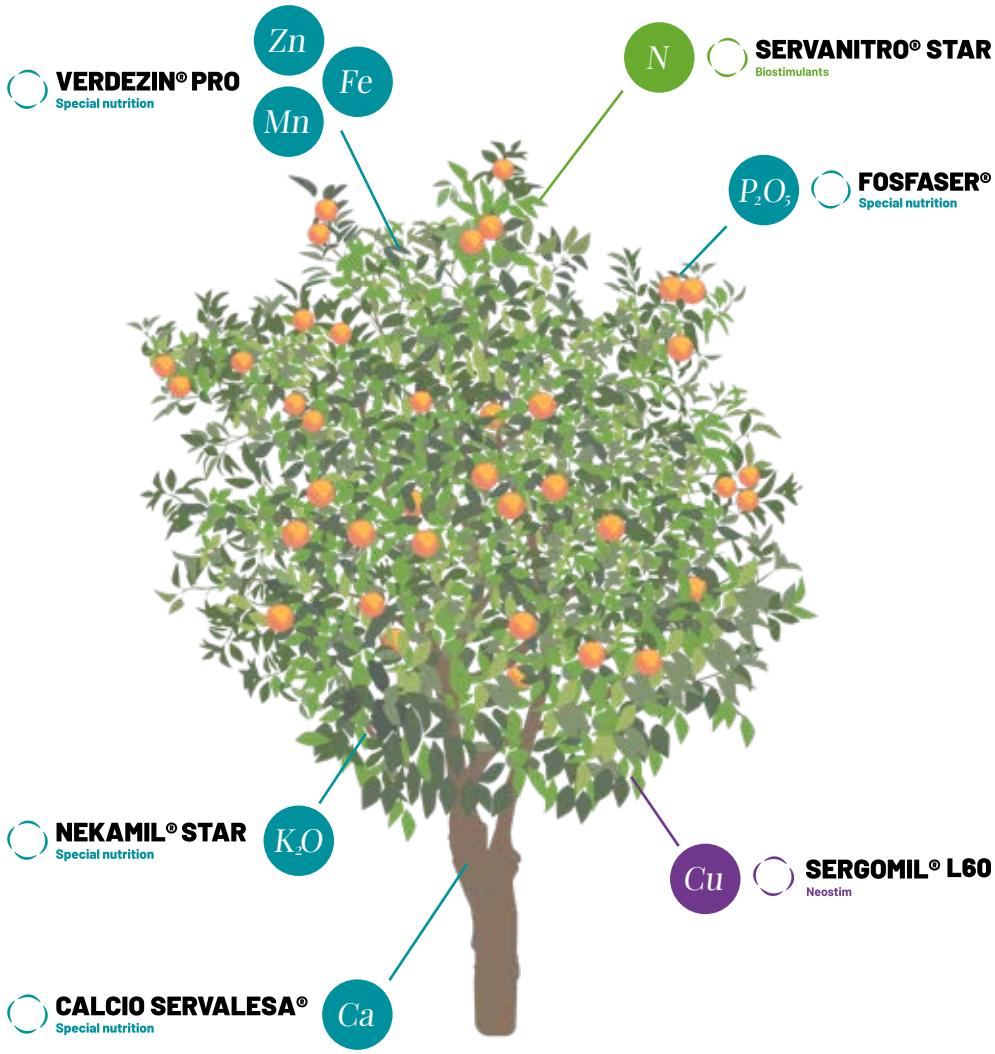
POTASSIUM

It is important in the formation of proteins, carbohydrates, chlorophyll and in the regulation of stomata. It plays a substantial role in size determination and influences various pathophysiological conditions associated with its deficiency. For the supply of this element, Servalesa has developed **NEKAMIL® STAR**. This product has a high concentration of potassium and highly assimilable sulphur to improve crop quality.

CALCIUM

A key element in cell wall and cell division that also participates in the maintenance of membrane integrity. We at Servalesa recommend **CALCIO SERVALESA®** for the supply of this element.

