

# VIGOR L RAPIDO

ORGANIC NITROGEN FERTILIZER

- ▣ INCREASED VIGOUR
- 🌱 BETTER ROOTS DEVELOPMENT
- ⊕ STRONGER RESISTANCE AGAINST WATER AND SALINE STRESS



hydro fert

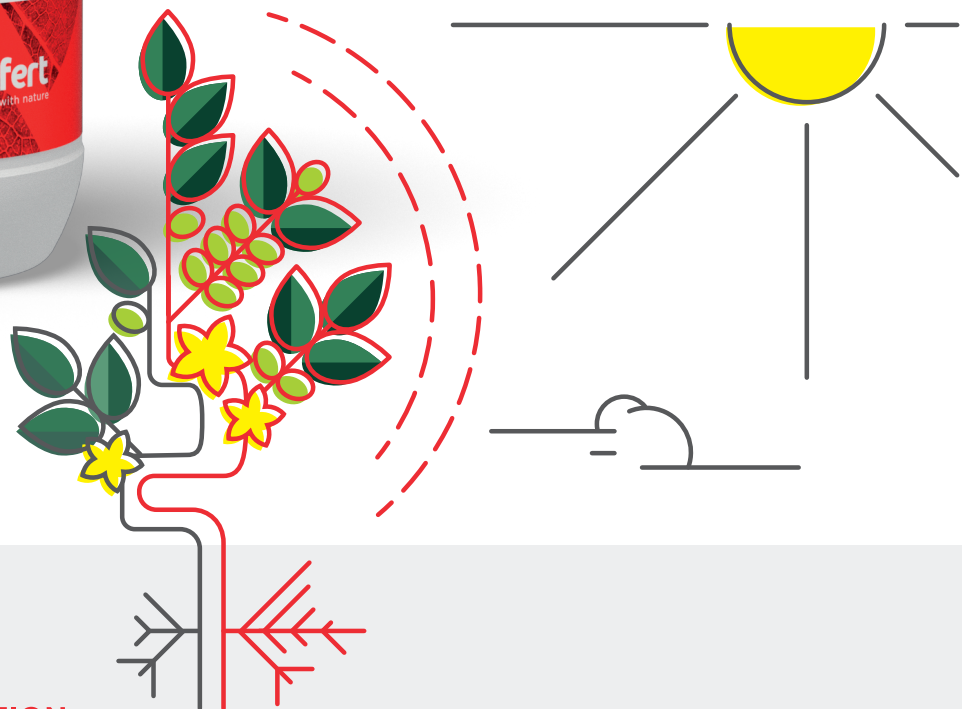




Vigor L Rapido is a biostimulant product, totally of plant origin, based on seaweed Sargassum and Laminaria.

#### BENEFITS

- Increased vigour
- Better roots development
- Stronger resistance against water and saline stress



#### PRODUCT DESCRIPTION

The product contains micronutrients, vitamins, polysaccharides and natural hormones, in addition to proteins and amino acids of high quality from yeast. In particular alanine and glutamic acid are amino acids with a huge biostimulant action on photosynthesis. Plants with a higher content of chlorophyll have a better phytosanitary status, being stronger against biotic and abiotic stress.

For all the above mentioned features, both foliar application and fertigation allow to increase: number of flowers, fruit set, cell distension, yields, organoleptic properties, fruits shelf-life, resistance against stress, vegetative growth, roots volume, also reducing the sensitivity to micro-deficiencies.

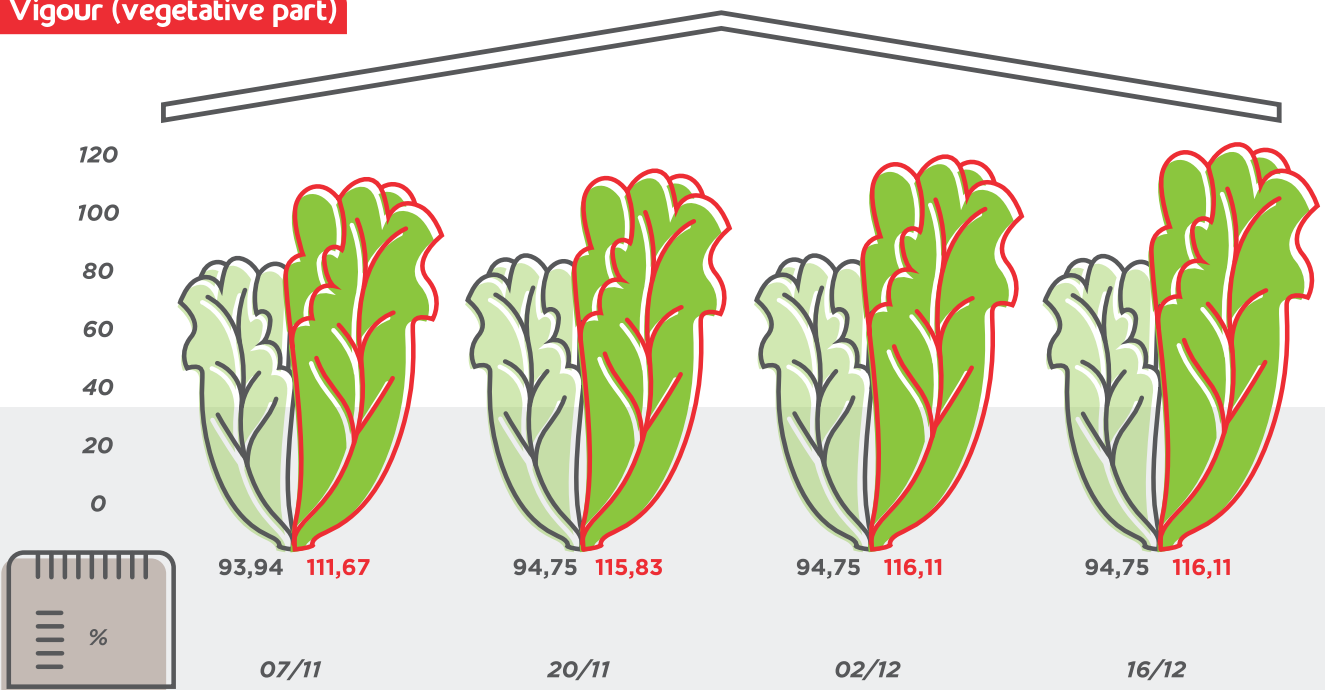
# Lettuce in greenhouse



## MATERIALS AND METHODS

<b>Species</b>	<i>Lactuga sativa</i> var. Romana		
<b>Experimental design</b>	Factorial randomized complete block design		
<b>Duration</b>	62 days		
<b>Temperature</b>	4-31 °C	<b>Average temperature</b>	15 °C
<b>Average relative humidity</b>	30-95%		
<b>Substratum</b>	93,3% sandy - 3,2% clay - 3,5% loamy		
<b>Application</b>	fertigation		
<b>Treatments</b>	two: 15/10/2020 (pre-transplanting) - 05/11/2020 (post-transplanting)		
<b>Main experimental treatment</b>			
2 biostimulant applications <b>Control (1)</b> and <b>Vigor L Rapido 20 l/ha (6)</b>			
x 3 salinity levels <b>S1 S2 S3</b> = 0,48 dS/cm, 3 dS/cm, 5 dS/cm			
x 3 water stress levels <b>I1 I2 I3</b> = no stress / medium stress / high stress			

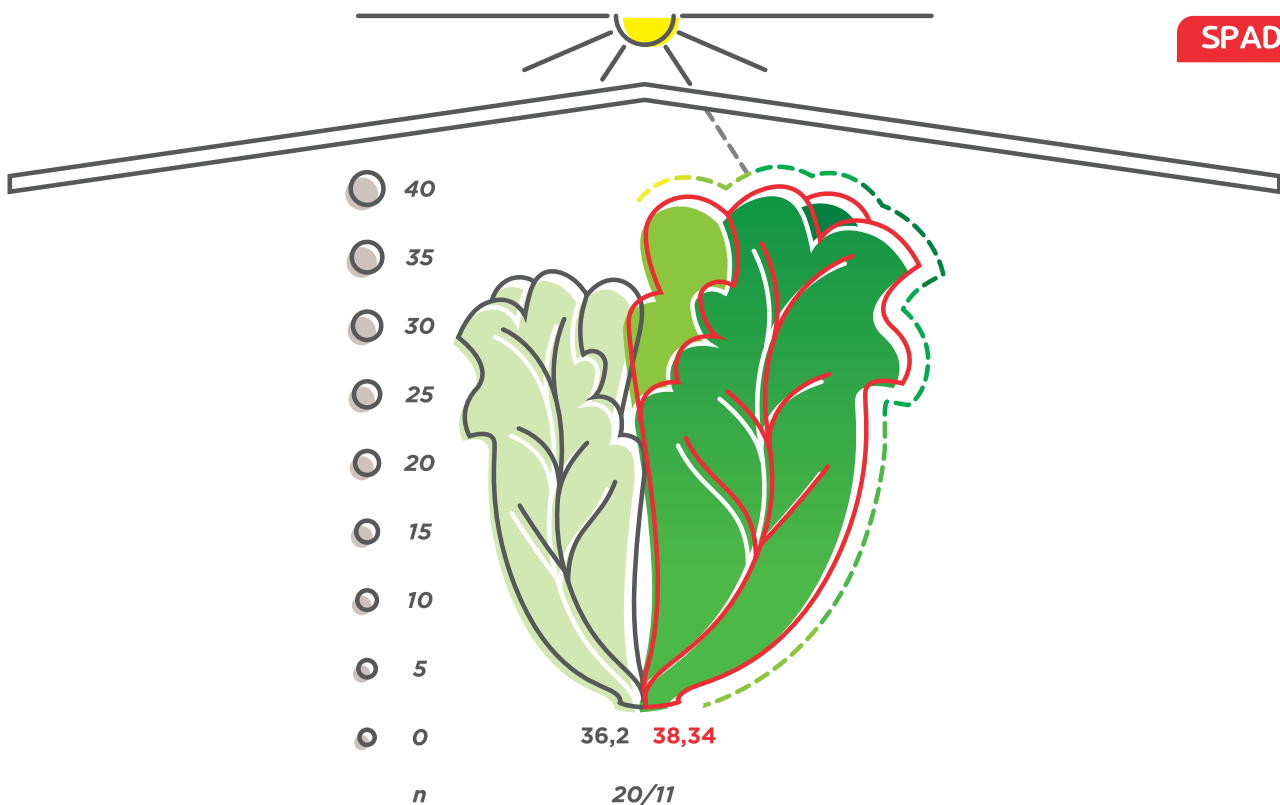
### Vigour (vegetative part)



