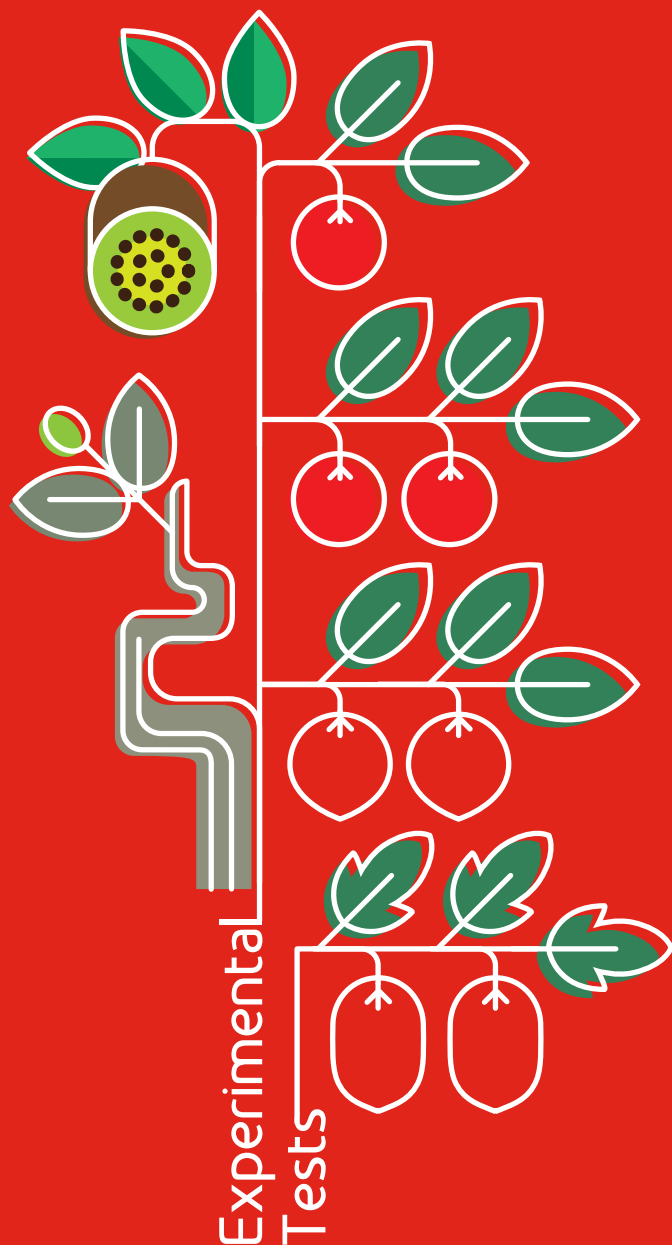


BETAMIN

ANTI-STRESS ACTION



hydro fert



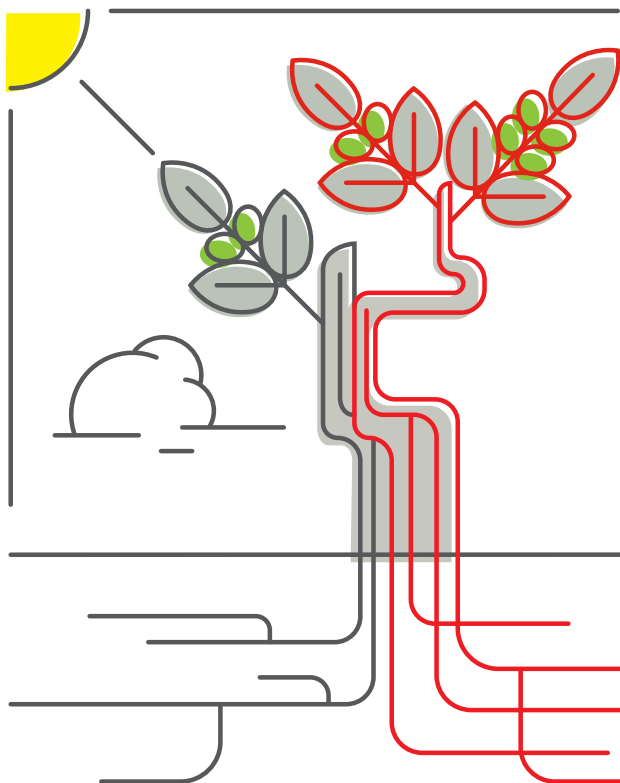
Betamin

1L	5 - 20 L	120 L	1000 L

Product with specific action
Liquid extract of alfalfa, seaweed and molasses. Allowed in organic agriculture

BENEFITS

- stronger resistance against stress
- better vegetative and reproductive balance
- superior yields



Betamin is a product with specific action based on amino acids of plant origin with seaweeds, that improves both root and vegetative development of plants, besides the absorption of nutrients and the photosynthetic efficiency. The content of betaines increases the osmotic potential of plant cells and reduces the abiotic stress, thus improving yields in terms of quality and quantity. Its repeated application enhances dry matter of fruits and plants. Betamin is highly effective in all the phenological phases of development, always guaranteeing the vegetal and reproductive balance.

Stronger anti-stress effect, better vegetative and reproductive balance

Betamin is a biostimulant conceived to support plants during all growth stages as well as during abiotic stress conditions. The betaines inside help to maintain cells water balance, supporting the plants photosynthetic activity and the tissues' function, even under unfavorable conditions. Such anti-stress effect results in a better vegetative development, with an increased plants vigor and a more efficient root system. Besides, the improvement of crops physiological status boosts the reproductive development, with better yields in terms of quantity and quality.



Olive trees



MATERIALS AND METHODS

Species	<i>Olea Europea</i> var. <i>Carolea</i>
Experimental design	Fully randomized blocks
Test Duration	31 weeks: 01/04/2025 (start of trial) and 10/11/2025 (end of trial)
Temperature	According to the climate trend in the countryside of Mirto Crosia (IT)
Relative humidity	According to the climate trend in the countryside of Mirto Crosia (IT)
Light	Typical of the trial period
Method of administration	Foliar application
Compared treatments	Control ; Betamin (3 ml/l) + Activeg (2 ml/l); Competitor (protein hydrolyzate of plant origin with biostimulant action)
Numbers of applications	3 (fruit setting, fruit enlargement/non-hardened pit, fruit enlargement)

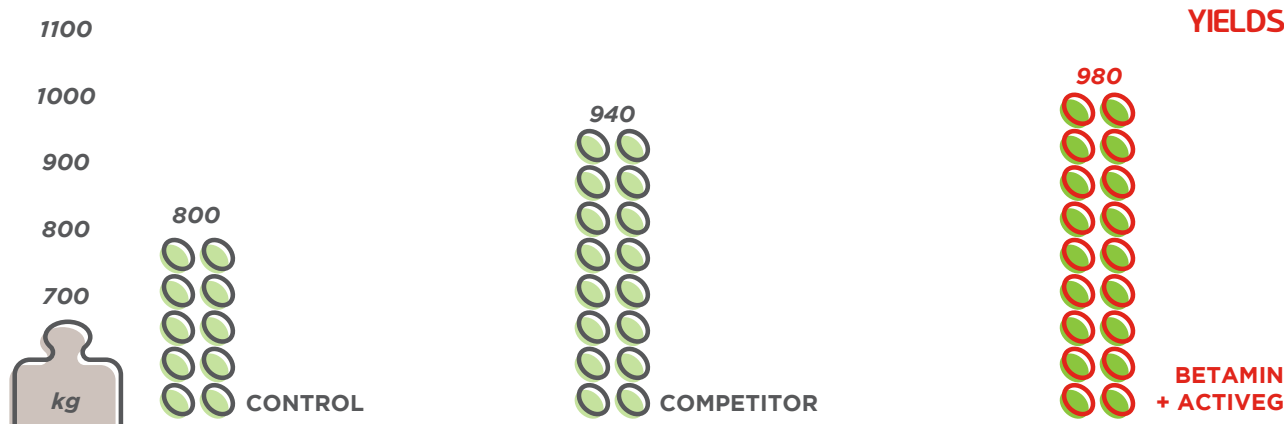


FIG 1 - Average production per 25 plants in three compared treatments.

