agriges

LIETA - VEG®

From the plant for the plant

RYZEA

BPC

- **Revitalises**
- **Nourishes**
- **Stimulates**

VEG

+ safer **+ roots** **+ quality**

Produce more with healthy methods!

Every Agriges product originates from stringent scientific research with respect for the environment and the operator, providing a practical answer to specific field problems.

Agriges takes great care over the **new contaminants** highlighted by a variety of actors in the agri-food supply chain, especially large-scale distributors. It works to find solutions that meet the needs of the entire supply chain with a specific focus on safeguarding the environment. This is the key to the Green Path project involving a close-knit partnership by Agriges with research institutes, experimental centres, universities, cooperatives and farms aimed at providing the technical means to obtain abundant and sustainable production from an environmental point of view which are safe for food, thus reducing the use of potentially polluting chemical substances. In a nutshell: producing more and producing safely.

GOALS

From farm to fork: simple, safe and sustainable

«From farm to fork» is the central theme of the European Union's 10-year plan, put in place to guide the transition to a fair, healthy and environmentally friendly food system leading to the reduction of environmental impacts, resource loss and the promotion of responsible agricultural practices.

Many farmers are now adapting, not without difficulty, to the new scenarios, not just because of the European Union's directives but also the stringent requirements of large-scale distributors.

With LIETA-VEG, Agriges provides farmers with a safe and sustainable product that **maximises crop yields** in line with the stringent rules for production laid down by the agri-food supply chain.

LIETA-VEG®

The latest-generation, exclusively plant-based bioactivator

BIO VEG BPC RYZEA

LIETA-VEG is a latest-generation 100% plant-based bioactivator, developed with the goal of renewing long-term soil fertility and stimulating the productivity of agricultural crops.

LIETA-VEG contains plant extracts, yeast and is enriched with two exclusive Agriges technologies: RyZea and Bpc. The first technology concentrates phytostimulant compounds (amino acids, polyamines, vitamins, etc.) from the extraction of the brown algae *Ascophyllum nodosum, Fucus spp. and Laminaria spp.* in LIETA-VEG. Bpc technology provides exclusive microbial strains to boost plant growth: *Bacillus amyloliquefaciens AGS282, Bacillus subtilis S3b1, Bacillus licheniformis PS141*, filed by Agriges in an international reference microbial collection.

What it does

The application of LIETA-VEG in the early stages of cultivation facilitates plant establishment, reducing the effects of transplant stress; applications during the cycle stimulate crop growth and productivity. In particular:

- **it helps to overcome transplant stress**
- **it boosts vegetative growth**
- **it improves production quality and uniformity**
- **it helps to overcome conditions of environmental stress**
- **it increases long-term soil fertility**
- **it stimulates the plant's natural defences**

RyZea ®

Three types of algae that promote plant growth

Lieta-veg features RyZea, the production technology that extracts bio-activating molecules from three algae: *Ascophyllum nodosum, Fucus spp. and Laminaria spp.,* originating in the Atlantic Ocean, which are collected in the stage of their cycle when the concentration of phytoactivating compounds reaches its peak. The extraction process is extremely "gentle", so as not to alter the stability of the phytostimulating algae molecules.

This allows the phytoactivating properties of the algae to be left unchanged, thus providing:

- **natural chelating agents** which improve the assimilation of the nutrients and their translocation in the plant;
- **natural plant hormones** and hormone-like molecules which activate the plant's metabolism and growth;
- **elicitor compounds** which induce the plant's endogenous resistance to the main stress factors;
- **energy compounds** ready for use by crops.

Ascophyllum nodosum

Fucus spp.

Laminaria spp.

The extraction process

Quality control

Before starting the extraction process, the three seaweeds are selected, identified and checked in order to ensure compliance with quality requirements, before processing can begin.

Micronisation

The extraction principle behind RyZea technology is the micronisation of the algae and the application of pressure differentials to the micronised products.