It is important to note that citrus fruits have a high demand for micronutrients. Adequate nutrition at times of peak demand can have a positive impact on performance and quality.



IRON

This is one of the most widely consumed microelements, key to chlorophyll formation and essential for the production and quality of newly set fruit.

ZINC

This is another key element, as it favours the formation and viability of pollen during flowering and is fundamental both during fruit set and at later stages.

MANGANESE

This is related to the quality of fruit set and the accumulation of chlorophyll in the leaves.

To alleviate the deficiencies of these microelements it is worth mentioning the product **VERDEZIN® PRO**. Composed of an optimal balance to correct deficiencies in magnesium, zinc, manganese and amino acids.

COPPER

Finally, we believe it is appropriate to mention another micro-element that is fundamental from a nutritional point of view – copper. It is essential in various enzyme systems, in the process of photosynthesis and as an adjuvant in carbohydrate and protein metabolism. Recent studies carried out by Servalesa with **SERGOMIL® L60** have demonstrated the benefit of increasing copper levels in citrus fruit to mitigate physiopathologies (e.g. branch drying in specific varieties) and to improve crop quality through sequential applications during the cycle.

SERGOMIL® L60 AND PEELS®

IMPROVE **THE SKIN** OF YOUR **CITRUS FRUIT**

In order to determine the final quality of the citrus harvest, optimal management in the last stages of the crop cycle, starting with the colour change, is essential. Therefore, a strategy focused on improving the preservation and protection of the peel can have a direct effect on the final value and profitability of the crop for the farmer.

However, the ideal scenario includes not only the interests of the farmer, but also those of the marketing companies. These aim to provide supermarket chains with products that meet consumer expectations and needs based on consumer trends. And it is precisely these trends that are a fundamental aspect influencing the entire supply chain, as they push all actors to continuously adapt. Innova Market Insights, in its presentation of the main trends in the food industry for the year 2023, states: *"personal health and sustainability have proven to be strong drivers of consumer choice"; "personal and societal values are increasingly important as they become intertwined with purchasing decisions".*

Returning to citriculture, there is a clear need to be able to produce fruit on the basis of sustainable and healthy standards that also have an adequate shelf life to guarantee their commercialisation in the different markets of interest. The challenge is to do this on the basis of agronomic practices that result in zero-waste harvests and that influence the many aspects surrounding cultivation (pre-harvest), subsequent processing and conservation (post-harvest). And all of this is compounded by the restriction and/or prohibition of the use of some tools such as phytosanitary products which, until recently, allowed this task to be completed successfully.

In order to meet this challenge, Servalesa proposes to introduce the use of biostimulants as complements to conventional tools in zero-waste management strategies, thus enhancing the stimulation-protection binomial. The concept of the aforementioned plant protection products revolves around plant health.

Biostimulants are based on the improvement and regulation of physiological and biological processes of crops and biochemistry to optimise and improve crop yield and quality.

In the specific case of citriculture, and thanks to the study carried out by Servalesa, there is evidence that the combined use of the biostimulants **SERGOMIL® L60 and PEELS®** improves the quality of the peel of the fruit, reinforcing its firmness, preventing its weakening and mitigating senescence. In this way, the fruits are prepared for post-harvest life.

SERGOMIL® L60
Neostim

SERGOMIL®ECO is a biostimulant based on a liquid formulation composed of sucrose derivatives and complexed copper.

Servalesa, thanks to a study carried out at the Zaidín Experimental Station (CSIC), has confirmed the action method of **SERGOMIL® L60**. It is based on the ability to increase copper levels inside the plant (by promoting the synthesis of key enzymes), optimise the photosynthesis process and reduce various physiopathologies linked to copper deficiency. However, one of the most important characteristics of **SERGOMIL® L60's** action method is its ability to activate the metabolic pathways associated with lignin synthesis, reinforcing the cell wall of plant structures and thus improving fruit firmness. Finally, the conformation study tested the ability of **SERGOMIL® L60** to activate the synthesis of PR proteins dependent on the salicylic acid pathway.