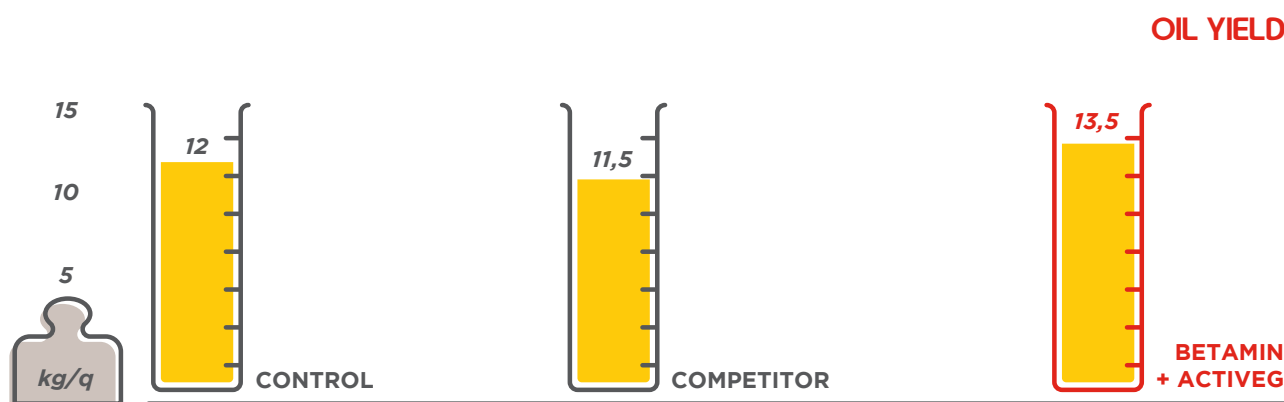


FIG 2 - Average oil yield per 25 plants in three compared treatments.

The use of Betamin results in better production performances, with augmentations of yields per plant, total yields and oil yield, compared to both the untreated control and competitor. Such results depend on the enhanced vegetative and reproductive development of crops, which promotes a better photosynthetic efficiency and a higher economic value of production (Gross Marketable Production, GMP).

Actinidia



MATERIALS AND METHODS

Species	<i>Actinidia</i> var. <i>Jintao</i> grafted on <i>Hayward</i>
Experimental design	Fully randomized blocks
Test Duration	194 days: 01/04/2025 (start of trial) and 12/10/2025 (end of trial)
Temperature	According to the climate trend in the countryside of Altomonte (IT)
Relative humidity	According to the climate trend in the countryside of Altomonte (IT)
Light	Typical of the trial period
Application	Foliar application and fertigation
Compared treatments	Control ; Betamin (3 ml/l) + Dynamic (3 ml/l);
Competitor	(protein hydrolyzate of plant origin with biostimulant action)
Numbers of applications	5 (vegetative growth, pre-flowering, fruit setting, post-fruit setting and fruit growth)

YIELDS

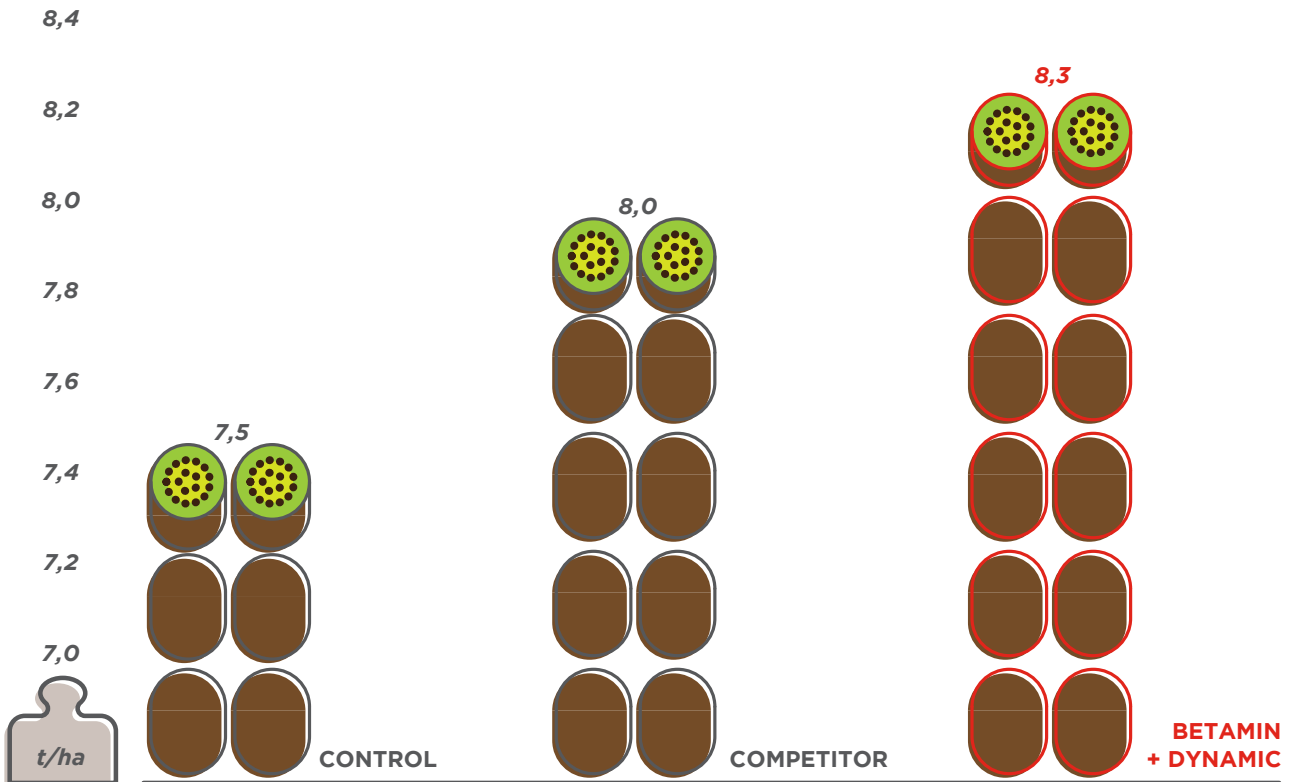


FIG 1 - Average yields in three compared treatments.

The combined application strategy of Betamin and Dynamic (foliar application + fertigation) increases yields compared to both the untreated control and competitor. The content of betaines in Betamin and amino acids in Dynamic supports the physiological response against abiotic stress, particularly against quick temperature drops, thus improving its tolerance and increasing GMP (Gross Marketable Production).

Tomato crops in greenhouse



MATERIALS AND METHODS

Species	<i>Solanum lycopersicum</i> var. Red Cherry
Experimental design	Strip-Block
Test Duration	80 days: 11/03/2025 (transplanting) and 30/05/2025 (end of trial)
Temperature	21 – 34 °C
Relative humidity	50 – 60%
Substratum	50% sandy, 50% quartzite
Method of administration	Fertigation
Numbers of applications	6 (plant rooting, first post-transplanting growth, vegetative growth, flowering, fruit setting and fruit growth)
Compared treatments	2 biostimulant applications Control C ; Betamin B (10 l/ha) x 2 salinity levels S0 =0 dS/cm and S1 =10 dS/cm

SPAD

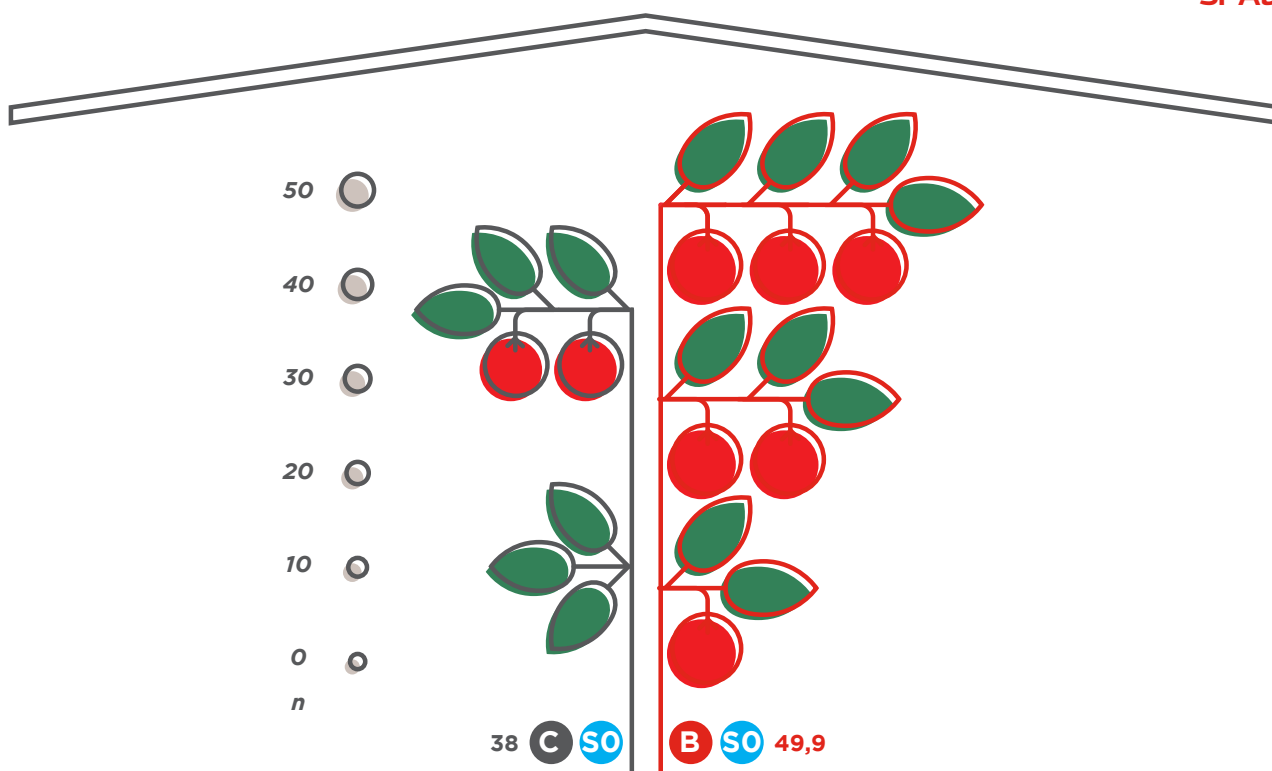


FIG 1 - Average SPAD values in two compared treatments.