**FIG 1** - Average plants vigour after 23, 36, 48 and 62 days from transplanting in the two compared treatments.

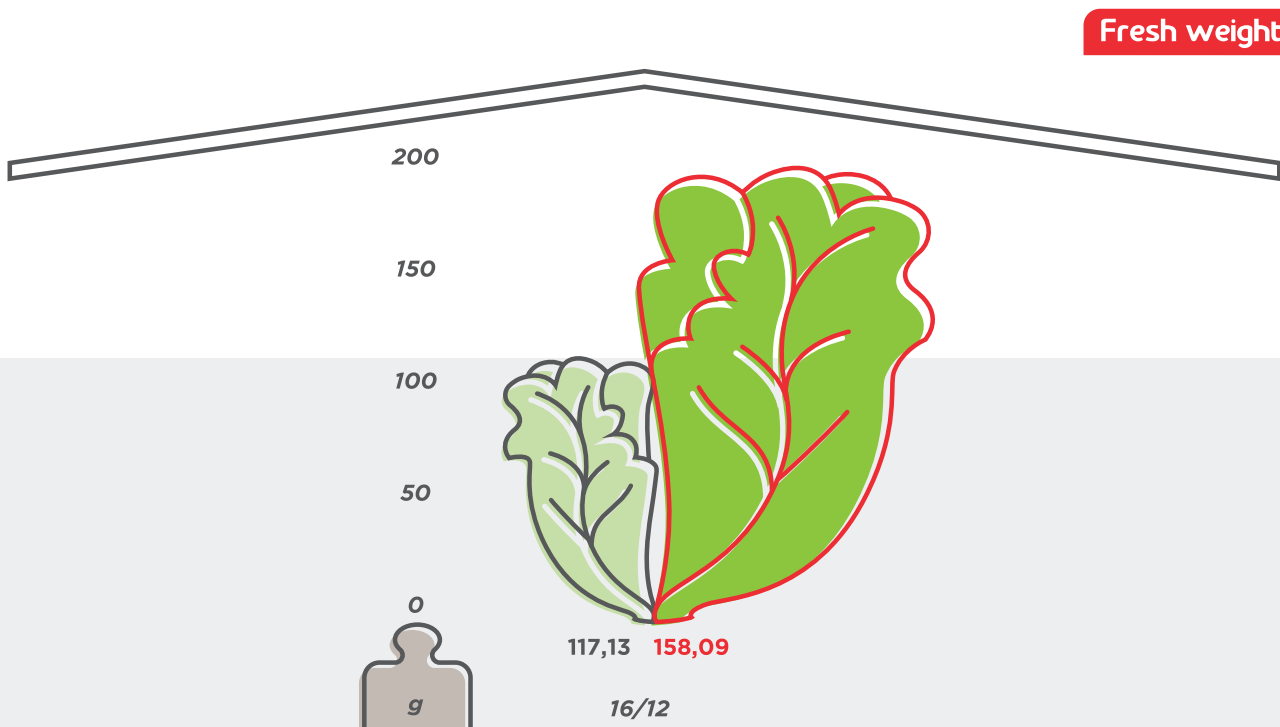
The use of Vigor L Rapido results in an increase of plants vigour from the first trial compared to the Control.

The biostimulated plants have therefore a bigger growth than the not treated Control. Moreover, the seaweeds in Vigor L Rapido stimulate the plant's primary metabolite, allowing a faster reduction of nitric N and nitrates in vacuoles, thus resulting in higher quality and more profitable yields.



**FIG 2** - Average SPAD after 36 days from transplanting in the two compared treatments.

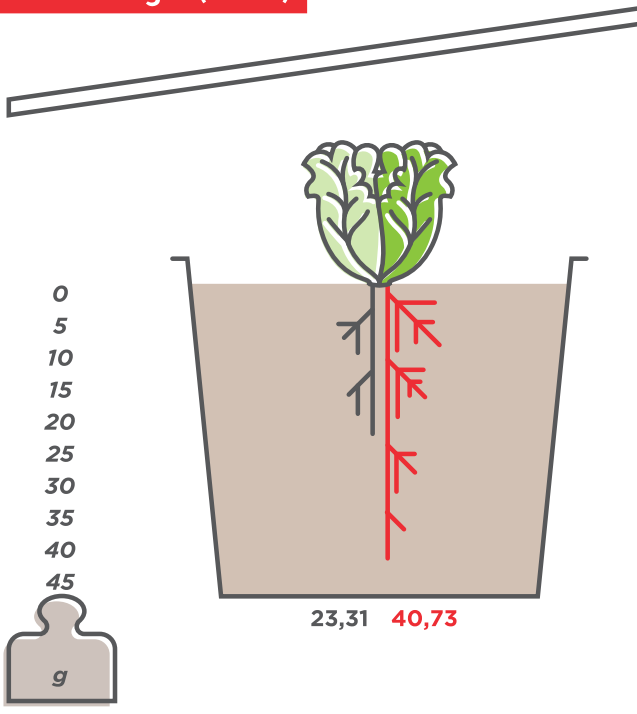
The SPAD index measures the chlorophyll content in leaves, therefore proving their health status. Plants with a higher content of chlorophyll and superior photosynthetic efficiency have a stronger resistance against biotic and abiotic stress. Vigor L Rapido favours a bigger SPAD value compared to the Control.



**FIG 3** - Average fresh weight after 36 days from transplanting in the two compared treatments.

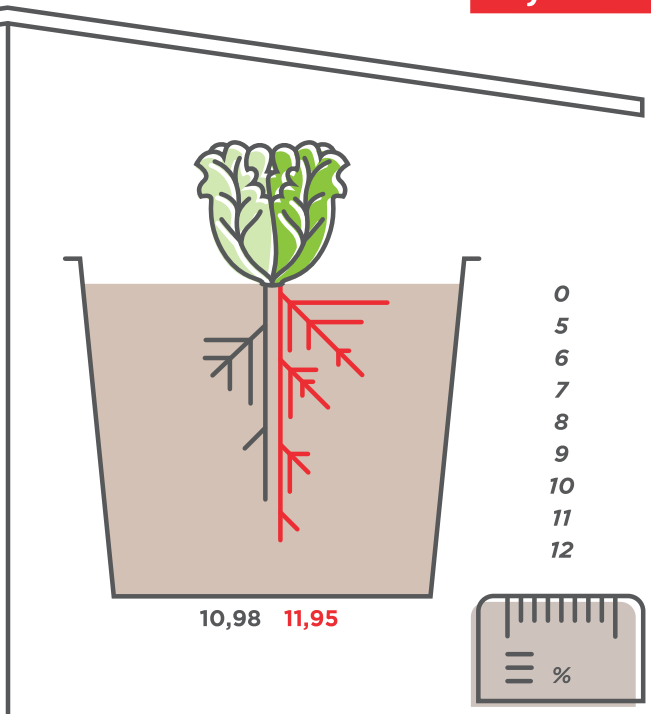
The use of Vigor L Rapido increases plants fresh weight compared to the not treated ones. Seaweeds, amino acids, micronutrients and proteins of plant origin contained in the formulation allow to obtain increased yields.

**Fresh weight (roots)**



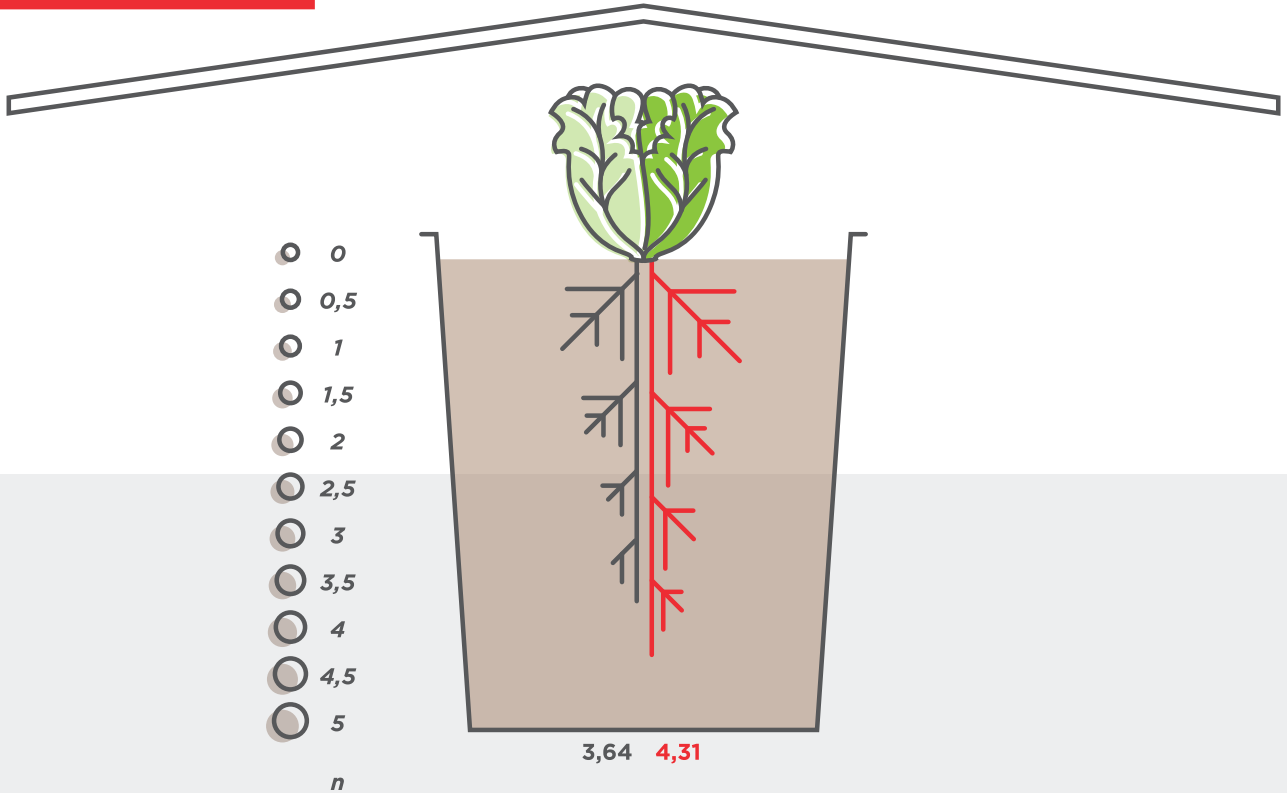
**FIG 4** - Fresh weight of roots in the two compared treatments.