PEELS®
Neostim

PEELS® is a biostimulant based on a liquid formulation consisting of unsaturated organic acids, potassium and carboxylic acids.

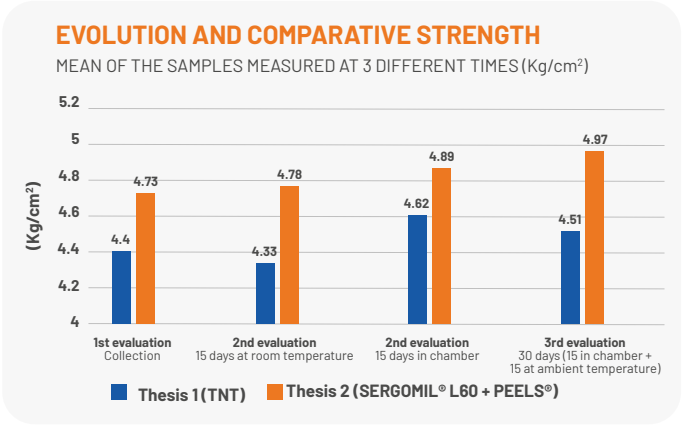
The action method of **PEELS®** is based on its ability to reduce oxidative stress and mitigate abiotic stress conditions that may affect the cell wall due to excess moisture.

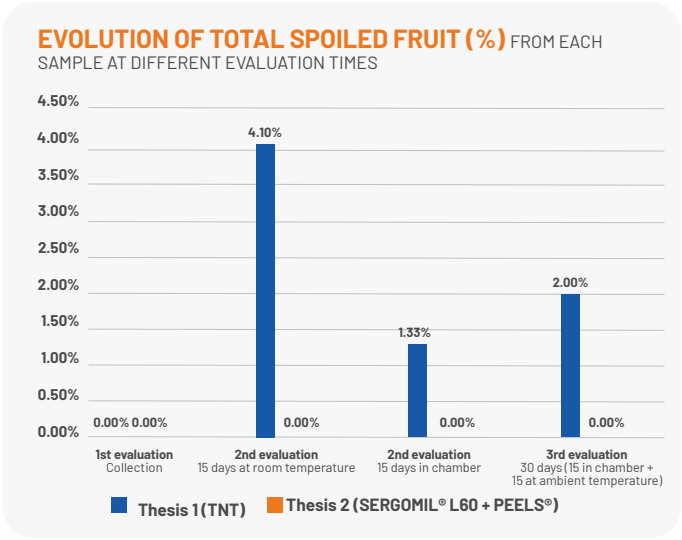
Testing

To demonstrate the effectiveness of this strategy, Servalesa, in collaboration with Fitogar (Spain) and Agreva (Australia), has carried out numerous trials to show that the application of **SERGOMIL® L60 and PEELS®** helps to improve fruit firmness and reduce the number of rotten fruit due to cell wall reinforcement.

Test No. 1

The following trial was carried out in Quart de Poblet (Valencia, Spain) with the collaboration of Fitogar on the variety Citrus Clementina — Clemenules. Five days before the harvesting date, an application of **SERGOMIL® L60 and PEELS®** was carried out to measure the evolution of the average firmness of a sample using a penetrometer (kg/cm²) and the evolution of rottenness stored under different conditions.

