



*A complete bioactivator to increase  
fruit **yeld** and **quality***



**MaralNPK**



+ safety



+ production



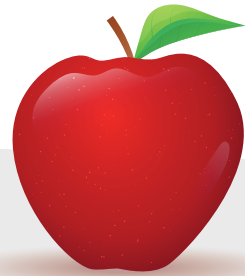
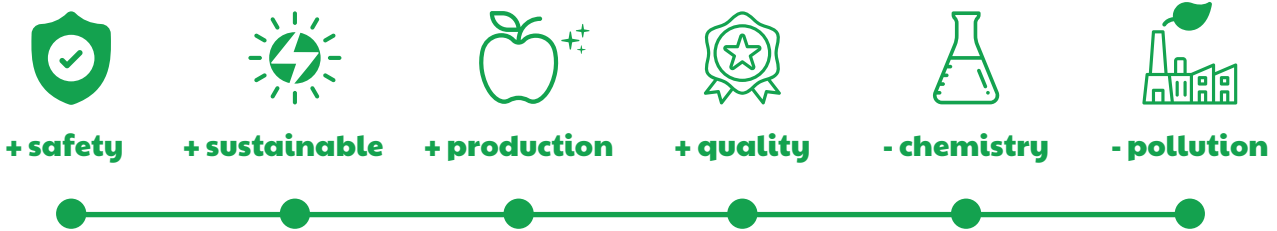
+ quality



## Producing more and producing healthy!

Agriges' answer to the new challenges of modern agriculture is the Green Path project. The project core is to develop safe and sustainable products that allow achieving abundant, quality and healthy yields while reducing the use of chemical and potentially polluting products. To do this, the Green Path project sees the collaboration of Agriges with research institutes, test centres, universities, cooperatives and farms for the development and testing of new formulations.

# MaralNPK



## GOAL:

### To produce more and improve yield quality

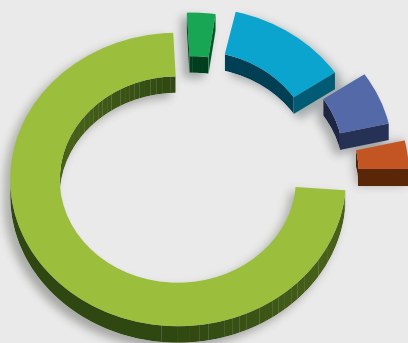
According to the FAO report "The future of food and agriculture, trends and challenges", the estimated world population in 2050 will reach 10 billion people. We will need to produce more to meet the needs of this increasingly growing population.

In addition to producing more, it will be necessary to produce better quality foods, i.e. that are richer in nutrients and safer for consumers' health. For these reasons, as part of the Green Path project, Agriges developed Maral NPK with the aim of increasing crop productivity as well as improving production quality.

# Why Maral NPK?

Maral NPK is a complete fertilizer thanks to its balanced Nitrogen, Phosphorus and Potassium concentration and to the presence of bioactivating substances that make all the Maral Line products unique and extraordinarily effective. Maral NPK, in fact, is powered by the RyZea technology to guarantee an unmatched bioactivating and antioxidant effect. A complex mix of chelating agents, plant hormones and activating molecules that:

- anticipate harvesting;
- increase production;
- improve qualitative characteristics such as the soluble solids content, consistency and dry weight of fruit and leafy vegetables.