The application of Betamin increases SPAD values compared to the control. Higher SPAD values prove a better plant's nutritional status, along with major efficiency in nitrogen assimilation and usage.

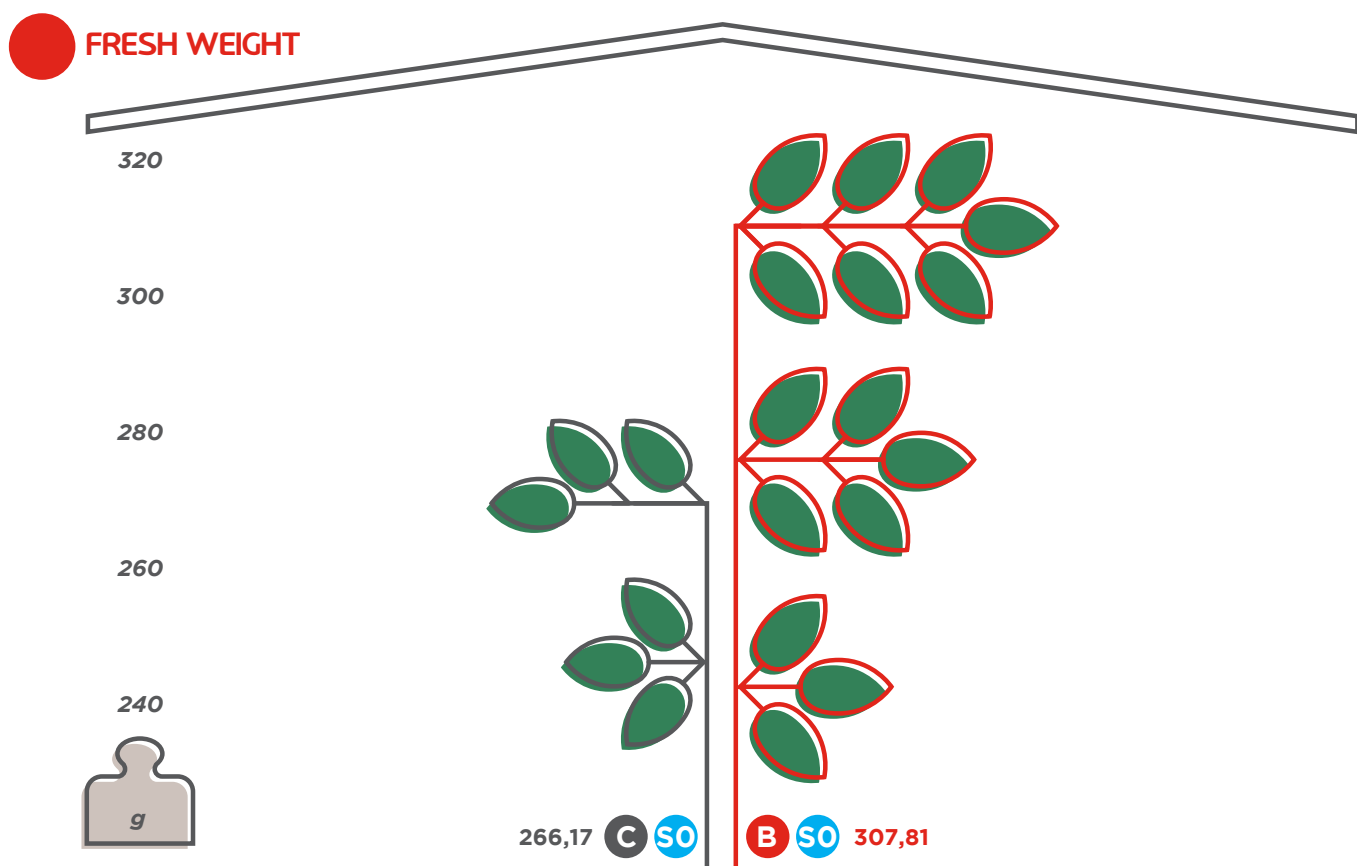


FIG 2 - Average fresh weight in two compared treatments.

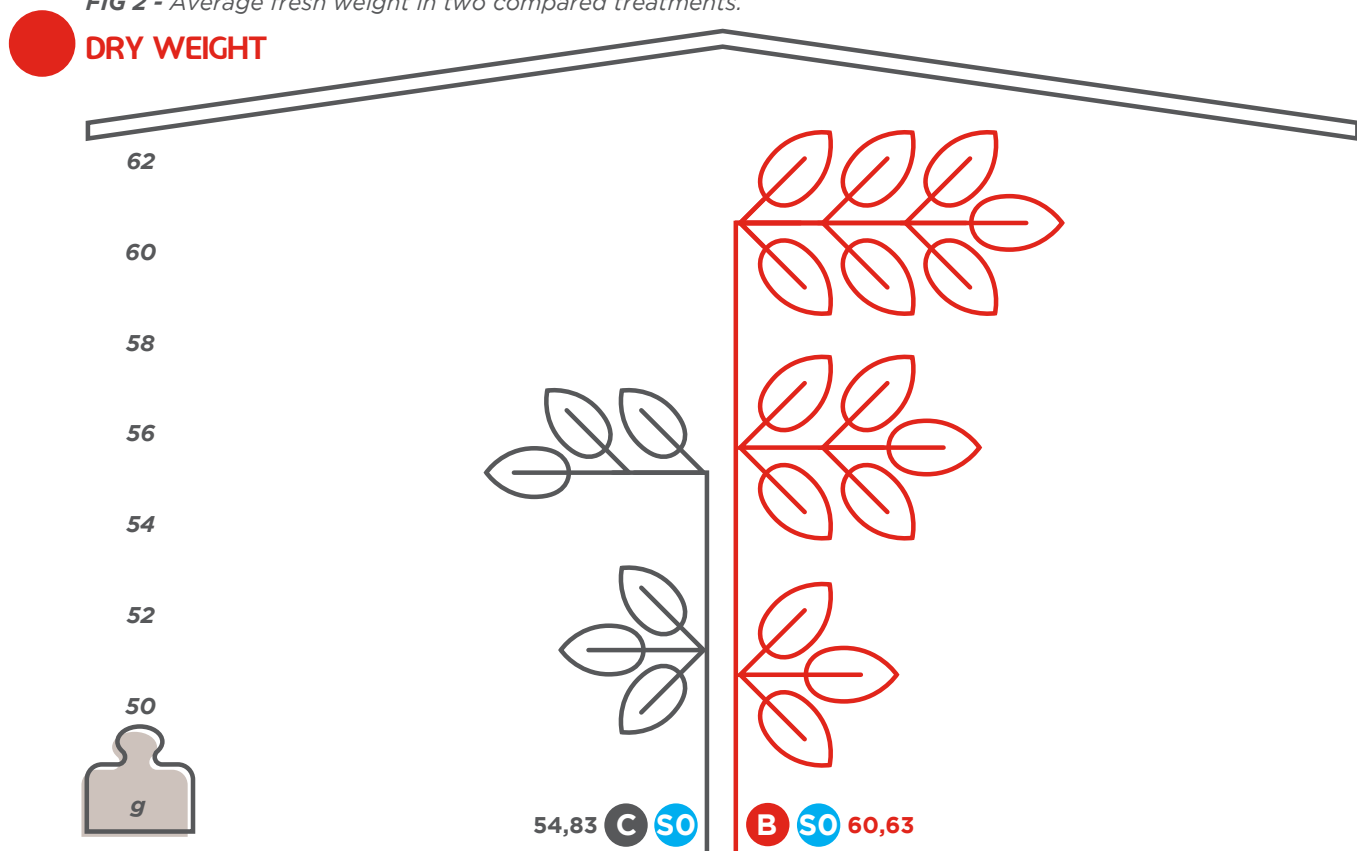


FIG 3 - Average dry weight in two compared treatments.