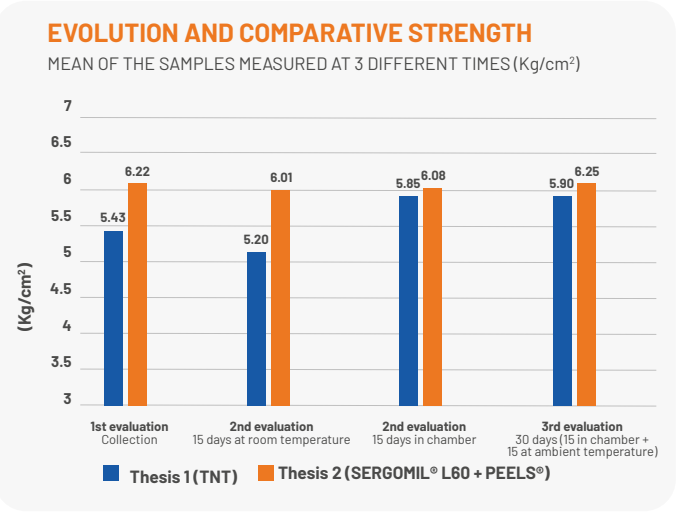


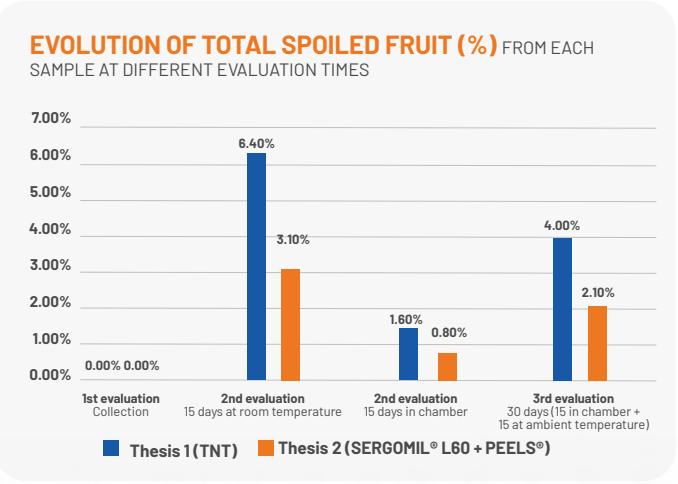


The proposed strategy succeeded in increasing the average firmness of the treated fruit and decreasing the number of rotten fruit.

Test No. 2

The following trial was carried out in Llíria (Valencia) with the collaboration of Fitogar on the variety Citrus Clementina — Clemenules by means of two applications starting from the colour change with **SERGOMIL® L60 and PEELS®**. The evolution of the average firmness of a sample was measured using a penetrometer (kg/cm²) and the evolution of rotten fruit stored under different conditions.



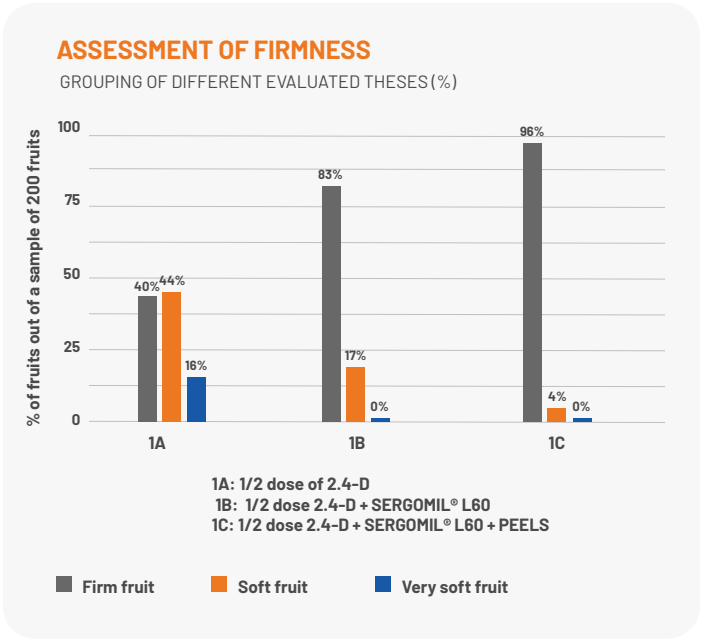


The proposed strategy succeeded in increasing the average firmness of the treated fruit and decreasing the number of rotten fruit.

servalesa®

Test No. 3

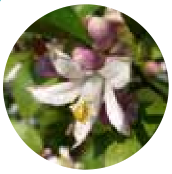
The latter trial was conducted in Dareton, NSW (Australia) in collaboration with Agreva. The Washington Navel variety was treated with the aim of improving peel firmness and reducing the dose of synthetic auxins.