- Polysaccharides
- Phytohormones
- Nutritional c.
- Amino acids
- Ioditech

## COMPONENTS

<p><b>NITROGEN, PHOSPHORUS, POTASSIUM</b></p>	<p>The extremely balanced concentration of nitrogen, phosphorus and potassium is optimal to promote fructification and fruit ripening processes.  <b>NITROGEN ---&gt; FLOWERING</b>  <b>PHOSPHORUS ---&gt; FRUIT-SETTING</b>  <b>POTASSIUM ---&gt; MATURATION</b></p>
<p><b>ZINC</b></p>	<p>On Maral NPK, it is complexed with the same organic substance to ensure a bioactivating and antioxidant effect, timely and prolonged over time. The Zinc is involved in the synthesis of auxins and tryptophan, as well as intervening in the production of <b>pigments</b> (fruit colouring) and <b>sugars</b> (production quality).</p>
<p><b>POLYSACCHARIDES</b></p>	<p>Maral NPK has an ideal polysaccharide ratio for fruit development. In particular, the presence of mannitol and alginic acid contributes to improving the conveyance of nutrients in plants in relation to the chelating capacity of these substances.</p> <p>The Fucoidans are particularly polysaccharides that contains zulf and contribute to improve the resistance of the plant to environment stress: salinity, drought, thermal excesses, etc.</p>
<p><b>PHYTOHORMONES NATURAL PLANT-DERIVED H.</b></p>	<p>The particular ratio of natural phytohormones, in favour of cytokinins and gibberellins plus brassinosteroids, helps the multiplication and cellular relaxation of the treated fruits. They activate plant metabolism and induce plant growth:</p> <ul style="list-style-type: none"> <li>• <b>Auxins</b> and <b>Cytokinins</b> stimulate root development, promoting more lateral roots with greater thickness and length.</li> <li>• <b>Cytokinins</b> mobilize nutrients towards reproductive organs and fruits.</li> <li>• <b>Gibberellins</b> promote abundant flowering and fructification.</li> <li>• The <b>Brassinosteroids</b> affect the plant development, especially from the roots, both primary and secondary.</li> </ul>
<p><b>AMINO ACIDS</b></p>	<p>The amino acid content of Maral NPK, together with the high content of polysaccharides, enhances the chelating and biostimulant activity of the formulation, supporting the plant even in the event of stress.</p>
<p><b>ELICITOR COMPOUNDS</b></p>	<p>Maral NPK contains <b>phenylpropanoids</b>, precursors of <b>salicylic acid</b> that activate the resistance of the plant to principal damage agents, increasing the tolerance or improving responses to the stress. In fact, the salicylic acid is a molecule "resistance sign" which, moving easily through the plant tissues, is capable to generate a generalized resistance response to various types of stress.</p>

# Production technologies



**RyZea is the exclusive Agriges production technology that extracts precious phytoactivating molecules from the brown seaweed *Ascophyllum nodosum*, *Laminaria spp.* and *Fucus spp.* As the extraction process is extremely “gentle” it does not alter the stability of the phytostimulative seaweed molecules, thus ensuring high agronomic performance.**



## QUALITY CONTROL

Before starting the extraction process, the three seaweed types are selected, identified and controlled in order to check their compliance with the quality requirements, and only then do we proceed with their processing.



## MICRONIZATION

The extraction principle underlying the RyZea technology is seaweed micronization and the application of pressure differentials to the micronized products.



## FILTERING

The extract is then filtered at 100 mesh (150 microns), so as to make sure that the product will not create problems during its field application.



## EXTRACTION

The extraction technology does not involve the use of high temperatures or dehydration and/or freezing processes, nor the use of chemical agents. To guarantee this, the final pH is more acidic than that of the other products on the market (between 8 and 10).

## Ioditech

### The technology that provides iodine and biofortifies plants

Agriges has developed the Ioditech technology, which enriches Maral NPK with an amount equal to 12 mL/L of iodides, with the aim of improving its agronomic performance and helping the farmer to obtain foods with a higher nutritional value.

Plants biofortified with iodine, such as carrots, tomatoes, potatoes and lettuce, can be a valid tool to increase iodine content, as they are usually consumed in most families.

The increase of iodine content in the in vegetables for the production of functional foods it is therefore a study area of particular interest for human health, as it allows the ion to be conveyed in the human organism without the counterindications collected to the salt intake.

In addition to the advantages of obtaining an iodine-biofortified plant, numerous studies also show that the application of iodine in agriculture promotes the plant's development and adaptation to environmental stress conditions. In particular, positive effects are observed on flowering and fruit setting.

# IodiTech

# Field results



Field Technical Service

The FTS (Agriges Field Technical Service) team has conducted numerous field trials, testing Maral NPK worldwide.

## CHERRY TREE

(cv. FERROVIA - ROME)

location Canosa di Puglia (BT) - Italy

The testing was carried out on Cherry trees arranged with a spacing plantation layout of 5 x 3 m and involved the comparison of 3 TEST VARIANTS:

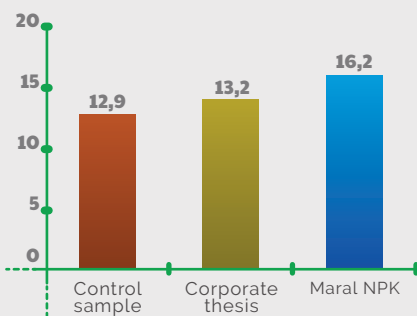
- **Control sample** (untreated)
- **Test 1:** corporate thesis
- **Test 2:** Maral NPK