**Dry matter**



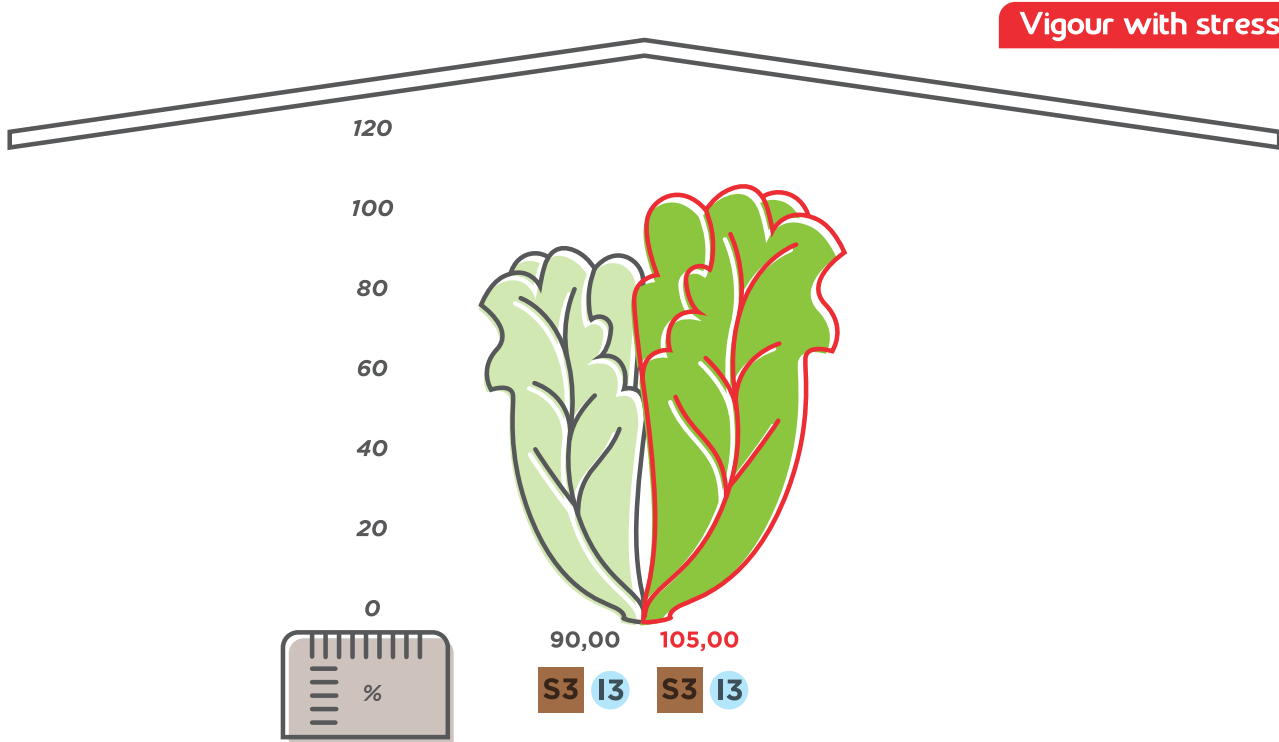
**FIG 5** - Average dry matter of roots in the two compared treatments.

**Volume index (roots)**



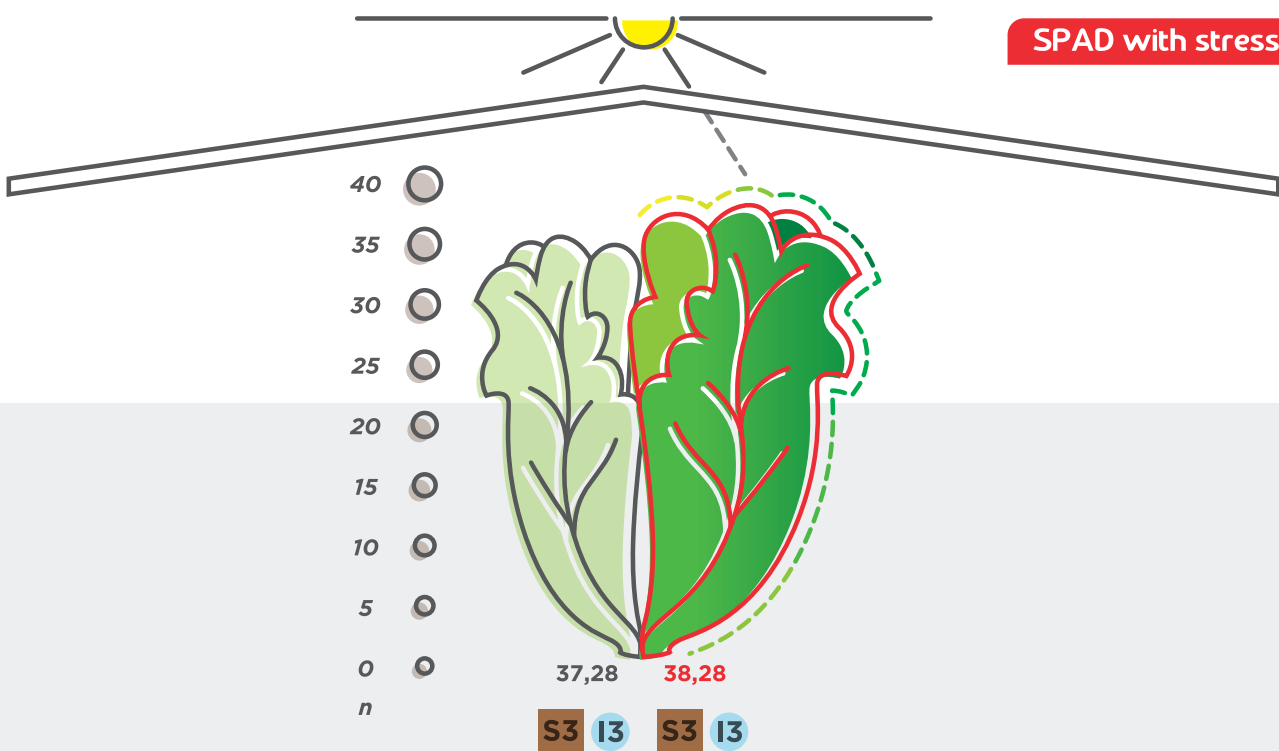
**FIG 6** - Volume index of roots in the two compared treatments.

The use of Vigor L Rapido results in a superior fresh weight, dry matter and volume of the roots. Plants with more vigorous roots are stronger against biotic and abiotic stress, exploring a wider portion of rhizosphere and better exploiting the elements applied with fertilizers.



**FIG 7** - Average vigour after 27 days from transplanting in the two compared treatments with high EC (5 ds/m and high stress).

The use of Vigor L Rapido results in an increased vigour of lettuce, even in conditions of water and saline high stress.



**FIG 8** - Average SPAD after 40 days from transplanting in the two compared treatments with high EC (5 ds/m and high water stress).

The use of Vigor L Rapido results in a superior vigour and SPAD, thus resulting in bigger yields and in a better phytosanitary status, even under water and saline stress.

# Zucchini

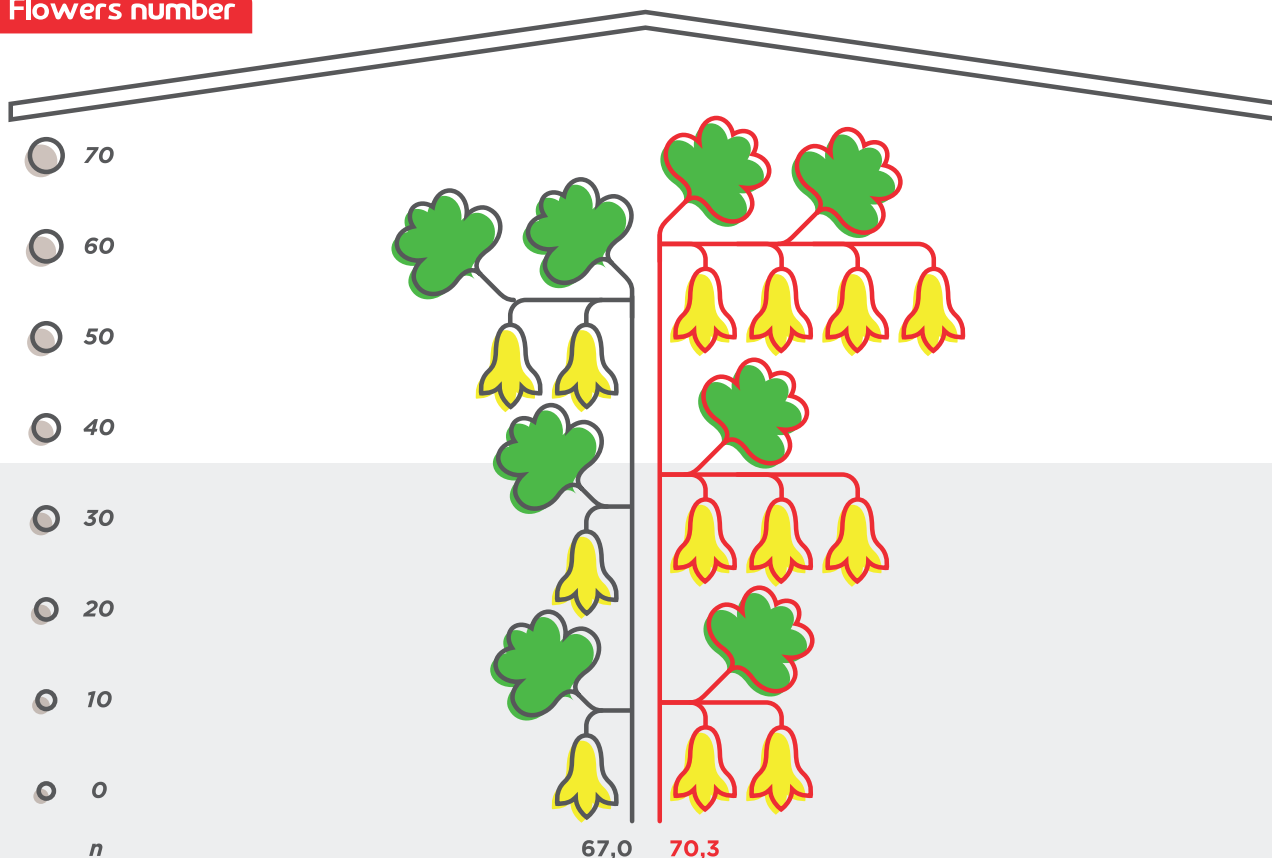
## in growth chamber



### MATERIALS AND METHODS

<b>Species</b>	<i>Cucumis melo var. Ortano</i>
<b>Experimental design</b>	Randomized complete block design
<b>Duration</b>	4 weeks
<b>Temperature</b>	22,5 - 23 °C
<b>Relative humidity</b>	65-75%
<b>Light</b>	14 hours
<b>Substratum</b>	mixture of peat and perlite (10:1)
<b>Application</b>	fertigation
<b>Treatments</b>	three: once a week
<b>Main experimental treatment</b>	<b>Vigor L Rapido 20 l/ha</b> and <b>Control</b>

### Flowers number

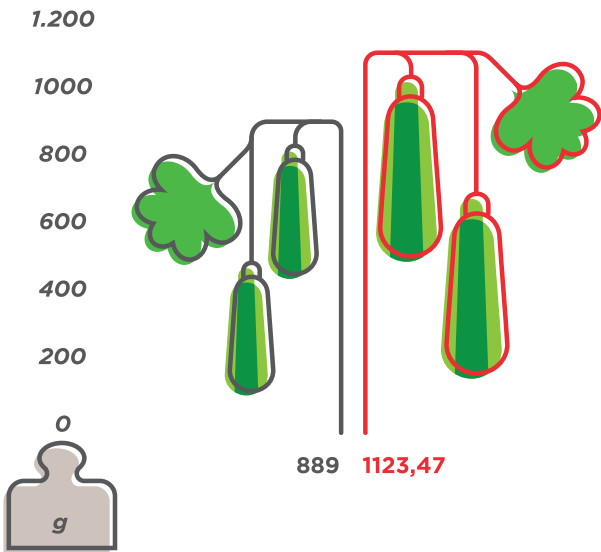


**FIG 1** - Average number of flowers per experimental plot in the two compared treatments.

Vigor L Rapido increases the number of flowers per plant compared to the not treated Control, thus resulting in a higher GSP.