Filtration

The extract is then filtered at 100 mesh (150 micron), thus ensuring that the product does not create problems during field application.

Extraction

The extraction technology does not include the use of high temperatures or dehydration processes and/or freezing, or the use of chemicals. The proof is in the final pH which is more acidic than that of other algae products on the market (between 8 and 10).

Bpc ®

Growth-promoting bacteria

BPC

BPC is the Agriges technology featuring a carefully selected microbial mixture containing three plant growth-promoting rhizobacteria (PGPR) at a concentration of **$2.0*10^8$ CFU/g:**

Bacillus subtilis ***S3b1****	Bacteria with a **high capacity for producing siderophores and organic acids** for the increased availability of iron and phosphorus. It strongly colonises the rhizosphere and creates a healthy environment for root development.
Bacillus amyloliquefaciens ***AGS282****	Bacteria with high **natural hormone** production (especially ***auxin***) which stimulates the balanced plant growth and responses to abiotic stress. This micro-organism is also able to establish itself and multiply very quickly on all treated plant organs, acting as a "substrate competitor" of other micro-organisms.
Bacillus licheniformis ***PS141****	Bacteria with high **natural hormone** production (especially ***gibberellin***) which promotes the vegetative growth, especially in the early stages of cultivation, including seed germination. It also has a strong desalinisation effect on the ground, improving soil structure and the assimilation of nutrients by the plant.

**Exclusive strains isolated and filed by AGRIGES in an international reference microbial collection.*

How Agriges microbial biostimulants are created

They are producers of microorganisms

1 GreenPath

2 BENE VEGE FIT
- Metagenomic analyses of soil

3
- DNA sequencing
- Isolation of colonies
- Genus identification

4 AgrigesLab
- Stability test
- Consortium compatibility
- Mixing with active substances
- EU database filing

As part of the Green Path project, Agriges participates in the **BENEVEGEFIT** research programme (Efficient Biostimulants for Vegetal Nutrition with Innovative and Traceable Fertilisers), which is part of the Biotechnological Sciences and Agrifood field, indicated as priority research topics for the Campania Region by the National Smart Specialisation Strategy (SNSI), approved by the European Commission for the development of companies operating in the Agrifood sector.

Thanks to the successful partnership with the Department of Agriculture of the Federico II University of Naples, Agriges identifies and employs the most efficient plant growth-promoting microorganisms in its microbial formulas. Various investigations are conducted on microorganisms including DNA sequencing, colony isolation and genus identification by using a **metagenomic** approach. In addition, these microorganisms are investigated by testing their special PGPR properties, and only the best are chosen by Agriges. Stability tests are then carried out in Agriges Labs on individual microorganisms, thus assessing compatibility in colonies and with active ingredients. Lastly, Agriges files the selected strains in an international reference microbial collection.

Experimental results

Goal: verification of the efficiency of LIETA-VEG in increasing the yields of rocket in a protected environment.