The combined strategy achieved a higher percentage of firm fruit.

ZERO-WASTE AGRICULTURE

(Orange, Mandarin, Grapefruit, Lemon)

Phenological State	Pre-flowering (BBCH 00-59)	Flowering (BBCH 60-69)	Set (BBCH 71-72)	Fruit development/fattening (BBCH 73-79)
Foliar biostimulants	FOLSER® BIOCROP® EXTRA	FOLSER® BIOCROP® EXTRA SERVAPTON®	FOLSER® BIOCROP® EXTRA	FOLSER® BETASER® DESES-3® SERVAPTON® SERVAL® NK
Root Biostimulants	PCA2® MAX SERGOMAX® MAS RAIZ® +	PCA2® MAX SERGOMAX® MAS RAIZ® +	PCA2® MAX SERGOMAX® MAS RAIZ® +	PCA2® MAX SERGOMAX® MAS RAIZ® +
Nutrition	VERDEZIN® PRO MIX MICROS® PS	KELTAMIL® FE		CALCIO SERVALESA® NEKAMIL® STAR KELTAMIL® FE
Critical times. Foliar solutions.	SERGOMIL® L60	SERGOMIL® L60 PEELS®	SERGOMIL® L60	SERGOMIL® L60
Critical times. Soil regeneration.	SERGOMIL® L60 RENOV® TRICCO* RENOV® SUPER 6 TOTUSAL® MYCODRIP® RIZOBACTER® N RIZOBACTER® PK	SERGOMIL® L60 RENOV® TRICCO* RENOV® SUPER 6 TOTUSAL® MYCODRIP® RIZOBACTER® N RIZOBACTER® PK	SERGOMIL® L60 RENOV® TRICCO* RENOV® SUPER 6 TOTUSAL® MYCODRIP® RIZOBACTER® N RIZOBACTER® PK	SERGOMIL® L60 RENOV® TRICCO* RENOV® SUPER 6 TOTUSAL® MYCODRIP® RIZOBACTER® N RIZOBACTER® PK
Treatment Enhancers	ADIMEL® STAR REGULSER® +3 SUMMA® SYSTEM	ADIMEL® STAR REGULSER® +3 SUMMA® SYSTEM	ADIMEL® STAR REGULSER® +3 SUMMA® SYSTEM	ADIMEL® STAR REGULSER® +3 SUMMA® SYSTEM
Anti-slime products	ELIREX® ELIREX® IP	ELIREX® ELIREX® IP	ELIREX® ELIREX® IP	ELIREX® ELIREX® IP

Change of colour
(BBCH 81-83)

Maturation
(BBCH 85-89)

Post-harvest
(BBCH 91-97)