Betamin increases both fresh and dry weight of tomato plants compared to the untreated ones, showing a better vegetative development. Such improvement is related to a higher photosynthetic efficiency, which favors a more vigorous growth and a bigger biomass accumulation.

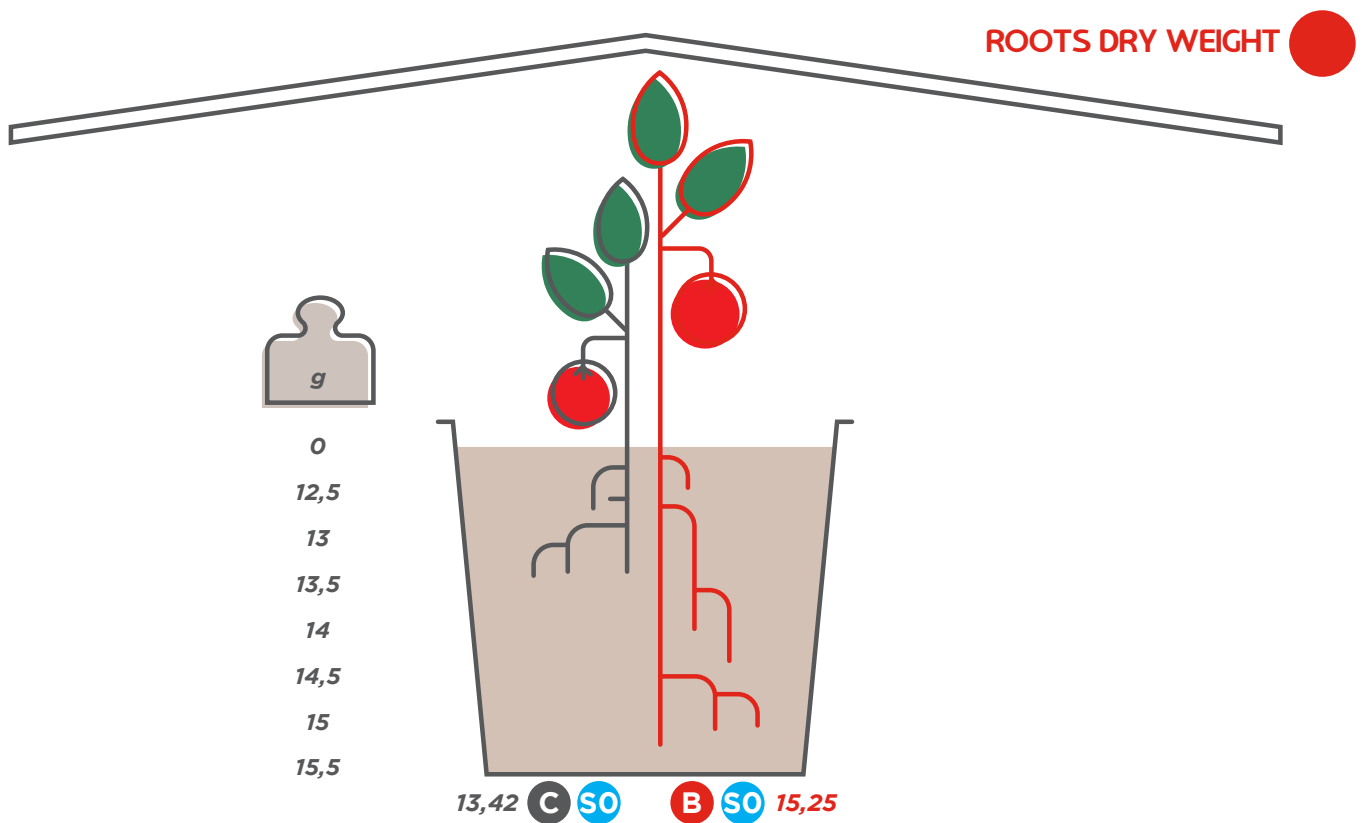


FIG 4 - Average dry weight of roots in two compared treatments.

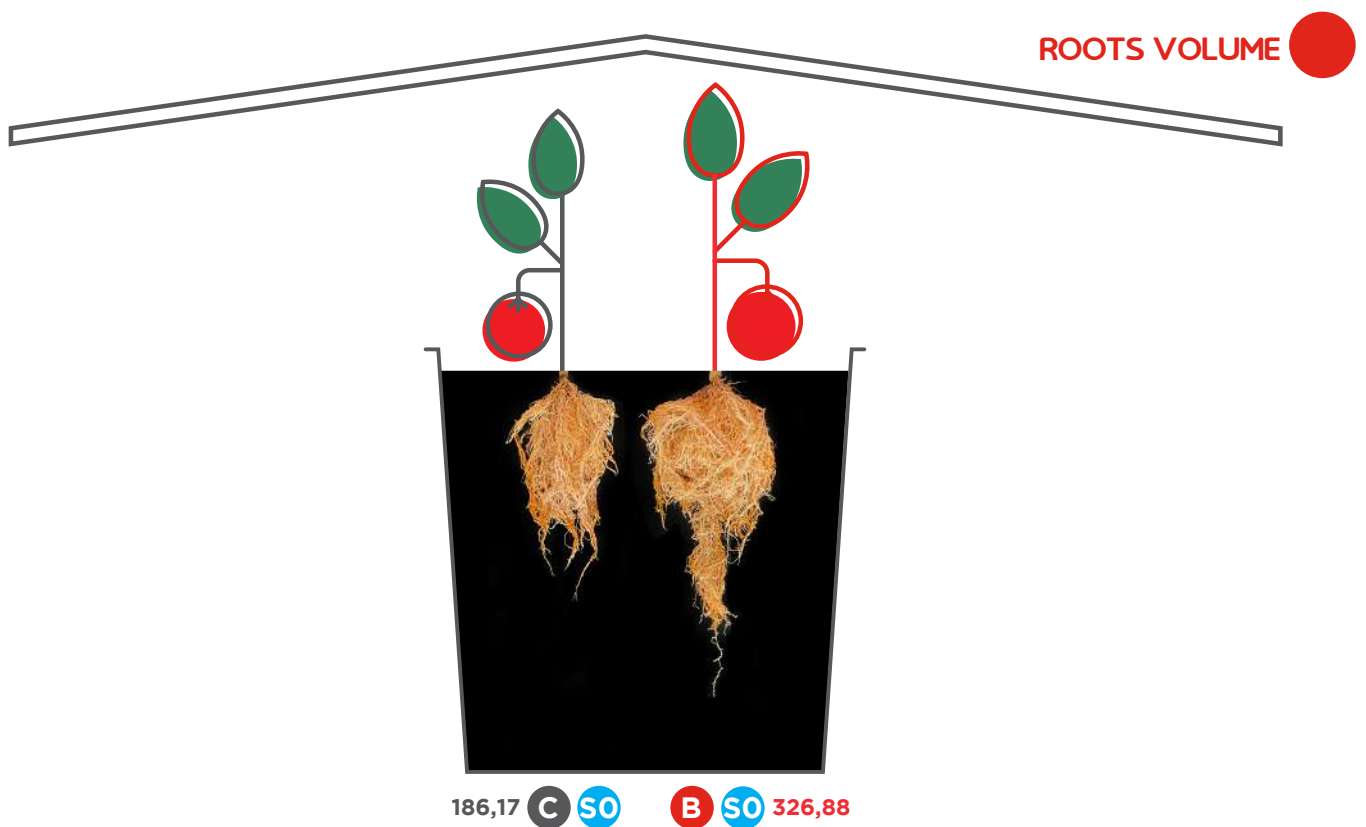


FIG 5 - Volume of roots in two compared treatments.

The use of Betamin improves both weight and volume of roots, resulting in a more developed and efficient root system. Bigger and more numerous roots lead to a better exploration of the rhizosphere, increasing plant's ability to intercept and use nutrients more effectively.