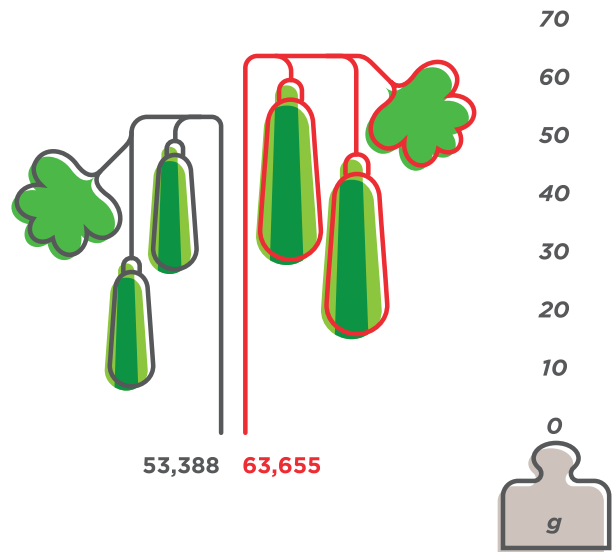
### Fresh weight



**FIG 2** - Average fresh weight per experimental plot in the two compared treatments.

Vigor L Rapido increases the fresh weight of plants compared to the Control. The action of brown seaweeds results in bigger yields.

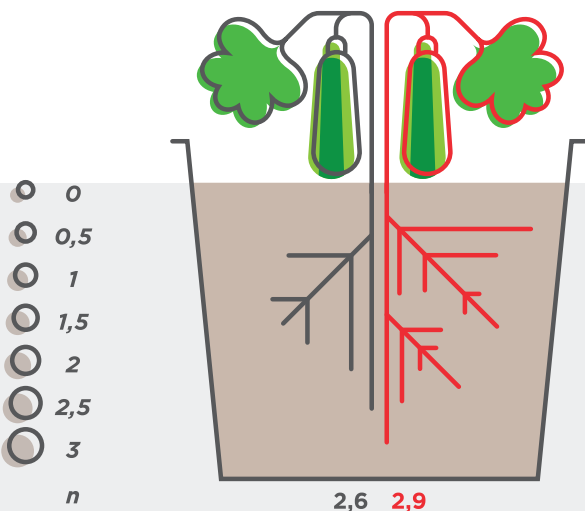
### Dry weight



**FIG 3** - Average dry weight per experimental plot in the two compared treatments.

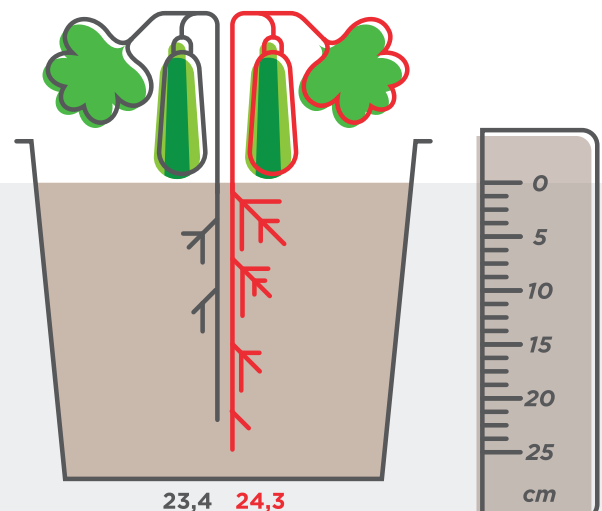
Vigor L Rapido also increases the dry weight per experimental plot compared to the Control, thus allowing a better use of the fertilizers.

### Roots volume index



**FIG 4** - Roots volume index in the two compared treatments.

### Roots length



**FIG 5** - Average roots length in the two compared treatments.

Vigor L Rapido increases roots length and volume index. A longer and voluminous roots system makes the plant stronger against biotic and abiotic stress.

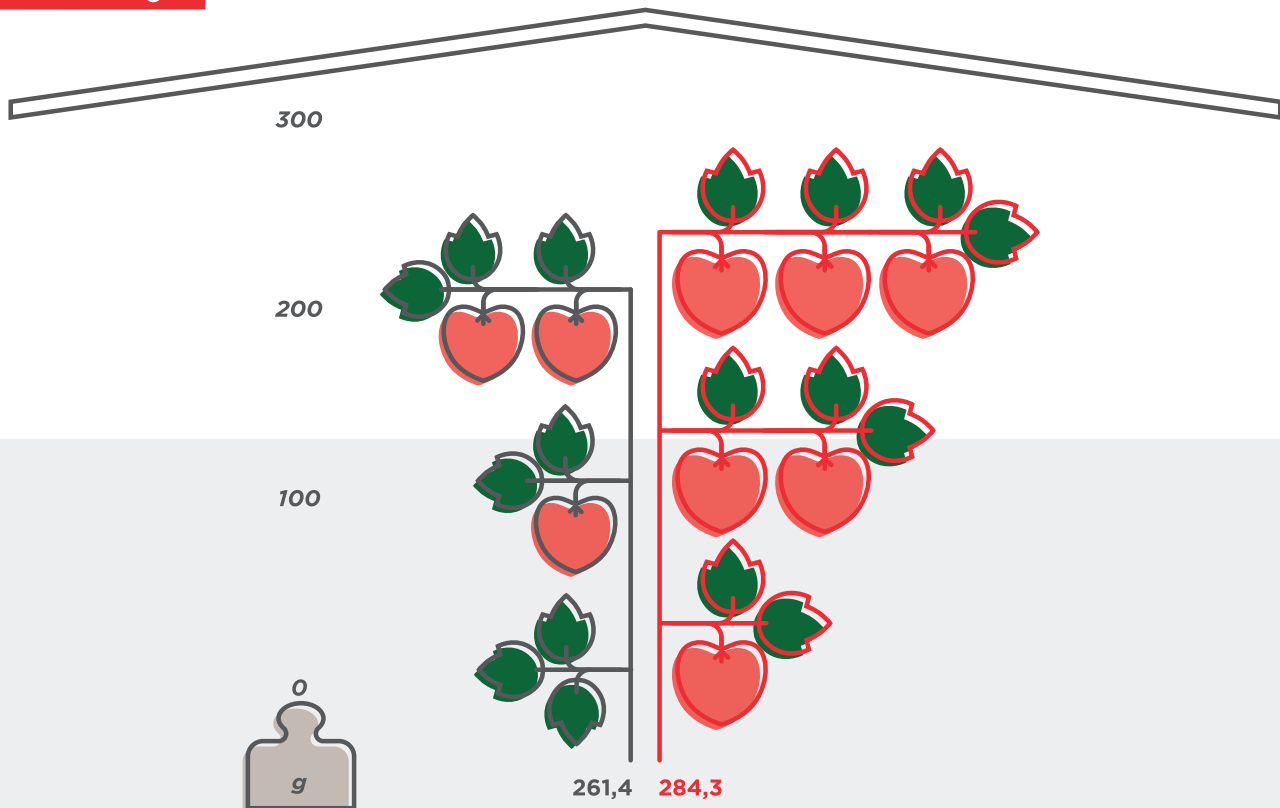
# Tomato crops in growth chamber



## MATERIALS AND METHODS

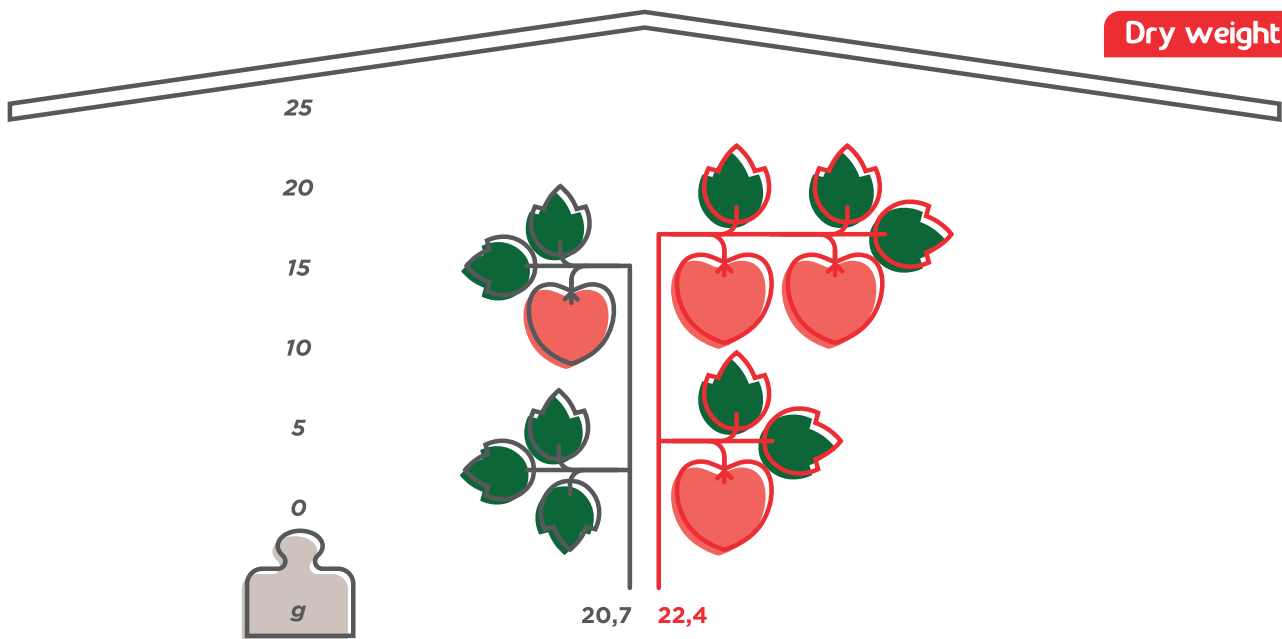
<b>Species</b>	<i>Solanum lycopersicum</i> var. Cuore di bue		
<b>Experimental design</b>	Randomized complete block design		
<b>Duration</b>	4 weeks		
<b>Temperature</b>	19 °C (night) - 23 °C (day)		
<b>Relative humidity</b>	65-75%		
<b>Light</b>	14 hours		
<b>Substratum</b>	peat		
<b>Application</b>	fertilization		
<b>Treatments</b>	three: once a week		
<b>Main experimental treatment</b>	<b>Vigor L Rapido 20 l/ha</b> and <b>Control</b>		