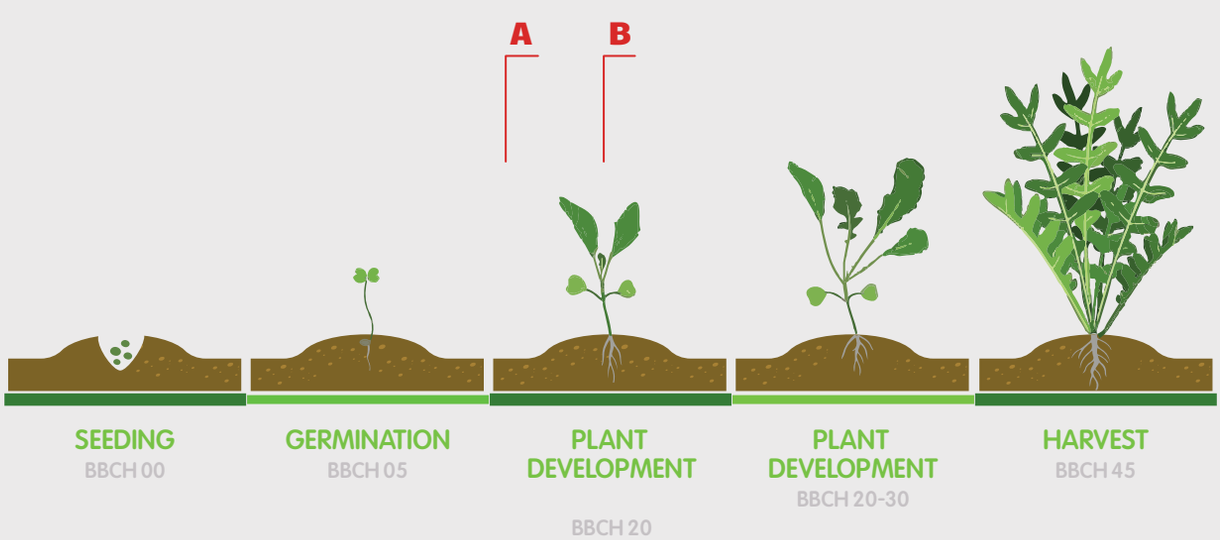
Sele Agroresearch Srl
Test Facility

Test Data	Test Data
Crop	Rucola Eruca versicaria (cv. Reset)
Test facility	Sele Agroresearch S.r.l.
Company	Az Agr. Maddalo Raffaele
Test location	Via Lago Carezza, Pontecagnano (SA)
Notes	Trial conducted in 2017 on conventional greenhouse crops, sowing time 4-10-2017
Surveys	Chlorophyll content, nitrates, dry matter, yield, other quality parameters

Theory	Formulation	Active ingredients W/V	Dose/ha	Application method	Application method	Timing
T1	Not treated					
T2	LIETA-VEG	- Organic nitrogen (N) 3.1 % - Organic carbon (C) 22.3 % - RyZea - BPC	25l	Root	BBCH13 BBCH15	AB
T3	Competitor	- Azoto (N) organico 1,13% - Carbonio (C) organico 11,3% -Sostanza organica con peso molecolare <50kDa 33,9%	25l	Root	BBCH13 BBCH15	AB

Application stage

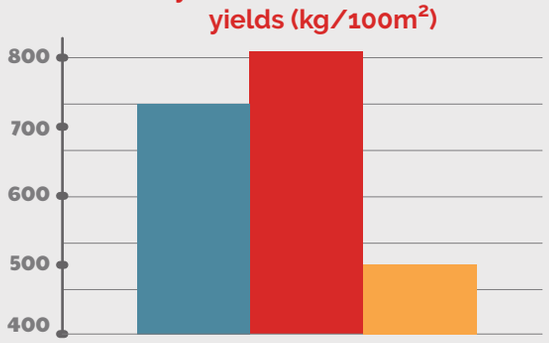
A 3 leaves unfolded (BBCH13), B 5 leaves unfolded (BBCH15)



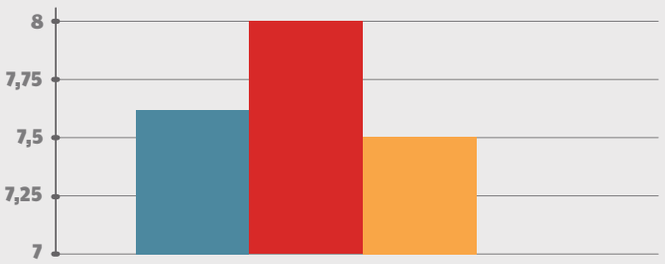
Results

The use of LIETA-VEG on fourth range leafy vegetables in the post-sowing phase resulted in improved crop growth, the emergence of healthy, robust roots and an increase in yields, with a positive effect on production quality. Furthermore, laboratory analyses showed that a significant reduction in the nitrate content of leaves had already occurred from the first harvest.