SPAD WITH STRESS

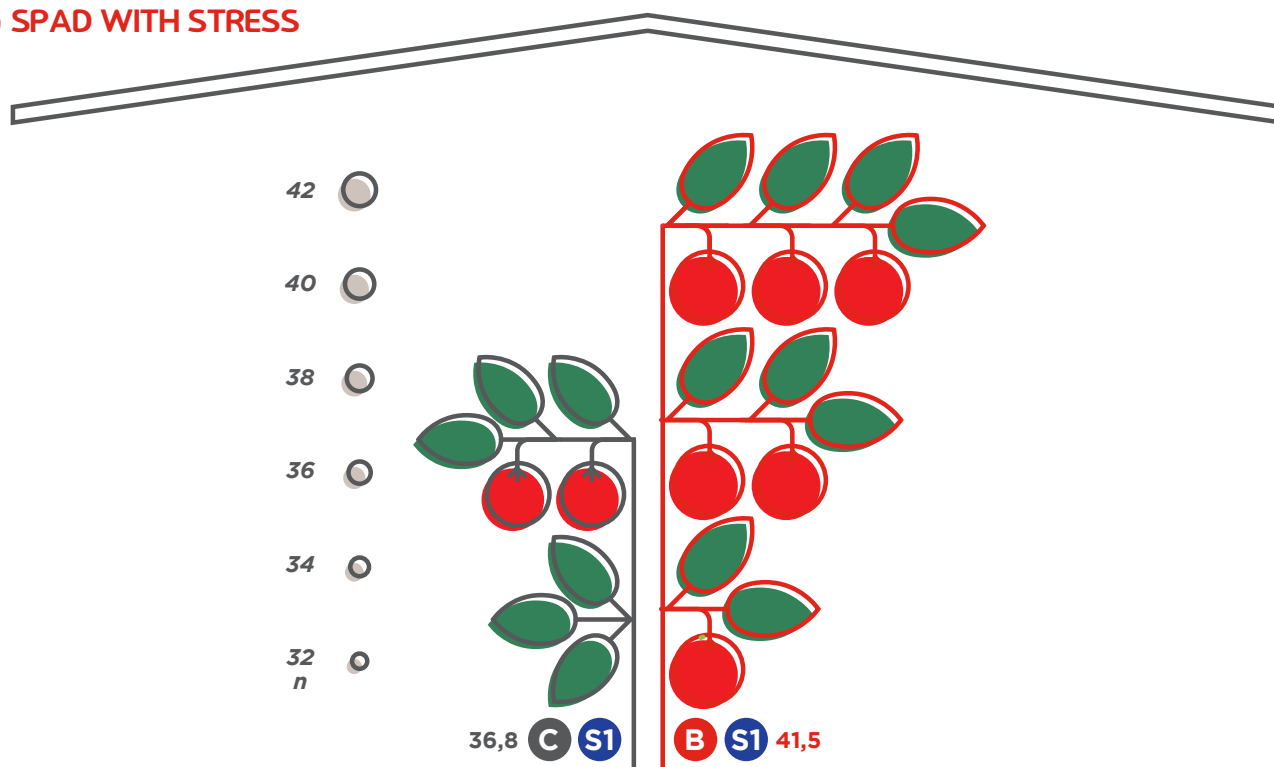


FIG 6 - Average SPAD values in two compared treatments under saline stress conditions.

FRESH WEIGHT WITH STRESS

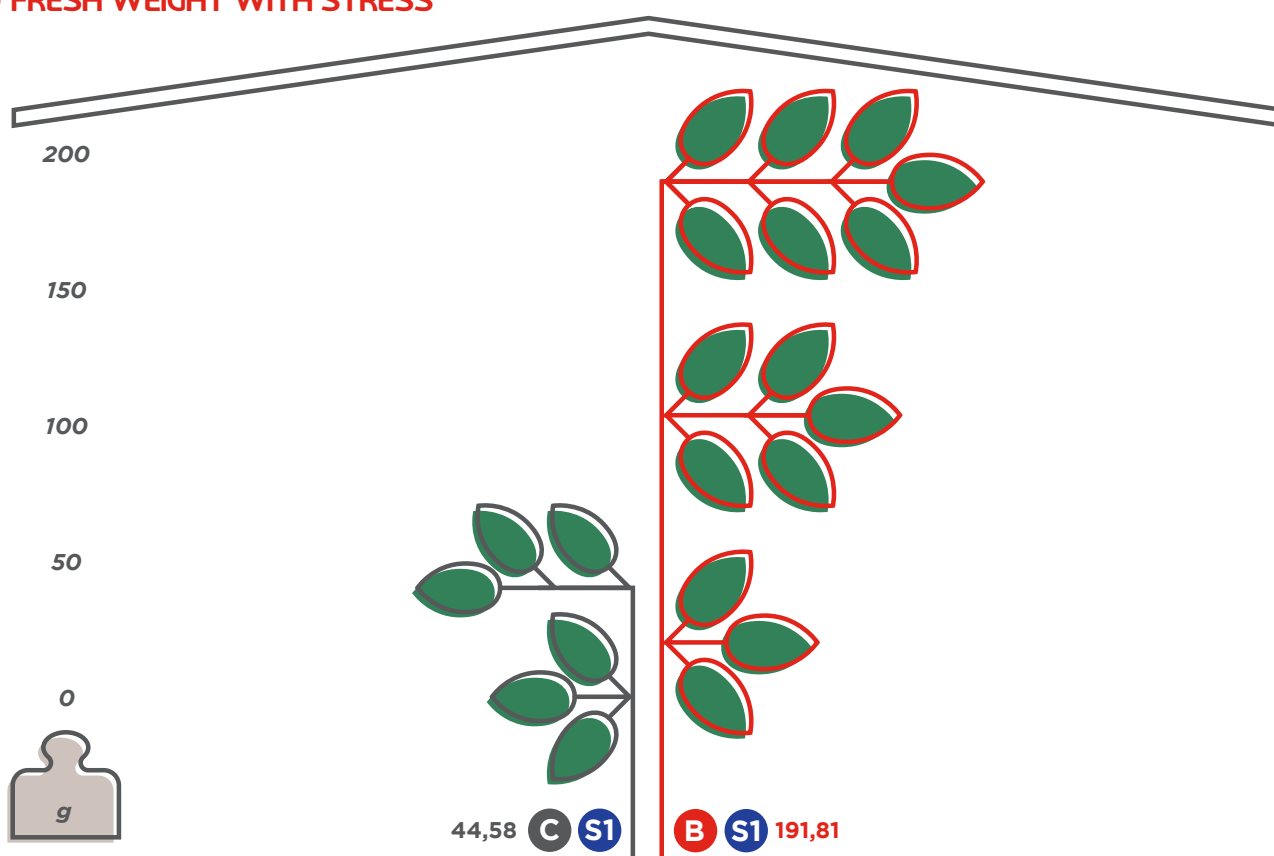


FIG 7 - Average fresh weight in two compared treatments under saline stress conditions.

Betamin increases both SPAD and fresh weight values even under stress conditions. Such effect depends on betaines accumulation in plant cells, thus helping to maintain water balance and stabilizing physiological processes, even under water, saline and thermal stress conditions.