**GOALS:** maturity homogeneity - °Brix degree - Fruit diameter - Hardness (at the penetration gauge) - Colour.

## RÉSULTATS

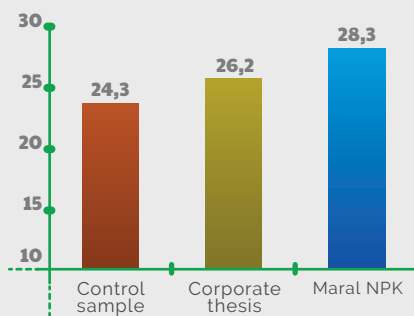
### °BRIX

Average values



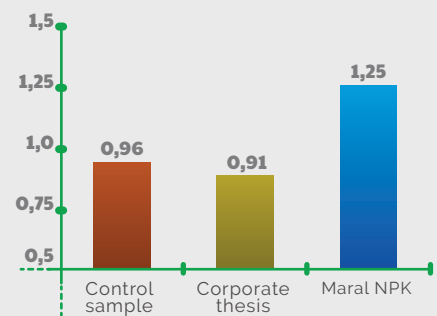
### CALIBRE

Diameter (mm) of 100 fruits



### WEIGHT

Average weight (kg) of 100 drupes



The Maral NPK + Calcium Test determined greater drupe weight and calibre with an overall increase in production per hectare



Control sample



Corporate thesis



Maral NPK

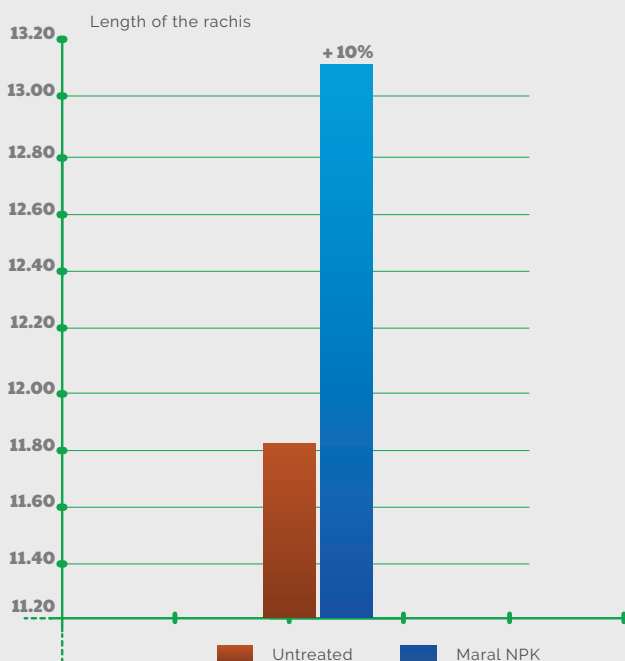
Maturation was more uniform and homogeneous, recording at the same time an advance of the harvest. Furthermore, production improved significantly also due to the enhanced qualitative characteristics, such as soluble solids content.

## GRAPEVINE

The application of Maral NPK following numerous tests carried out in various regions of Italy in the following two years had several positive effects both on the qualitative and quantitative parameters examined.

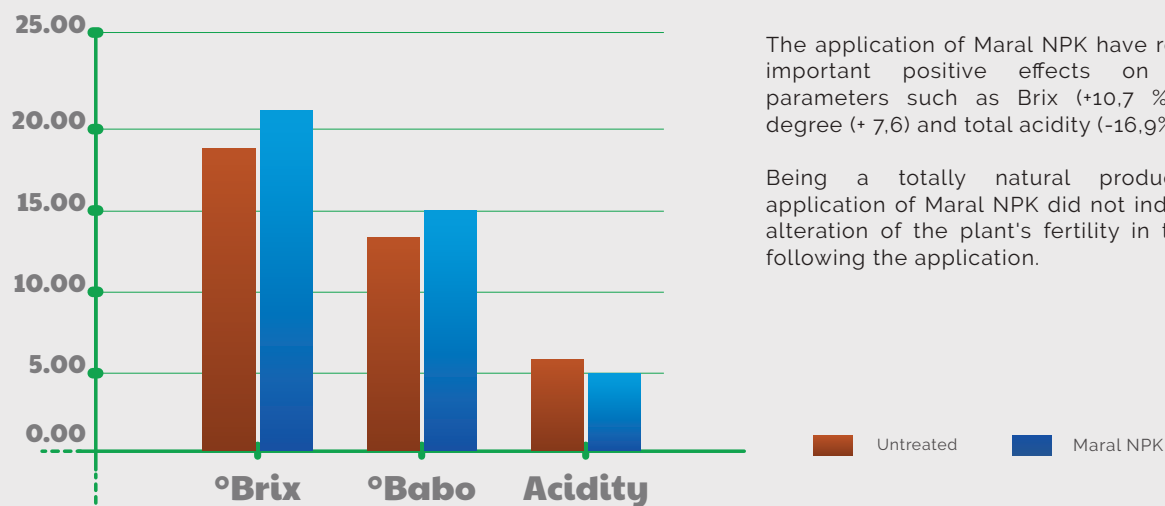
- Thesis: Untreated
- Thesis 2: Maral NPK 4 l/ha by foliar application in the pre-flowering phase and separate bunches

## RESULTS



Respect to the witness thesis, the thesis treated with Maral NPK on average they showed rachids 10% longer. This elongation growth was accompanied by an average size of the berries (+ 2,5%).