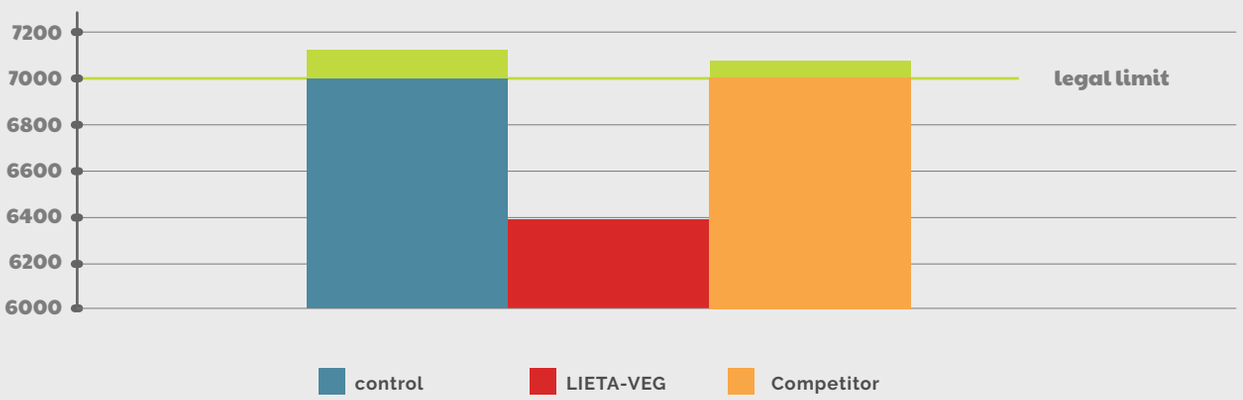
Efficacy assessment of LIETA-VEG on yields (kg/100m^2)



Efficacy assessment of LIETA-VEG on dry substances at 105 °C (%m/m)



Nitrate content (mg/kg)



Experimental results

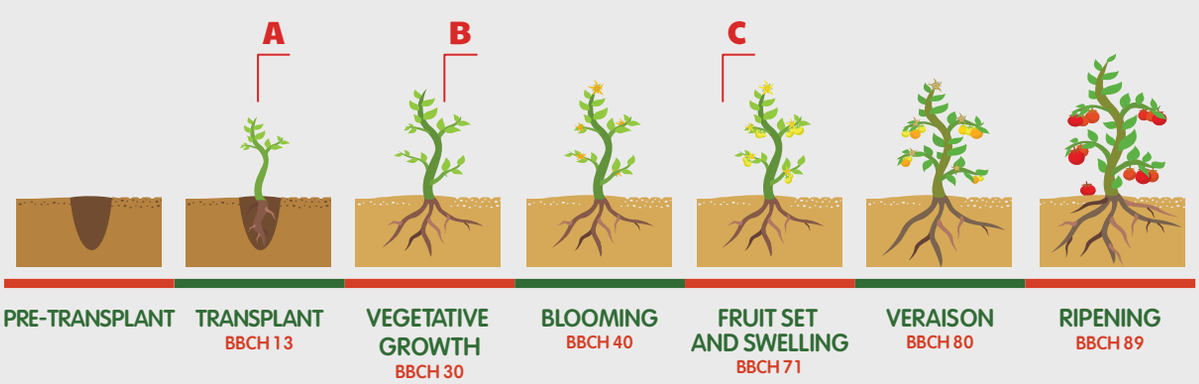
Goal: verification of functionality of the LIETA-VEG formula in root application in the cultivation of salad tomatoes

Test Data	Test Data
Crop	Salad tomatoes (cv. Proxy F1)
Test facility	Sata
Company	Centro sperimentale Sata
Test location	Vittoria, C.da Alcerito (Ragusa)
Notes	Test carried out in 2021 on conventional greenhouse crops, transplant date 27-5-21
Surveys	Root development, quality and quantity parameters.