### Fresh weight



**FIG 1** - Fresh weight per plot in the two compared treatments.

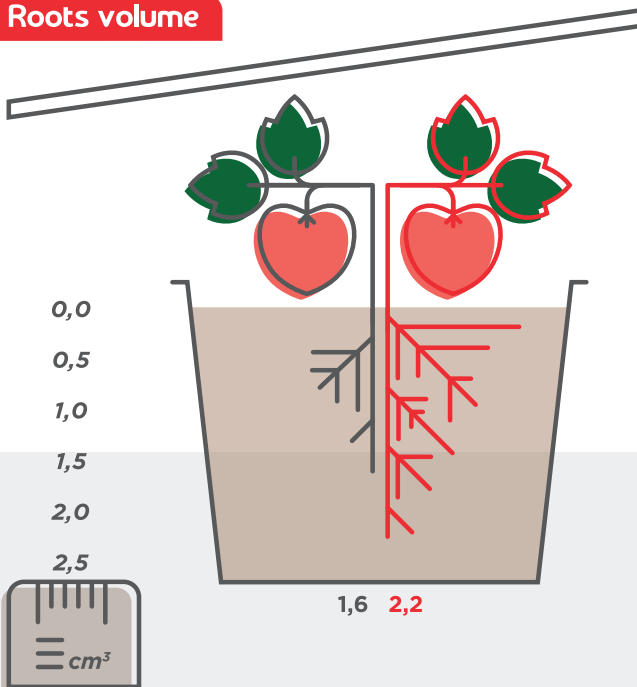
The use of Vigor L Rapido is apt to achieve a gain in fresh weight compared to the not treated Control. Seaweeds, vitamins and amino acids positively influence cell development and yields.



**FIG 2** - Dry weight per plot in the two compared treatments.

The seaweeds contained in Vigor L Rapido allow to obtain an increased dry weight per plot compared to the Control. The biostimulant action of the product allows a better absorption of nutrients and a healthier status of the plant.

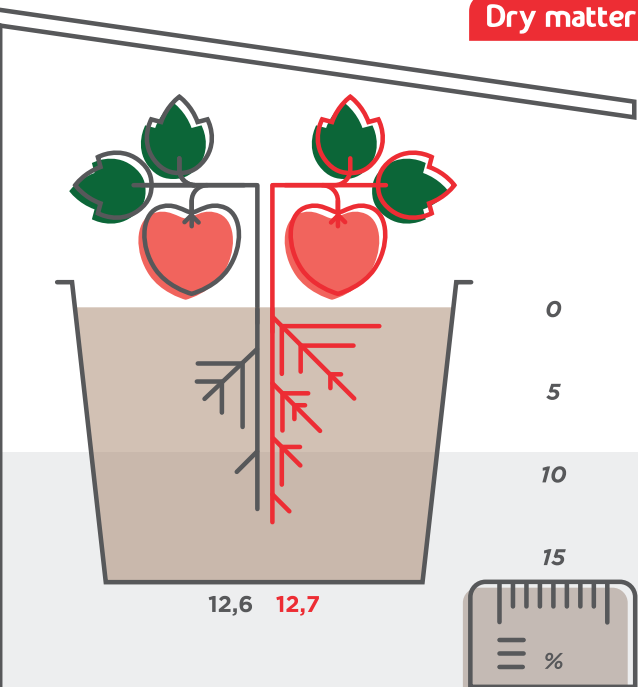
**Roots volume**



**FIG 3** - Roots volume in the two compared treatments.

The biostimulant action of Vigor L Rapido increases the root growth with a consequent larger soil exploration. That's because the roots volume of the not treated Control is smaller than the one of the biostimulated plants.

**Dry matter**



**FIG 4** - Average dry matter in the two compared treatments.

Vigor L Rapido increases the content of dry matter in roots. Such roots with a higher content of reserve substances and with a better nutritional status, are stronger against biotic and abiotic stress.

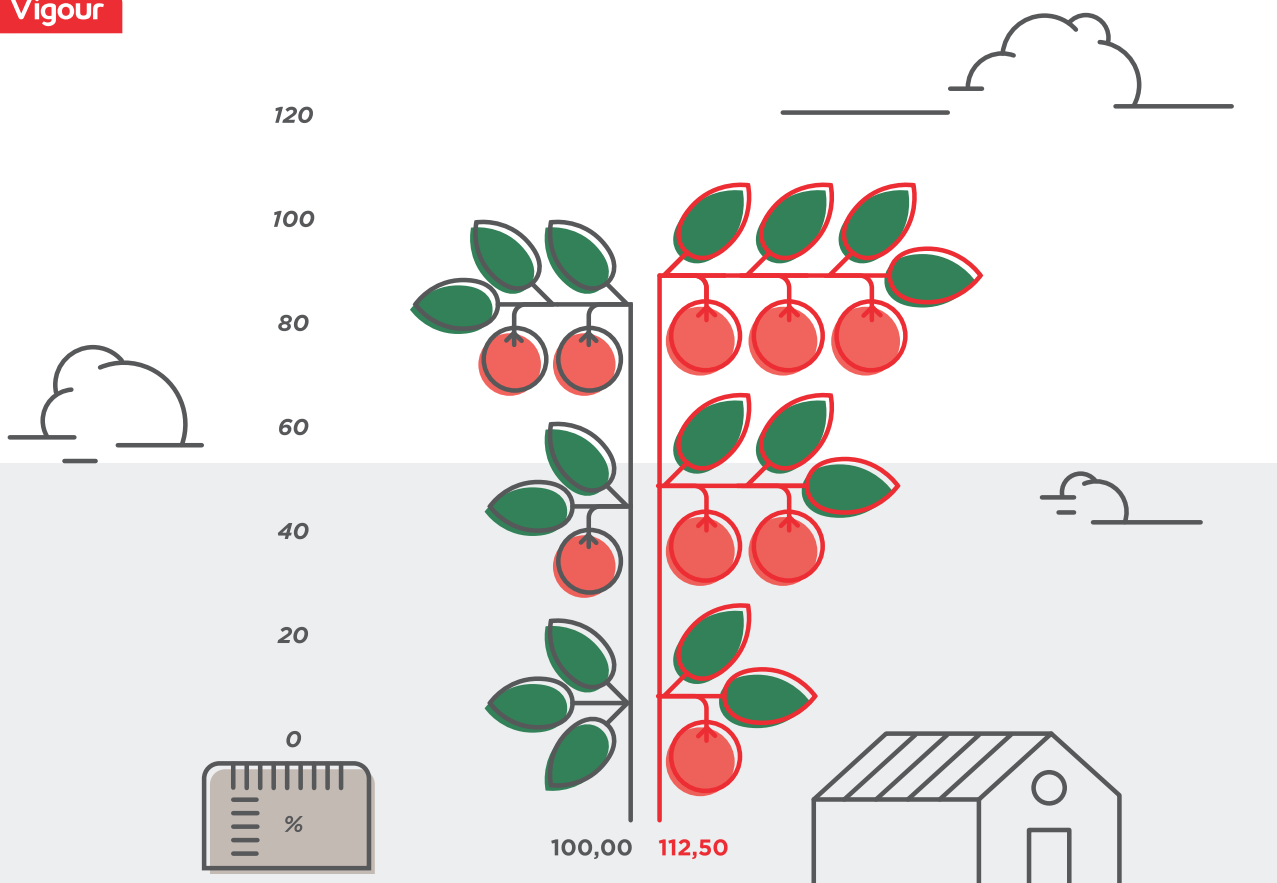
# Tomato crops in open field



## MATERIALS AND METHODS

<b>Species</b>	<i>Solanum lycopersicum</i> var. Cuore di bue
<b>Experimental design</b>	Randomized complete block design
<b>Duration</b>	14 weeks: 13/05/2019 (transplanting) - 23/08/2019 (end of trial)
<b>Temperature</b>	According to climate trend in the countryside of Trinitapoli (Italy)
<b>Relative humidity</b>	According to climate trend in the countryside of Trinitapoli (Italy)
<b>Light</b>	Typical of the trial period
<b>Substratum</b>	Sandy and loamy soil
<b>Application</b>	fertigation
<b>Treatments</b>	three: flowering, fruit setting, fruit growth
<b>Main experimental treatment</b>	<b>Vigor L Rapido 20 l/ha</b> and <b>Control</b>

## Vigour



**FIG 1** - Average plants vigour after 69 days from transplanting in the two compared treatments.

The data confirm the capability of Vigor L Rapido to induce responses similar to those of cytokinins.

Width

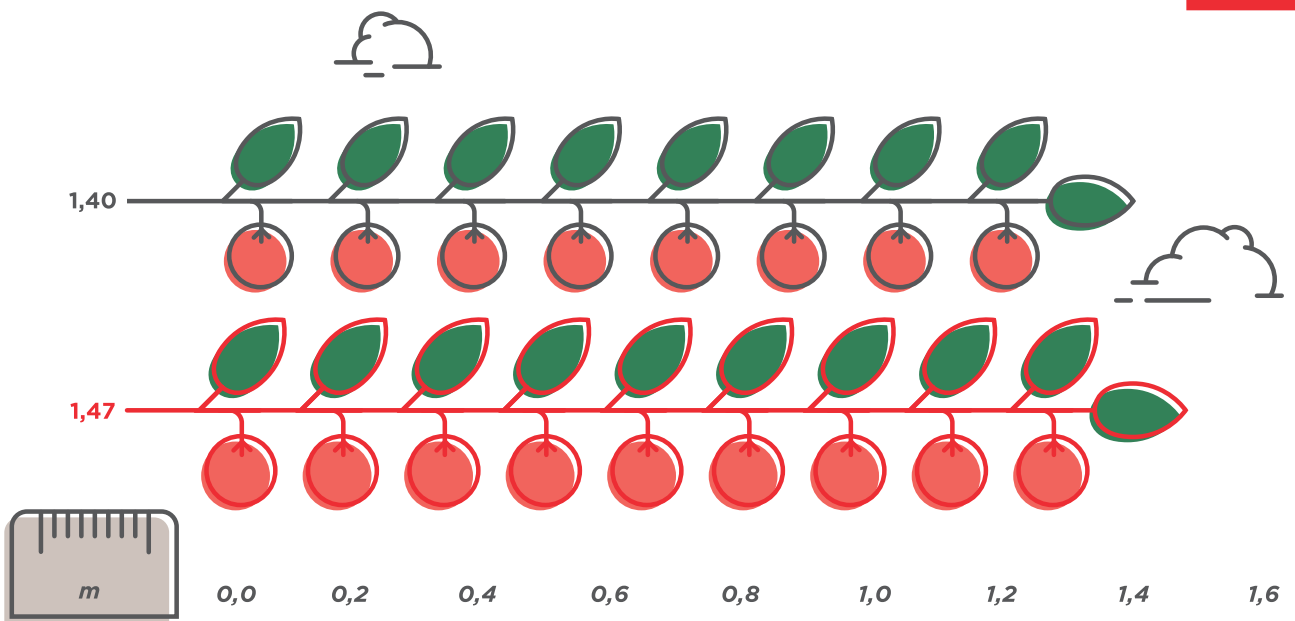


FIG 2 - Average plants width in the two compared treatments.