		NOTES
FOLSER®	**FOLSER®**	FOLSER®: vigour, flowering and fruit set inducer BIOCROP® EXTRA: algae-based biostimulant BETASER®: abiotic stress protector DESES-3®: protector against extreme abiotic stresses LECISER® PLUS: soil compaction mitigation SERVAPTON®: complete amino acid aminogram SERVAL® NK: amino acids with nitrogen and potassium
BETASER®	**BETASER®**	
DESES-3®	**DESES-3®**	
PCA2® MAX	**PCA2® MAX**	PCA2® MAX: unlocks floor elements SERGOMAX®: activator and mobiliser of sap MAS RAIZ® +: root system biostimulant
SERGOMAX®	**SERGOMAX®**	
MAS RAIZ® +	**MAS RAIZ® +**	
VERDEZIN® PRO	**CALCIO SERVALESA®**	VERDEZIN® PRO: multiple deficiency corrector MIX MICROS® PS: multiple deficiencies corrector NEKAMIL® STAR: potassium and sulphur corrector CALCIO SERVALESA®: calcium corrector HUMIBOR®: boron corrector KELTAMIL® Fe: iron chelate
HUMIBOR® HUMIBOR	**NEKAMIL® STAR**	
NEKAMIL® STAR		
SERGOMIL® L60	**SERGOMIL® L60**	See pages 22 and 25 of this magazine
PEELS®	**PEELS®**	
SERGOMIL® L60	**SERGOMIL® L60**	MYCODRIP®: high concentration of mycorrhizal fungal spores RENOV® SUPER 6: Soil regenerator RENOV® TRICCO: Trichoderma harzianum TOTUSAL®: salt displacer RIZOBACTER® N: atmospheric nitrogen fixer RIZOBACTER® PK: phosphorous and potassium solubiliser
RENOV® TRICCO* RENOV® SUPER 6	**RENOV® TRICCO* RENOV® SUPER 6**	
TOTUSAL®	**TOTUSAL®**	
MYCODRIP®	**MYCODRIP®**	
RIZOBACTER® N	**RIZOBACTER® N**	
RIZOBACTER® PK	**RIZOBACTER® PK**	
	ADIMEL® STAR	Consult with the Servalesa Technical Dept
REGULSER® +3	**REGULSER® +3**	
SUMMA® SYSTEM	**SUMMA® SYSTEM**	
ELIREX®	**ELIREX®**	ELIREX®: Snail and slug control — Metaldehyde
ELIREX® IP	**ELIREX® IP**	ELIREX® IP: Snail and slug control — Ferric phosphate

ECO ATTITUDE

CAAE
INSUMOS UNE

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BEING A BENCHMARK IS *a question of attitude*

After a lot of hard work, we at Servalesa overcame our own challenge, a milestone for our organisation – ECOACTITUD. ECOACTITUD **is the Servalesa team's way of understanding organic agriculture,** which aims not only to answer the needs of agricultural activity, but also to be a social agent that disseminates, raises awareness and promotes an **organic, agricultural production system that respects the environment, the conservation of natural resources and biodiversity.** All of this must be done without forgetting the main goal of the commitment: quality crops with greater profitability.

A WAY OF THINKING AND COMMITMENT TO ORGANIC AND BIODYNAMIC FARMING

At Servalesa we consider ECOACTITUD to be a FOCUS on the development of some of our products for organic and biodynamic agriculture whereby rigour, reliability and quality would be key. With this roadmap, we decided to direct part of our business project and resources (human and economic) to the purpose of meeting all the requirements of the U.N.E. standards that regulate inputs suitable for organic farming. We are committed to working tirelessly to bring all our production systems and products into line with this regulation for this purpose.

ACCURACY

With the total guarantee of legal compliance for our products, we maintain a high level of customer confidence in Servalesa, in addition to the premise of their effectiveness and suitability.

THE COMMITMENT THAT UNITES US

The result of this is our comprehensive organic and biodynamic agriculture catalogue with **over 45 products certified under the U.N.E. standard,** making us **one of the leading companies in organic and biodynamic agriculture.**

Find out more on our ECOACTITUD website

ORGANIC FARMING

(Orange, Mandarin, Grapefruit, Lemon)