Theory	Formulation	Active ingredients W/V	Dose/ha	Application method	Application method	Timing
T1	Not treated					
T2	LIETA-VEG	- Organic nitrogen (N) 3.1 % - Organic carbon (C) 22.3 % - RyZea - BPC	25l	Root	BBCH13 BBCH35 BBCH71	ABC
T3	Competitor	- Nitrogen (N) total 3,7% - Organic nitrogen (N) 1.24% - Ureic nitrogen (N) 2,5% - Potassium oxide (K2O) 9.9% - Organic carbon (C) 9.9% - Iron (Fe) 0.025%	25l	Root	BBCH13 BBCH35 BBCH71	ABC

Application stage

A - transplant (BBCH13) B - vegetative growth (BBCH35) C - fruit set (BBCH71)

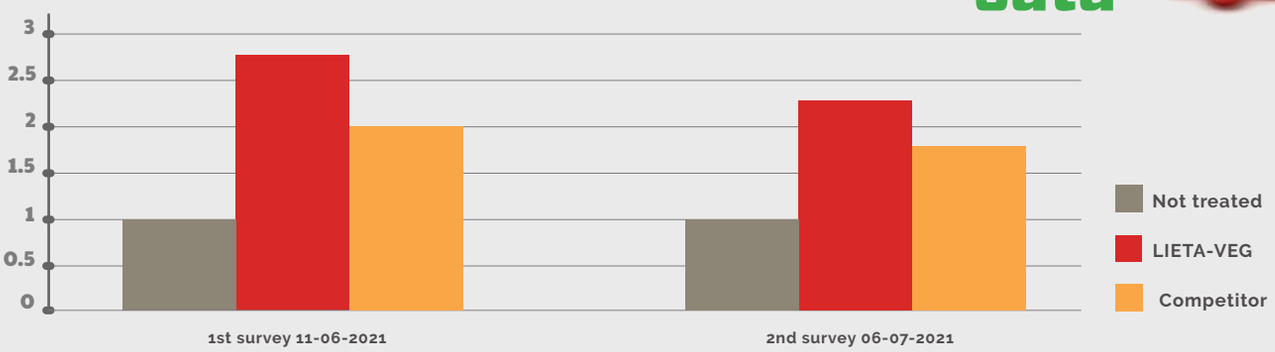


The FTS Team carried out numerous trials at internationally recognised test facilities.
Below are the main results of the trials carried out by the SATA s.r.l. test facility in Sicily (RG), in the 2021-2022 agricultural year, aimed at verifying the effects of the product on the physiological parameters (rooting) and yield (quality and quantity) of final production.

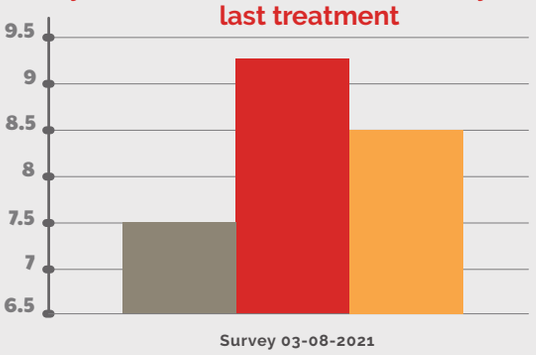
Results

The use of LIETA-VEG, in the cultivation of tomatoes immediately after transplanting, helps the plant to overcome any stress, develop strong, healthy roots and improve the quality and quantity of yields.