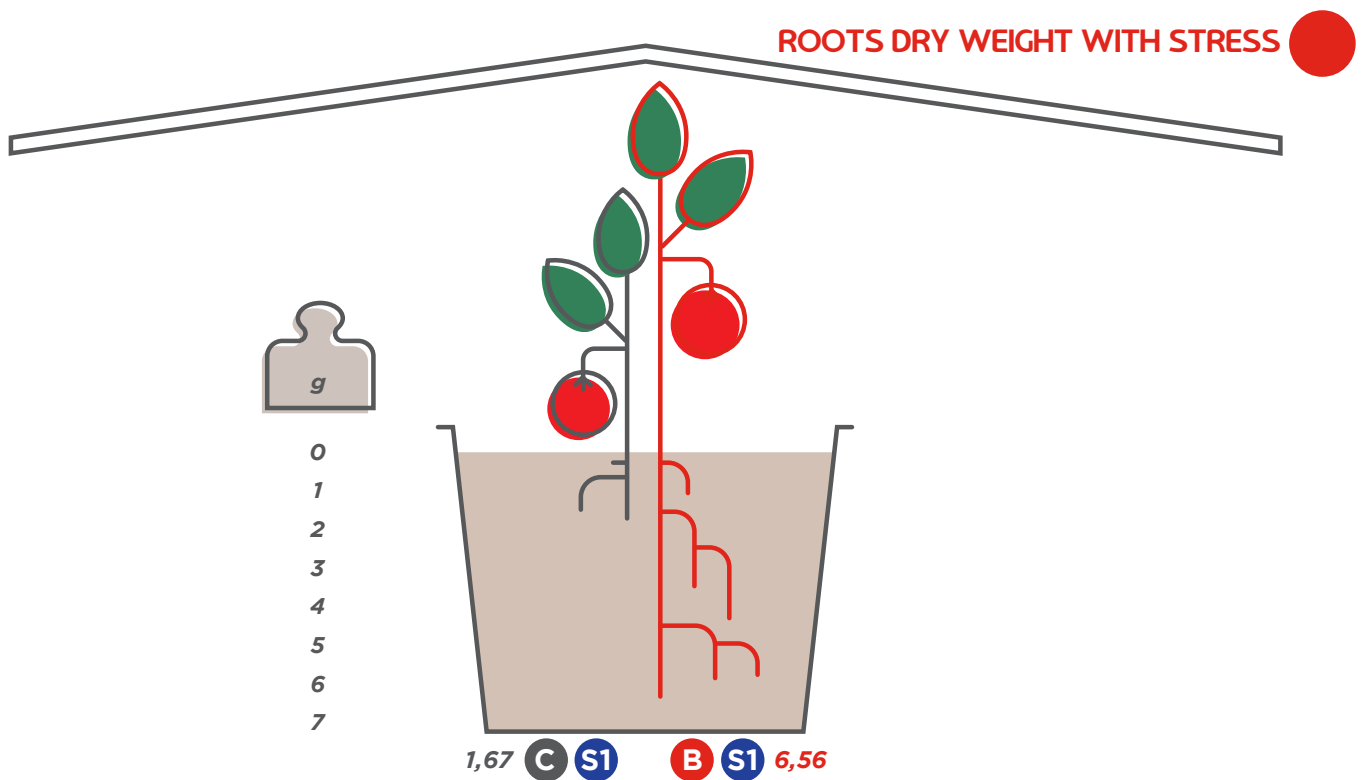


FIG 8 - Average dry weight of roots in two compared treatments under saline stress conditions.

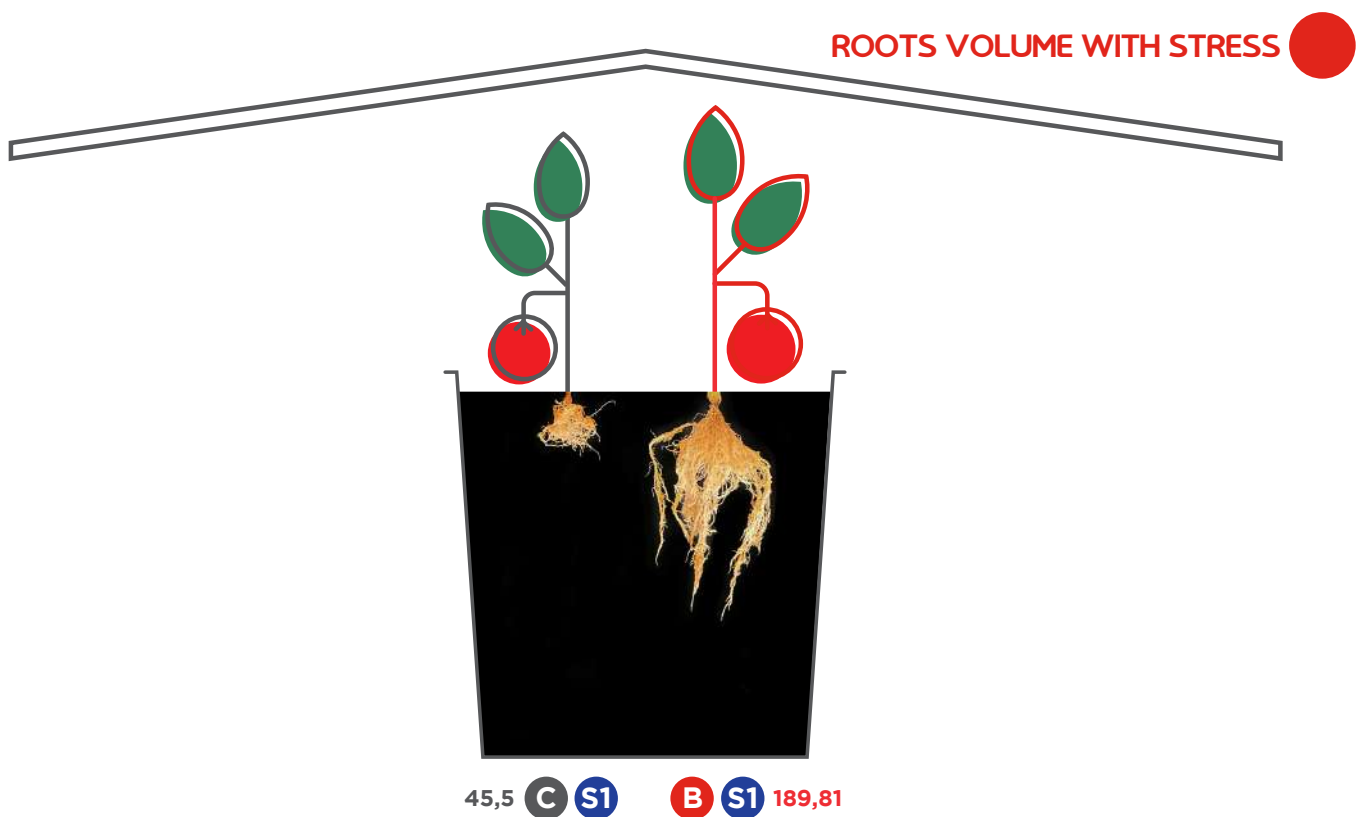


FIG 9 - Average volume of roots in two compared treatments under saline stress conditions.

The application of Betamin increases both weight and volume of roots, even under stress conditions. The betaines in the product tend to accumulate in plants cells, thus helping to keep the osmotic balance as well as promoting the water uptake and retention. Such mechanism supports the roots lengthening and the formation of new roots, also enhancing the nutrients absorption.

Tomato crops in open fields



MATERIALS AND METHODS

Species	<i>Solanum lycopersicum</i> var. <i>Dobler F1</i>
Experimental design	Fully randomized blocks
Test Duration	95 days: 28/04/2024 (transplanting) and 01/08/2024 (end of trial)
Temperature	According to the climate trend in the countryside of Eboli (IT)
Relative humidity	According to the climate trend in the countryside of Eboli (IT)
Light	Typical of the trial period
Application	Foliar application and fertigation
Compared treatments	
C Control	B Betamin (10 l/ha) + Activeg (2 l/ha) + GoCal (20 l/ha)
C1 Competitor 1 Products:	vitamins, amino acids, proteins, saponins and mineral fraction; carboxylic acids, calcium and magnesium; biomolecules extracted from plant raw materials; calcium complexed with lignosulfonate and amino acids.
C2 Competitor 2 Products:	short-chain organic acids complexed with calcium and magnesium; mycorrhizal fungi, rhizosphere bacteria and leonardite; seaweeds extract, calcium and magnesium complexed with carboxylic acids; calcium oxide
Numbers of applications	5 (3rd leaf unfolded, 7th leaf unfolded, full flowering, beginning of fruit growth and 30% ripening)

COLLAR DIAMETER

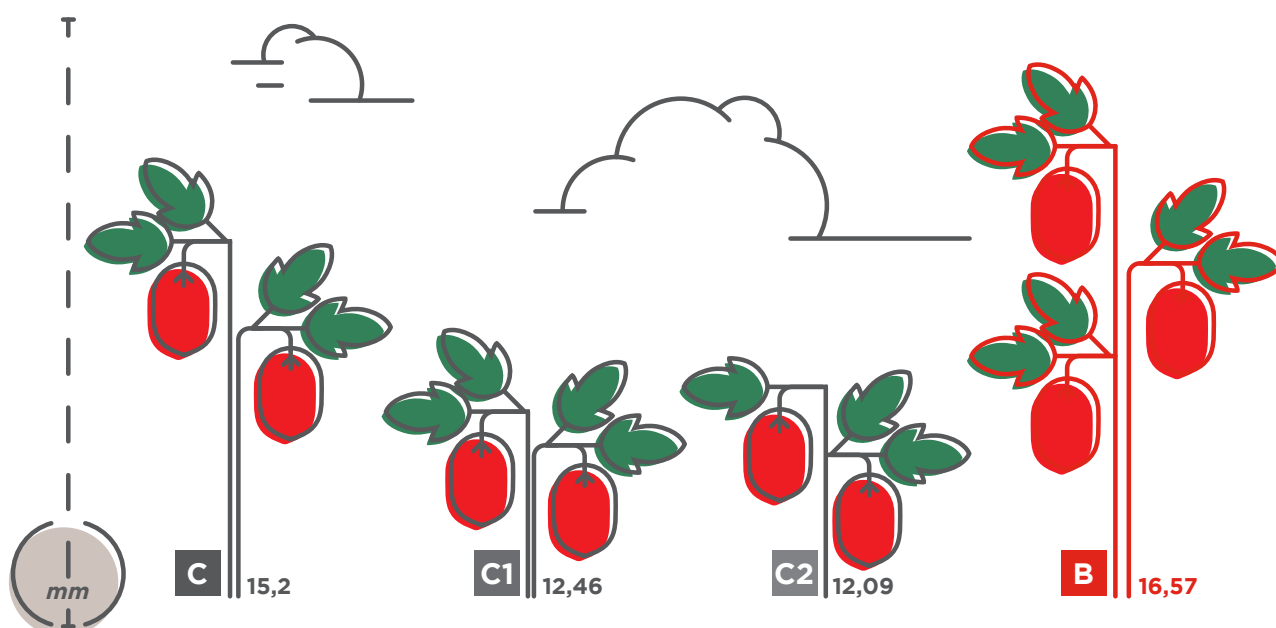


FIG 1 - Average collar diameter in four compared treatments.