Height

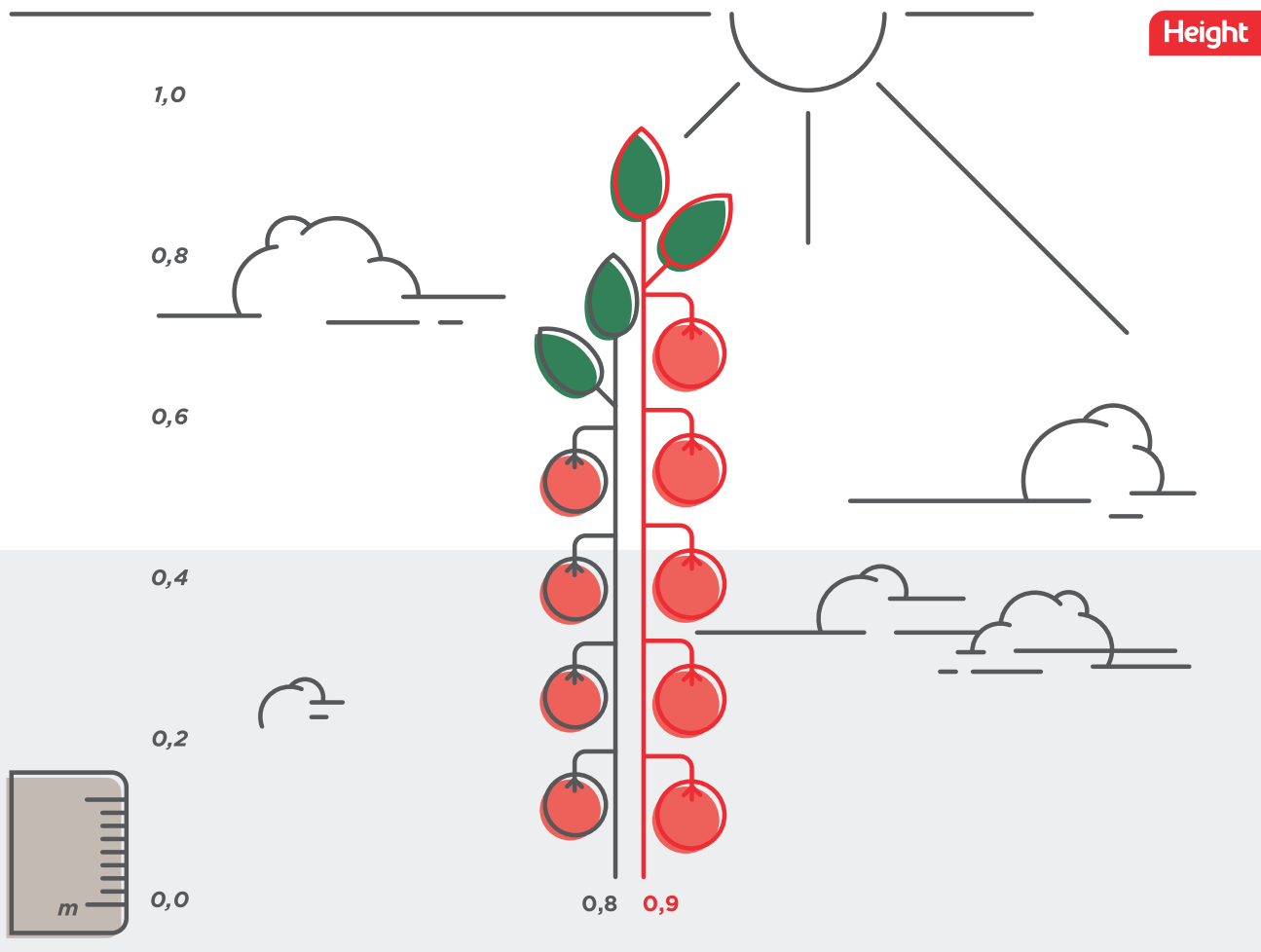
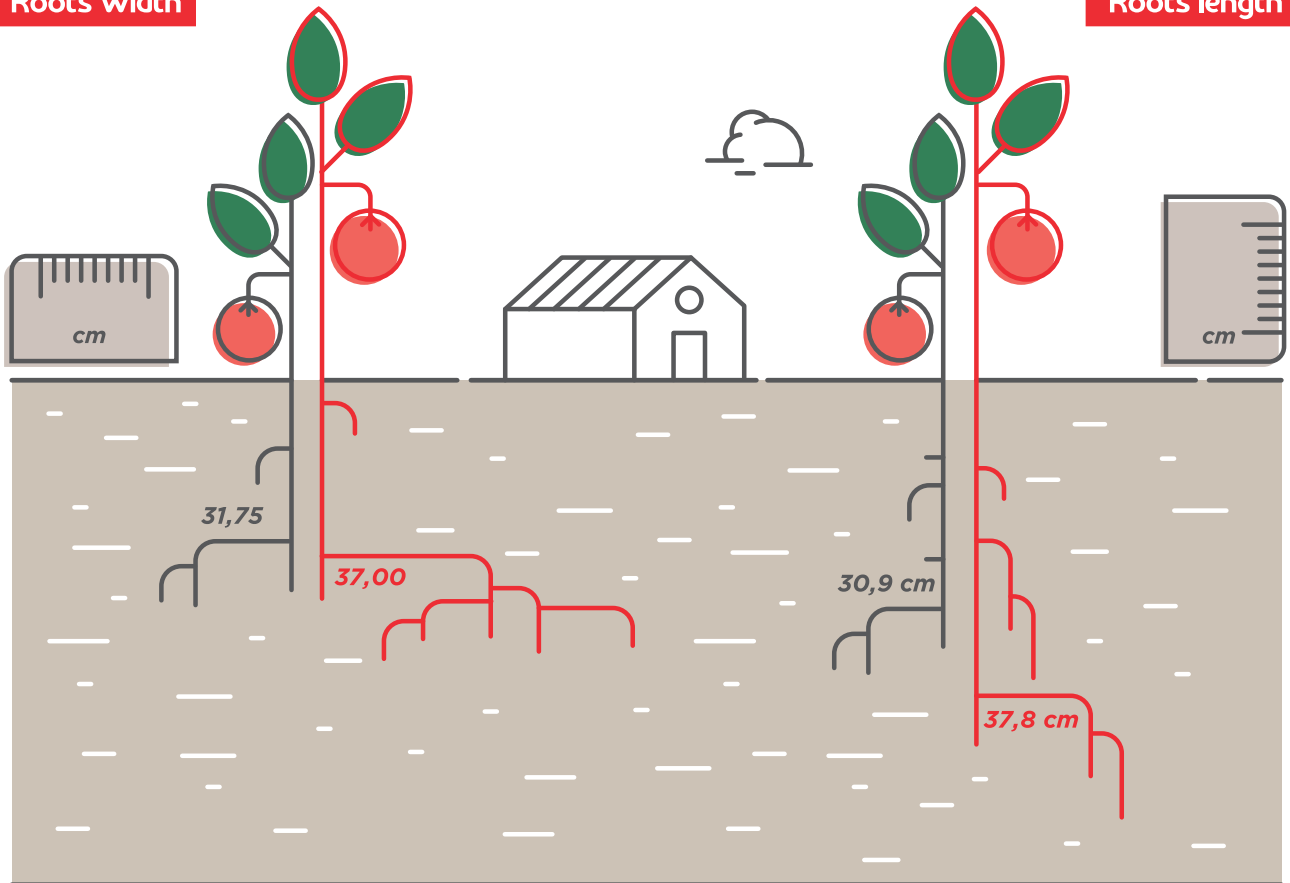


FIG 3 - Average plants height in the two compared treatments.

Vigor L Rapido increases both width and height of plants compared to the not treated Control, also improving leaves quality and photosynthetic efficiency (SPAD).

### Roots width



### Roots length

### Fresh weight (roots)

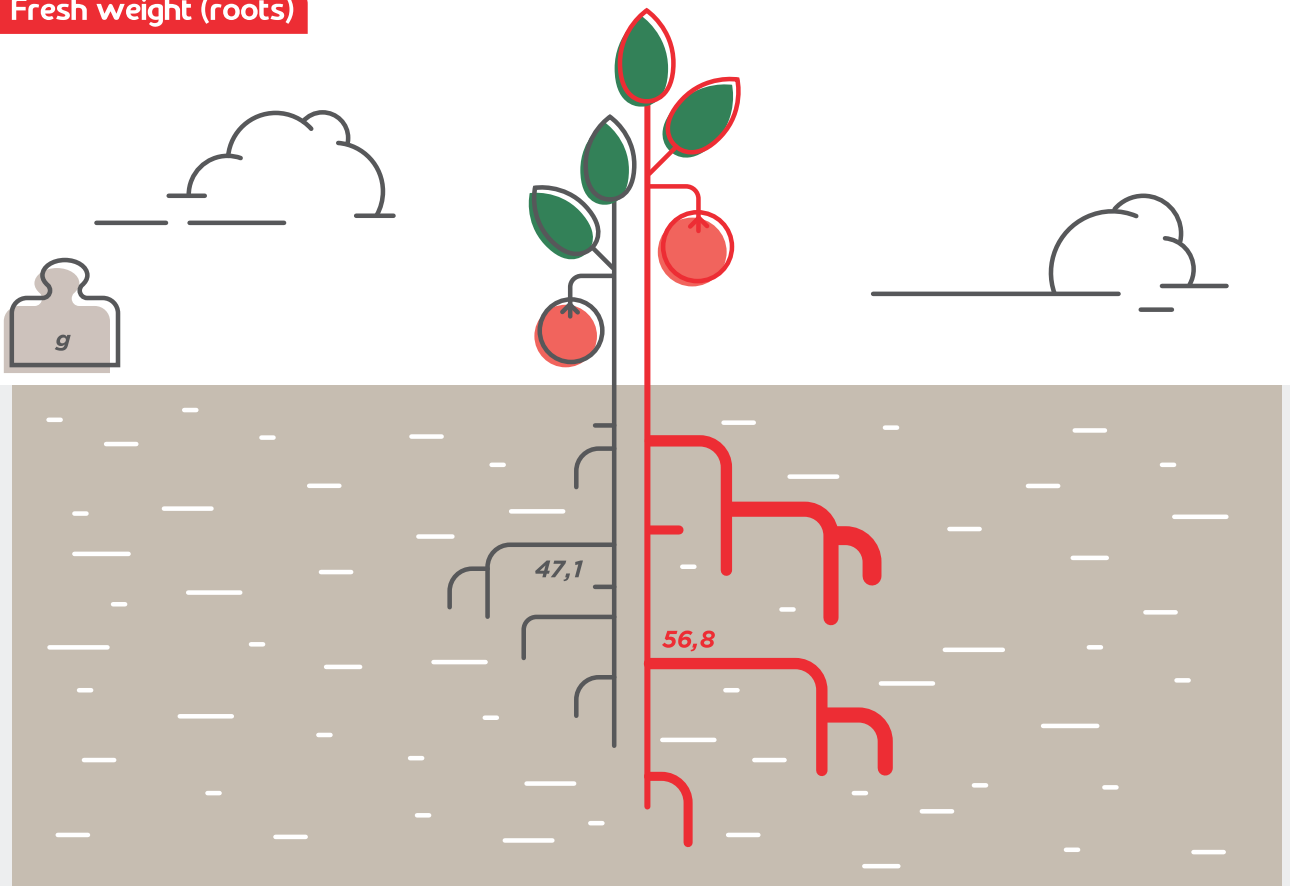


FIG 4 - Average width and length of roots in the two compared treatments.