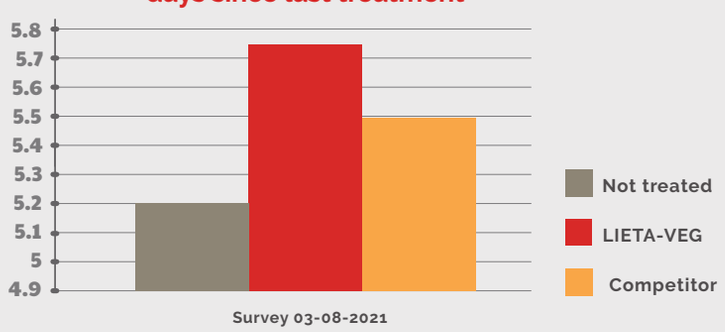
Efficacy assessment of LIETA-VEG on the root strength 14 and 40 days after transplant



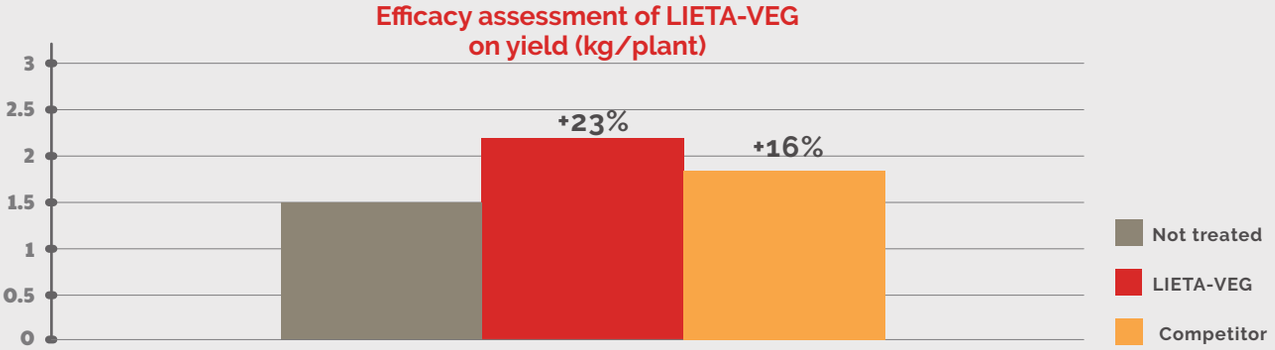
Efficacy assessment of LIETA-VEG on the dry substance content (%) at 40 days since last treatment



Efficacy assessment of LIETA-VEG on the soluble sugar content (°Brix) at 40 days since last treatment



Efficacy assessment of LIETA-VEG on yield (kg/plant)



Not treated | LIETA-VEG | Competitor

Experimental results

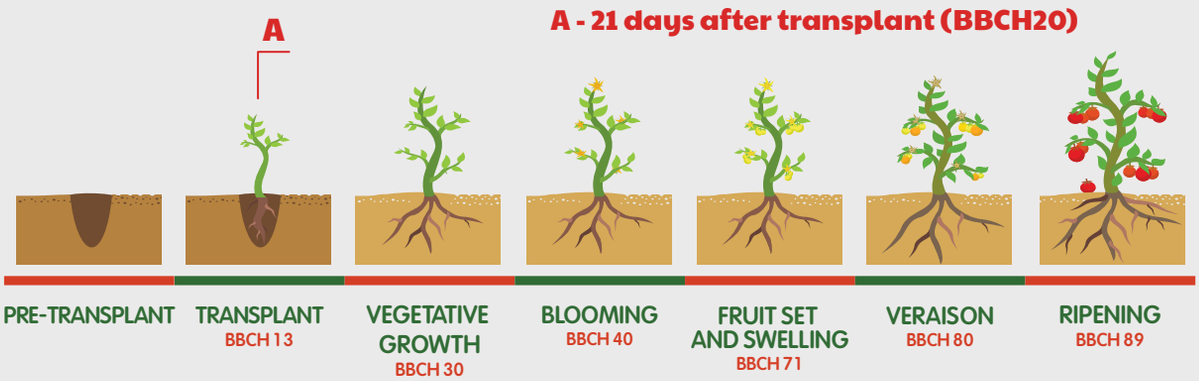
FTS Field Technical Service

Goal: verification of function of LIETA-VEG formula in root application on processing tomatoes.