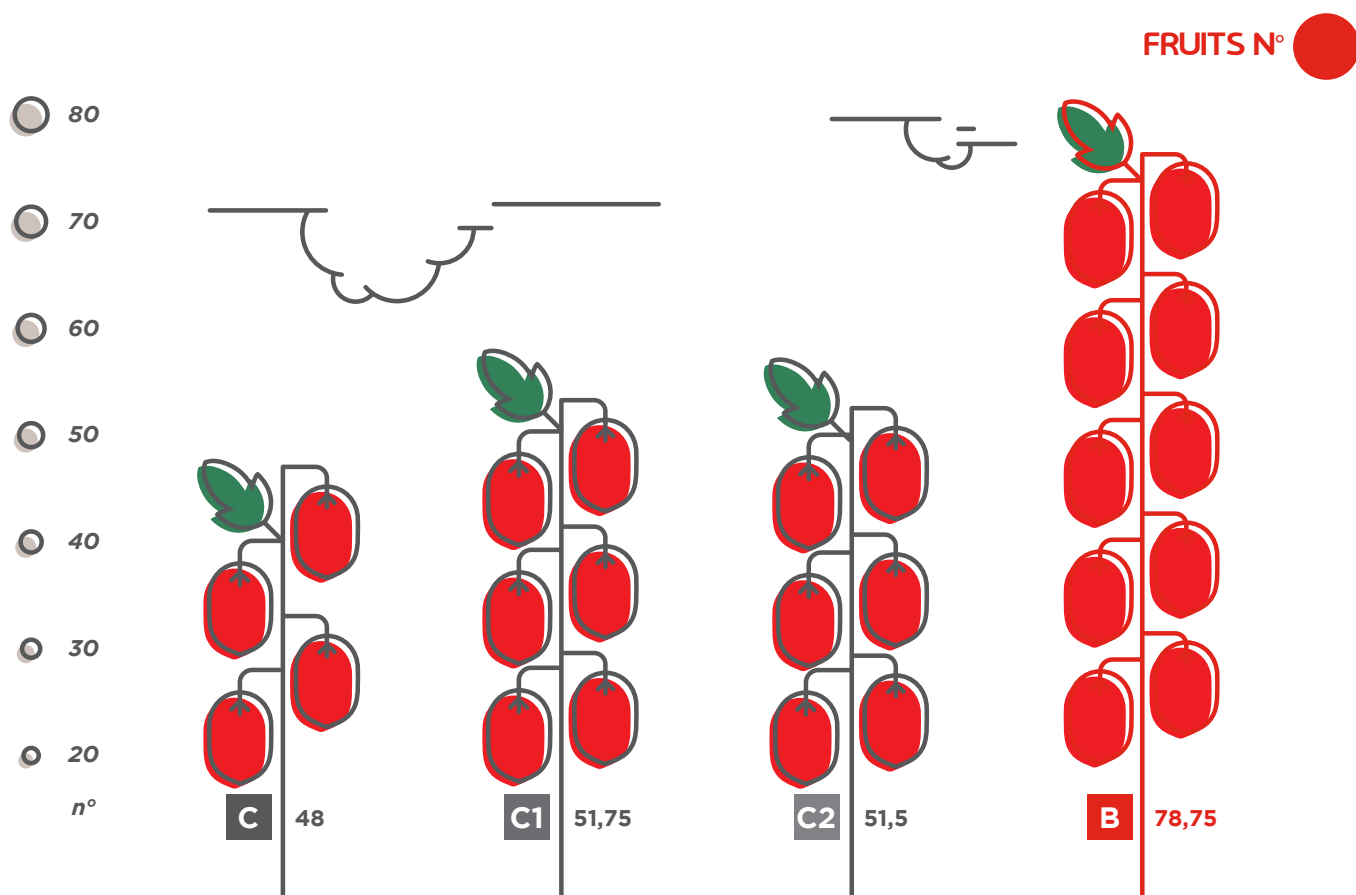


FIG 2 - Numbers of fruits per plants in four compared treatments.

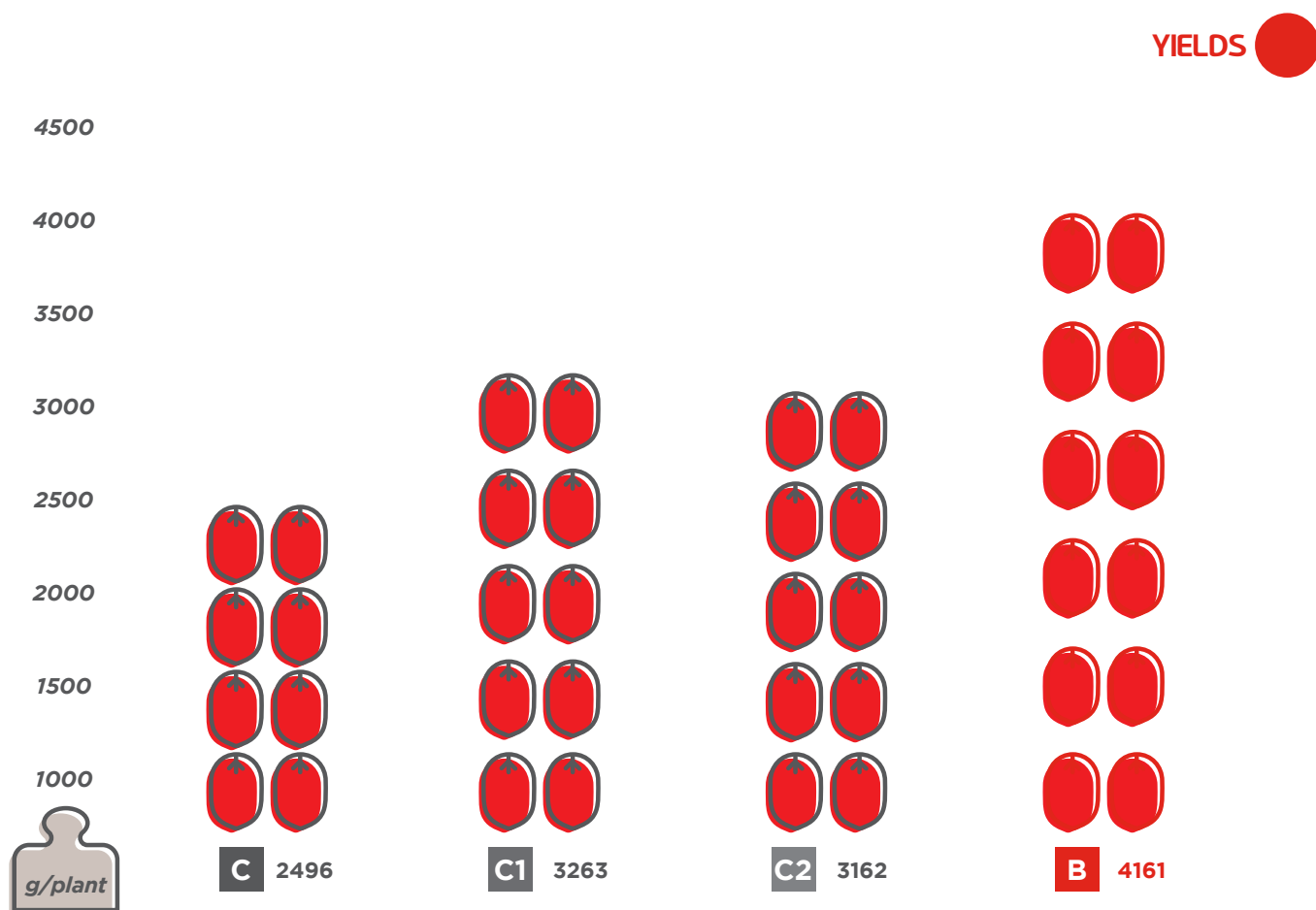


FIG 3 - Average yields in four compared treatments.