FIG 5 - Average fresh weight of roots in the two compared treatments.

Roots volume

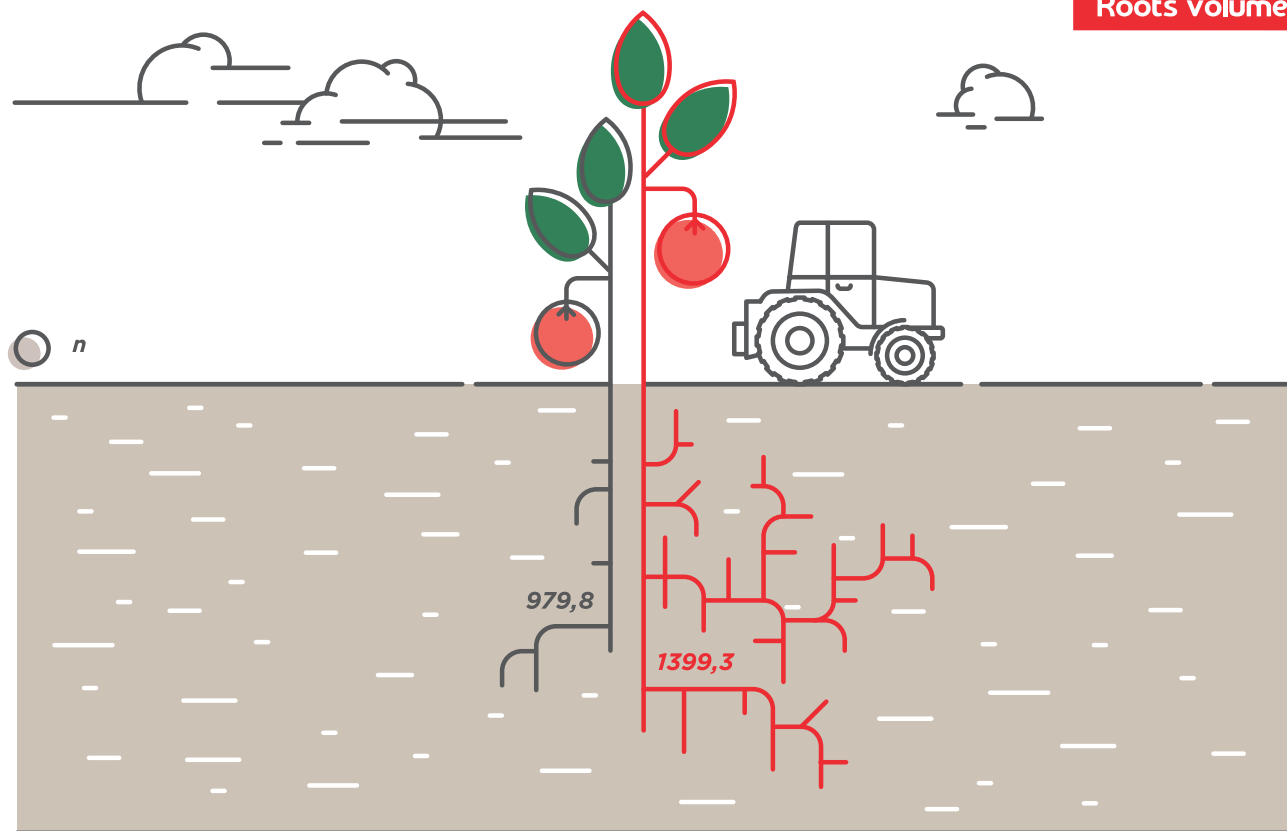


FIG 6 - Average roots volume in the two compared treatments.

Vigor L Rapido increases both the vegetative and reproductive development, as well as the roots growth. This proves that plants with a good hair-root balance have a better phytosanitary status. In fact, deeper and more voluminous roots are able to explore a wider portion of rhizosphere and to absorb nutrients in a more efficient way with a stronger resistance against biotic and abiotic stress.

Fruits size

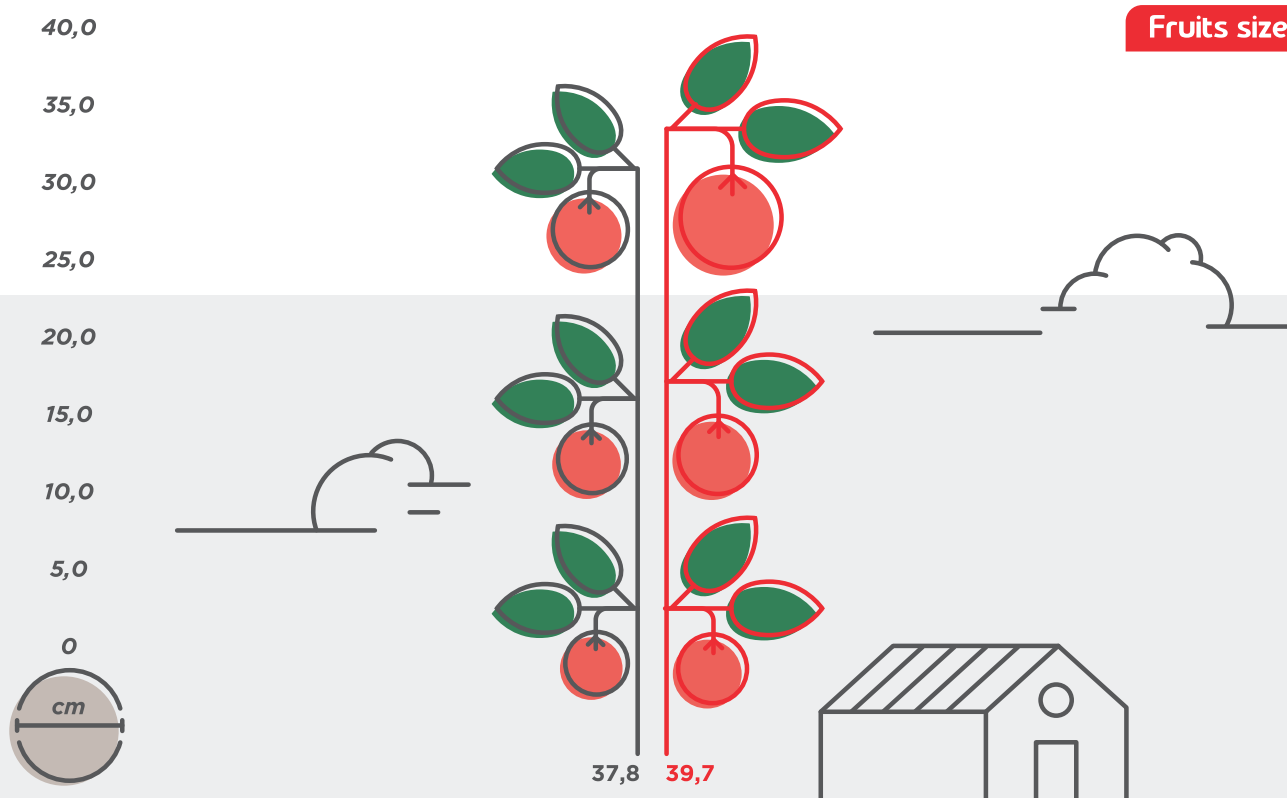


FIG 7 - Average fruits size in the two compared treatments.

Fresh weight (fruits)

Dry matter (fruits)

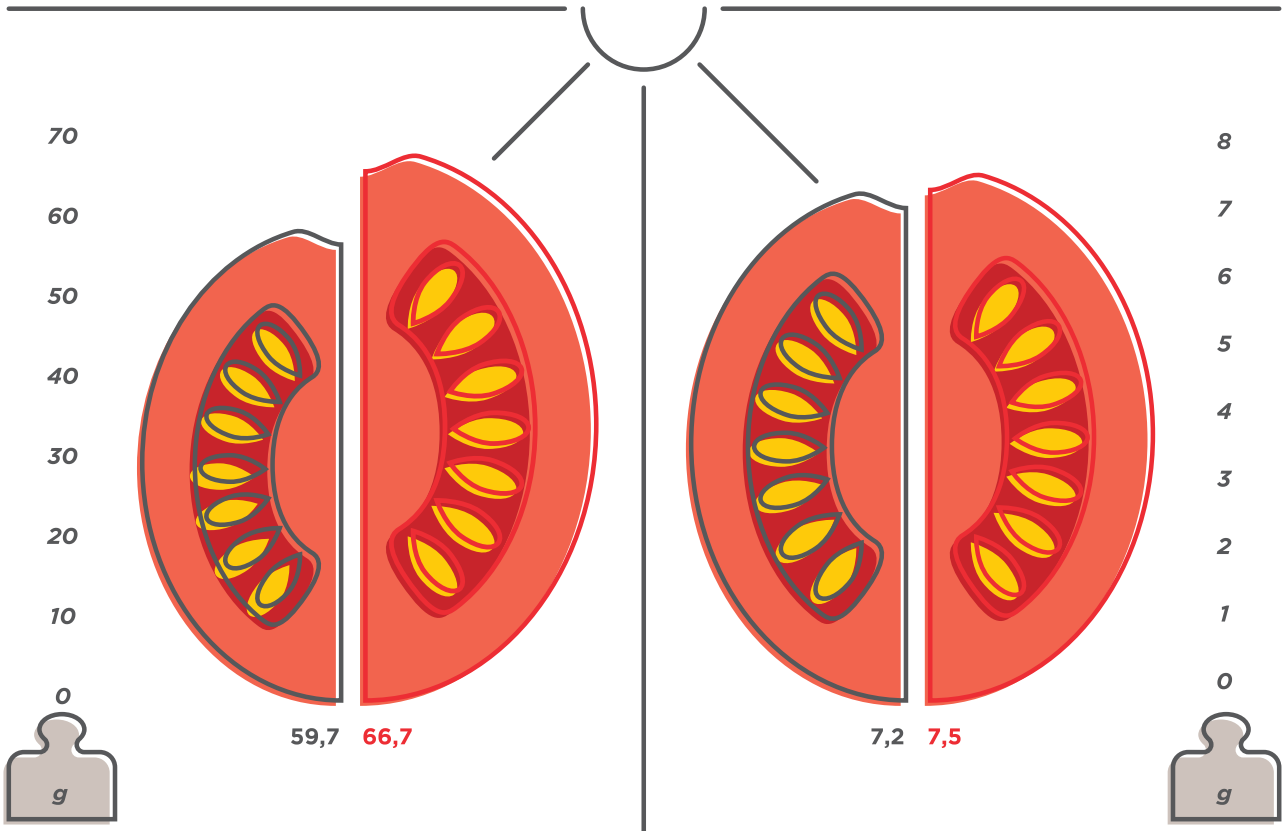


FIG 8 - Fresh weight of fruits in the two compared treatments.