## Effects of Maral NPK on the qualitative parameters of the grapevine



The application of Maral NPK have recorded important positive effects on quality parameters such as Brix (+10,7 %), Babo degree (+ 7,6) and total acidity (-16,9%).

Being a totally natural product, the application of Maral NPK did not induce any alteration of the plant's fertility in the year following the application.

# SWEET/BELL PEPPER

(cv. CALIFORNIA WONDER)  
location Sparanise (CE) - Italie.

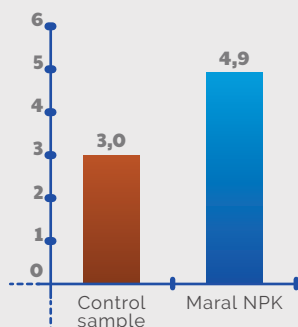
The test was carried out on Sweet Pepper plants arranged with a planting layout of 40 x 80 cm and saw the comparison of 2 TEST VARIANTS:

- Control sample (corporate);
- Test 1: Maral NPK (3 l/ha).

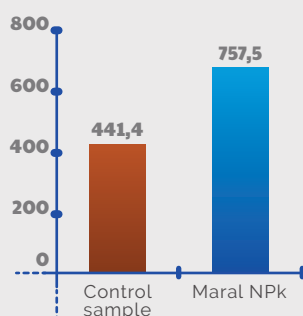
GOALS: number of fruits per plant - °Brix degree - fruit size - pulp thickness - unit weight.

## Résultats

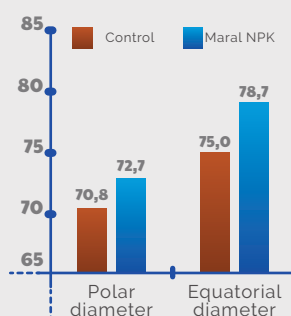
### FRUITS PER PLANT



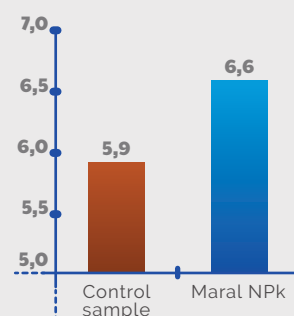
### AVERAGE FRUIT WEIGHT (g)/PLANT



### AVERAGE FRUITY DIAMETER (mm)



### °BRIX



The Maral NPK Test gave the best productive results from a qualitative and quantitative point of view. Actually, this test resulted in a greater number of fruits per plant, with a greater average weight. In addition, the fruits with larger calibre increased along with the °Brix (soluble solids content) compared to the corporate control sample.



Control sample



Maral NPK

## Composition

Total Nitrogen (N)	6,0 % (w/w)	7,5 % (w/v)
Organic Nitrogen (N)	0,7 % (w/w)	0,87 % (w/v)
Ammoniacal Nitrogen (N)	1,0 % (w/w)	1,25 % (w/v)
Ureic Nitrogen (N)	4,3 % (w/w)	5,3 % (w/v)
Total Phosphorus pentoxide (P <sub>2</sub> O <sub>5</sub> )	5,0 % (w/w)	6,2 % (w/v)
Water-soluble Potassium oxide (K <sub>2</sub> O)	5,0 % (w/w)	6,2 % (w/v)
Organic Carbon (C)	7,5 % (w/w)	9,4 % (w/v)
Total Zinc (Zn)	1,0 % (w/w)	1,25 % (w/v)

Crops	Foliar Application	Dose l/ha
TREE CROPS	During the flower budding stage, flowering and petal fall	3-4
HORTICULTURAL AND INDUSTRIALS	Fruit setting 2nd truss, fruit swelling	2-4
ORNAMENTALS	Throughout the cycle	1-3
Crops	Application en Fertigation	Dose l/ha
ALL CROPS	Starting from fruit setting	2-3

## WARNINGS

If mixed with other products, it is always advisable to carry out miscibility and compatibility tests on a limited number of plants. Avoid mixing with products with an alkaline reaction and/or strong acid reaction and with copper-based products.

### FORMULATION

Soluble liquid

### PACKAGES

1 l - 5 l - 10 l - 20 l

### DENSITY(T=20°C)

approx. 1240 kg/m<sup>3</sup>

### pH (sol. 6%)

approx. 7,0

### CONDUCTIVITY

(sol. 10%)

approx. 23,0 dS/m



Exclusive Agriges  
production technology



Foliar application



Fertigation



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