Below is one of the latest field reports on the use of Lieta-Veg on processing tomatoes (cv. H1301) in which a comparison was made between a conventional strategy, with an NP 12-61 water-soluble chemical and Lieta-Veg, both applied 21 days after transplant, at the Confcooperativa di Modena, Bomporto (MO). Surveys were carried out on the development of the root apparatus and yield (number of branches).

Theory	Formulation	Active ingredients W/V	Dose/ha	Application method	Application method	Timing
T1	Competitor	- Nitrogen (N) total 12,0% - Ammoniacal nitrogen (N) 12.0% - Phosphorous pentoxide (P_2O_5) water soluble	50kg	Root	BBCH20	A
T2	LIETA-VEG	- Azoto (N) organico 3,1 % - Carbonio (C) organico 22,3 % p/v - Organic matter (with nominal molecular weight <50kDa) 37,2% - RyZea - BPC	20l	Root	BBCH20	A

Application stage



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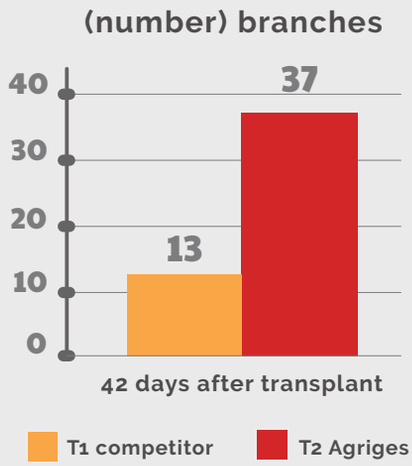

COMPOSITION

Selected nutritional components including:	(w/v)
Organic Nitrogen (N)	3,1 %
Organic carbon (C)	22,3%
Organic substance	37,2%

AMINOGRAM	%w/w		%w/w		%w/w		%w/w
Aspartic acid	3,1 %	Glycine	0,42%	Proline	0,30%	Tot. cysteine and cystine	0,04%
Glutamic acid	22,3%	Isoleucine	0,41%	Serine	0,37%	Tot. Tryptophan	0.05%
Alanine	37,2%	Histidine	0,16%	Tyrosine	0,23%	Methionine	0,06%
Arginine	22,3%	Leucine	0,59%	Threonine	0,38%	**Total**	11,75%
Phenylalanine	37,2%	Lysine	0,49%	Valine	0,52%		

Bio-activating components including:

* RYZEA

Selected bacterial isolates including:

Bacillus amyloliquefaciens AGS282 *

Bacillus licheniformis PS141 *

Bacillus subtilis S3b1 *

Total load: 2,0 x10^8 UFC/g

*Components not listed on the label

DOSES AND METHODS

Crops	Foliar application	Dose ml/hl
Tutte le colture	for the entire cycle	80-160
Crops	**Fertigation**	**Dose l/ha**
Fruit trees	From vegetative restart to post-fruit set, 2-3 applications	20-30
Vine and table grapes	From vegetative restart to post-fruit set, 2-3 applications	20-30
Horticultural	Post-transplant, vegetative restart, post-fruit set, every 15 days	20-30
Industrial	Post-transplant, vegetative restart, post-fruit set, every 15 days	10-15
Ornamental	During vegetative cycle, 2 applications	10-15

Aforementioned doses are indicative and may vary in relation to the pedo-climatic characteristics of each zone.

WARNINGS

If mixed, we recommend carrying out preliminary compatibility and miscibility tests on limited areas and number of plants. Check and decrease the

doses for sensitive crops or where not expressly indicated. Do not exceed the dose rates indicated. Combination with copper-based, alkaline-reacting products, white oils, sulphur and polysulphides is not recommended.

Formulation
Soluble liquid
pH (sol. 6%)
approx. 4,7
Conductivity
approx. 25,6 dS/m
Packaging
5 - 20 - 120 - 200 - 1000 l

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