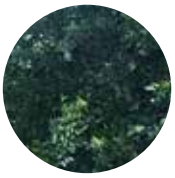



Phenological stage	Pre-flowering (BBCH 00-59)	Flowering (BBCH 60-69)	Set (BBCH 71-72)	Fruit development/fattening (BBCH 73-79)
Foliar biostimulants	**BIOCROP® EXTRA** **SERVAPTON®**	**BIOCROP® EXTRA** **SERVAPTON®**	**BIOCROP® EXTRA** **SERGOMAX® L90 ECO** **SERVAPTON®**	**BIOCROP® EXTRA** **SERVAL® NK ECO** **SERVAPTON®**
Radicular biostimulants	**SERGOMAX® L90 ECO** **MAS RAIZ® ECO**	**SERGOMAX® L90 ECO** **MAS RAIZ® ECO**	**SERGOMAX® L90 ECO** **MAS RAIZ® ECO**	**SERGOMAX® L90 ECO** **MAS RAIZ® ECO**
Nutrition	**VERDEZIN® PRO** **SERVANITRO® STAR**	**SERVANITRO® STAR**	**SERVANITRO® STAR**	**CALCIO SERVALESA®** **SERVANITRO® STAR**
Critical times. Foliar solutions.	**SERGOMIL® L60**	**SERGOMIL® L60**	**SERGOMIL® L60**	**SERGOMIL® L60**
Critical times. Soil regeneration.	**SERGOMIL® L60** **RENOV® TRICCO*** **RENOV® SUPER 6** **MYCODRIP®**	**SERGOMIL® L60** **RENOV® TRICCO*** **RENOV® SUPER 6** **MYCODRIP®**	**SERGOMIL® L60** **RENOV® TRICCO*** **RENOV® SUPER 6** **MYCODRIP®**	**SERGOMIL® L60** **RENOV® TRICCO*** **RENOV® SUPER 6** **MYCODRIP®**
Treatment Enhancers	**ADIMEL® STAR** **REGULSER® ECO**	**ADIMEL® STAR** **REGULSER® ECO**	**ADIMEL® STAR** **REGULSER® ECO**	**ADIMEL® STAR** **REGULSER® ECO**
Anti-slime products	**ELIREX® IP**	**ELIREX® IP**	**ELIREX® IP**	**ELIREX® IP**

** ECO Certificate in Italy*

Change of colour
(BBCH 81-83)

Maturation
(BBCH 85-89)



Post-harvest
(BBCH 91-97)

			NOTES
BIOCROP® EXTRA			BIOCROP® EXTRA: algae-based biostimulant SERVAL® NK ECO: amino acids with nitrogen and potassium SERGOMAX® L90 ECO: sap activator and mobiliser SERVAPTON®: high concentration of amino acids
SERVAPTON®	**SERVAPTON®**		
SERGOMAX® L90 ECO	**SERGOMAX® L90 ECO**		SERGOMAX® L90 ECO: sap activator and mobiliser MAS RAIZ® ECO: root system biostimulant
MAS RAIZ® ECO	**MAS RAIZ® ECO**		
VERDEZIN® PRO	**CALCIO SERVALESA®**		VERDEZIN® PRO: multiple deficiency corrector CALCIO SERVALESA®: calcium corrector HUMIBOR®: boron corrector SERGOMIL® STAR: organic nitrogen
SERVANITRO® STAR	**SERVANITRO® STAR**		
SERGOMIL® L60	**SERGOMIL® L60**		See pages 14 and 15 of this magazine
SERGOMIL® L60	**SERGOMIL® L60**		MYCODRIP®: high concentration of mycorrhizal fungal spores RENOV® SUPER 6: Soil regenerator RENOV® TRICCO: Trichoderma harzianum
RENOV® TRICCO* **RENOV® SUPER 6**	**RENOV® TRICCO*** **RENOV® SUPER 6**		
MYCODRIP®	**MYCODRIP®**		
	ADIMEL® STAR		ADIMEL®+: foliar treatment enhancer REGULSER® ECO: pH regulator
REGULSER® ECO	**REGULSER® ECO**		
ELIREX® IP	**ELIREX® IP**		ELIREX® IP: Sustainable control of snails and slugs

ADIMEL® STAR
Specifics

BOOSTS
LEAF TREATMENTS

ESPECIALLY SUITABLE FOR BOOSTING AND ACHIEVING GREATER HOMOGENEITY OF THE LEAF SURFACE THANKS TO ITS MAGNESIUM AND ZINC CONTENT

servalesa®
Evolucionando la agricultura