FIG 9 - Dry matter of fruits in the two compared treatments

Yields

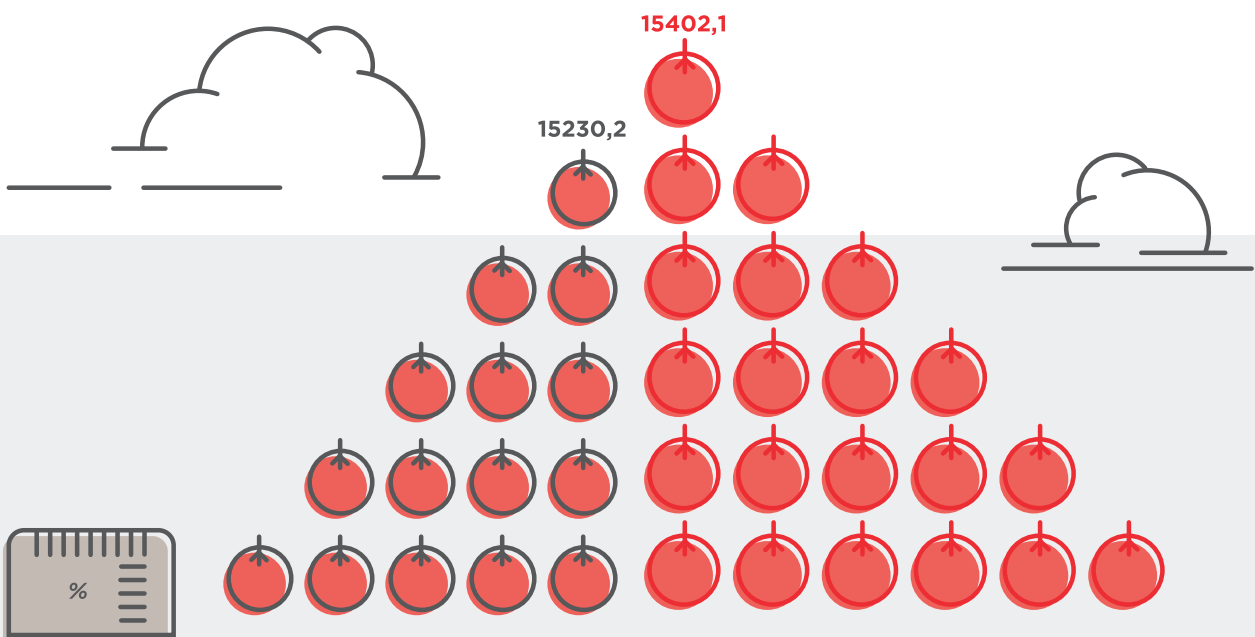


FIG 10 - Average yields in the two compared treatments.

Vigor L Rapido positively influences yields values, namely size, fresh weight and dry matter of fruits.



# Olive trees in open field



## MATERIALS AND METHODS

<b>Species</b>	Olea Europea var. Carolea		
<b>Experimental design</b>	Randomized complete block design		
<b>Duration</b>	190 days		
<b>Temperature</b>	18-20-24 °C	<b>Average temperature</b>	21 °C
<b>Relative humidity</b>	53-42-58%	<b>Average relative humidity</b>	51%
<b>Application</b>	foliar (atomizer) 1 3 5 l/ha		
<b>Treatments</b>	three: 03/05/2021 - 14/07/2021 - 01/10/2021		
<b>Main experimental treatment</b>	Vigor L Rapido and Control		

## Yields per plant

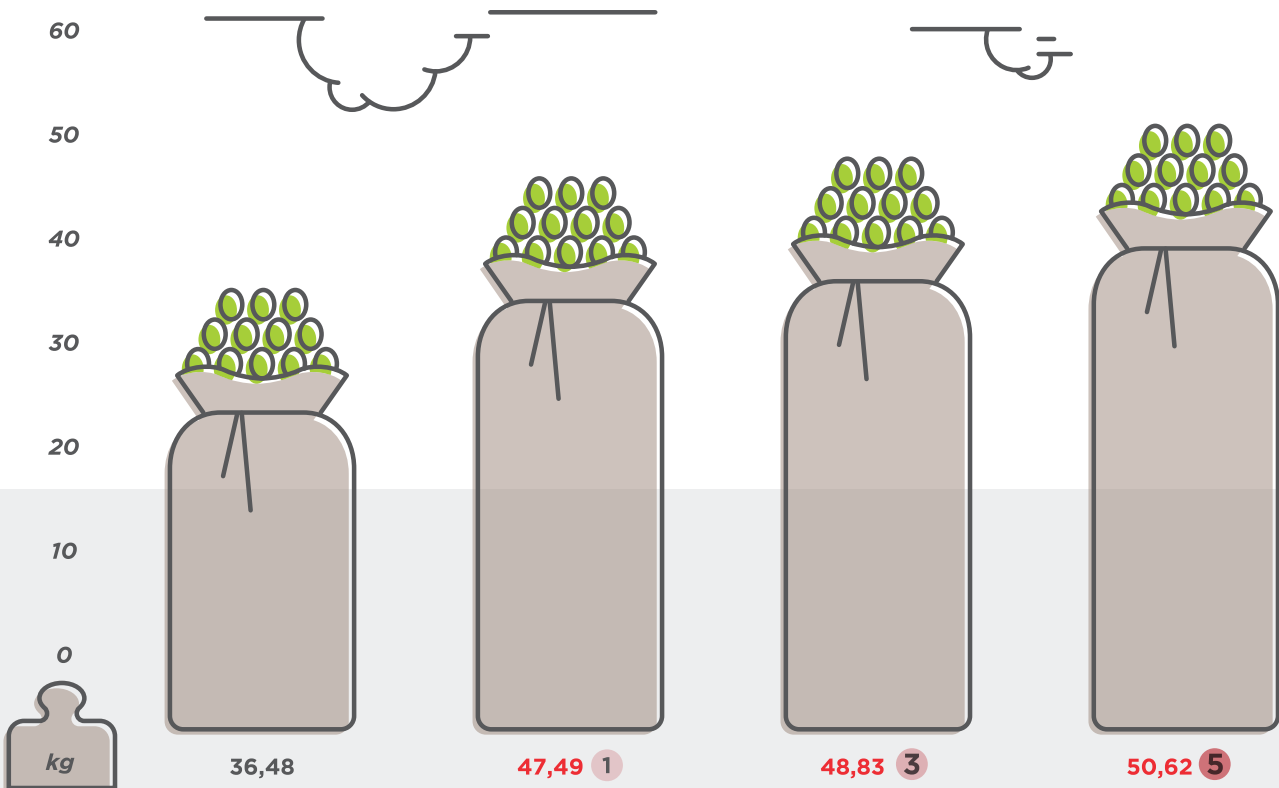
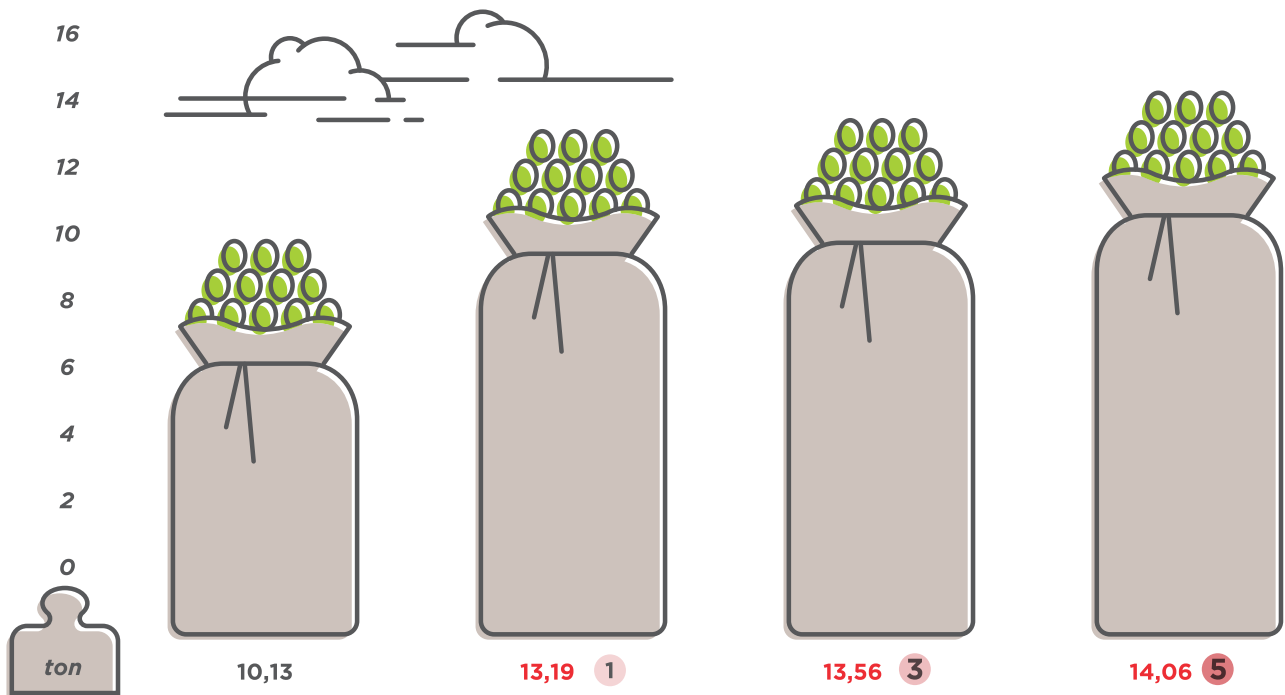


FIG 1 - Yields per plant in the different compared treatments.

The use of Vigor L Rapido results in increased yields per plant (kg) proportionally with the doses supplied, even at low dosage.

The seaweeds contained in the product favour a better absorption of soil substances after NPK fertilizations. Besides, they also promote a superior roots development and so more vigorous plants, with a better phytosanitary status.

## Yields per hectare



**FIG 2** - Yields per hectare in the different compared treatments.

Vigor L Rapido also increases the production per hectare (ton), thus confirming the results shown in the previous figure. In details, the growth promoting activity is proportionally effective even at low doses, also increasing the GSP.



## Legend



bottle



jerrycan



foliar application



fertigation



BIO allowed in organic agriculture



RS technology