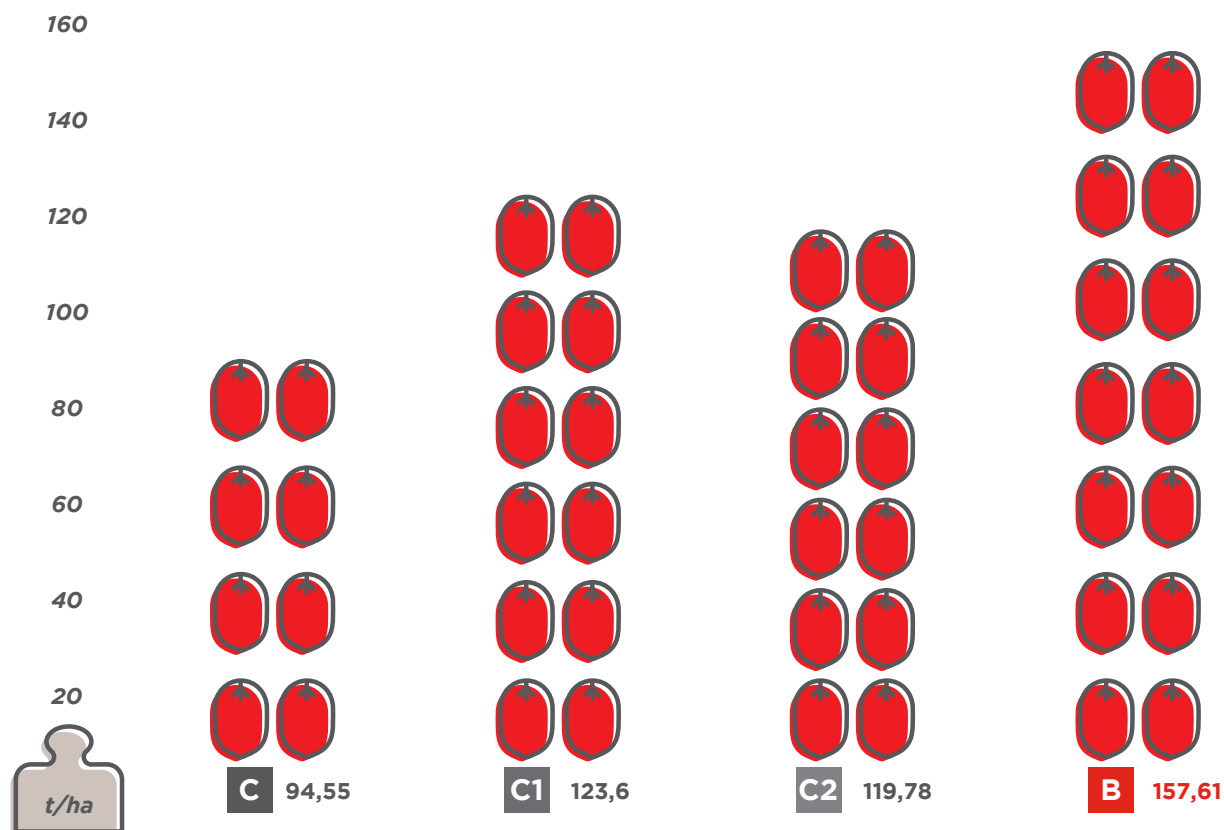


FIG 4 - Average GMP (Gross Marketable Production) in four compared treatments.

The combined application of Betamin, Activeg and GoCal results in an improvement of the main productive and qualitative crops parameters, leading to an increase in collar diameter, number of fruits per plant and total yields. Plants show an optimal vegetative-productive balance, characterized by high vegetative vigor enhanced by the use of Betamin and Activeg. Such combination stimulates the development of both plants' roots and its external part, without compromising physiological balance. This condition supports bigger and uniformly high-quality yields. Moreover, the application of GoCal improves fruits quality, which result to be healthier, more uniform and free from apical rot symptoms.



Tomato crops in open fields (with stress)



MATERIALS AND METHODS

Species	<i>Solanum lycopersicum</i> var. <i>Pizzutello delle Valli Ericine</i>
Experimental design	Fully randomized blocks
Test Duration	2 years: 1° cycle: 10/04/2021 (start of trial) and 10/09/2021 (end of trial); 2° cycle: 10/04/2022 (start of trial) and 10/09/2022 (end of trial)
Temperature	According to the climate trend in the countryside of Marsala (IT)
Relative humidity	According to the climate trend in the countryside Marsala (IT)
Light	Typical of the trial period
Application	Foliar
Compared treatments	Control ; Betamin (1 ml/l); Competitor (liquid extract of <i>Ascophyllum Nodosum</i>) (2,5 ml/l)
Numbers of applications	6 (1 every 15 days post-transplanting).

The trial was carried out under water stress conditions.

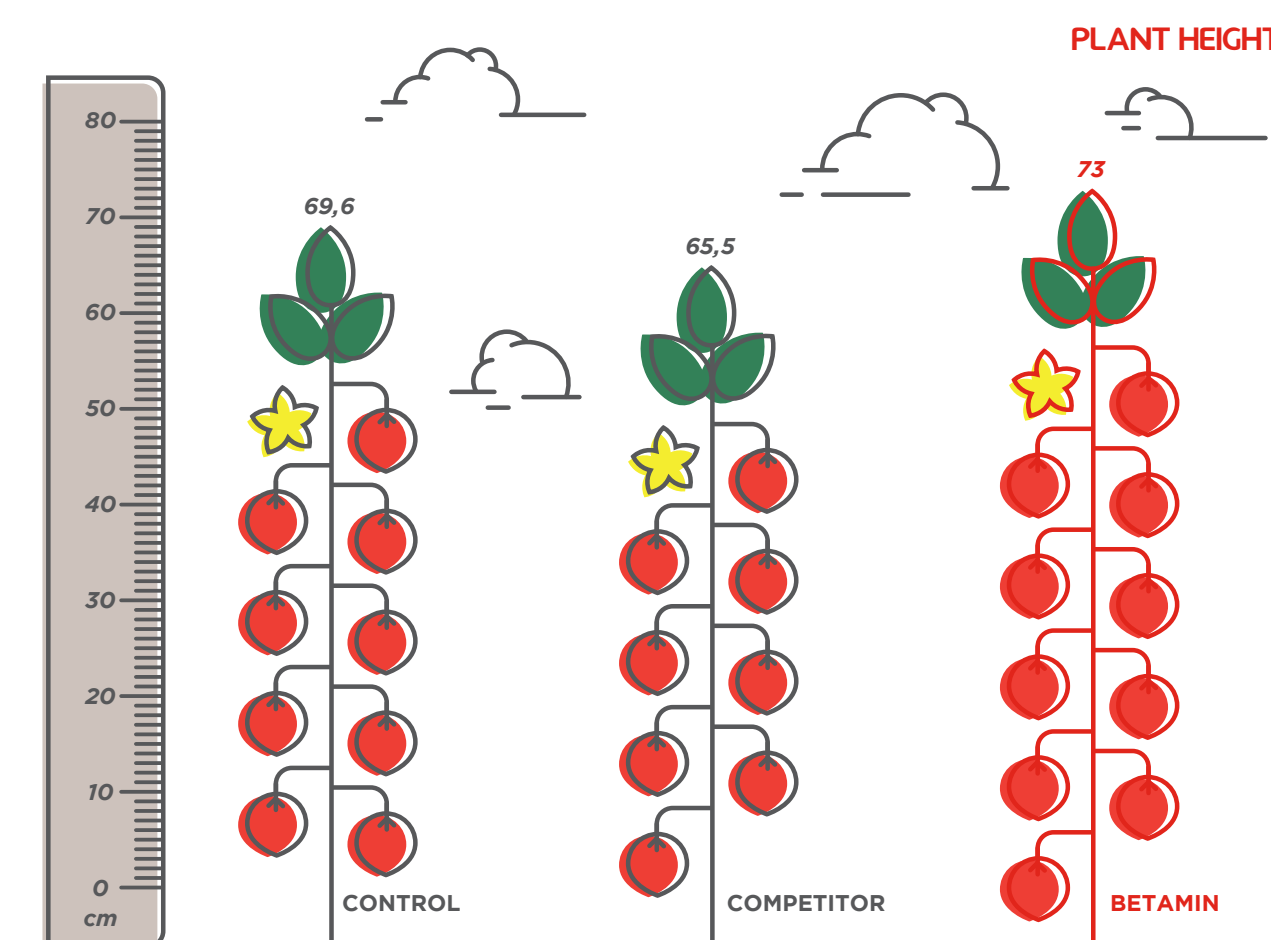


FIG 1 - Average plant height in three compared treatments.

RWC

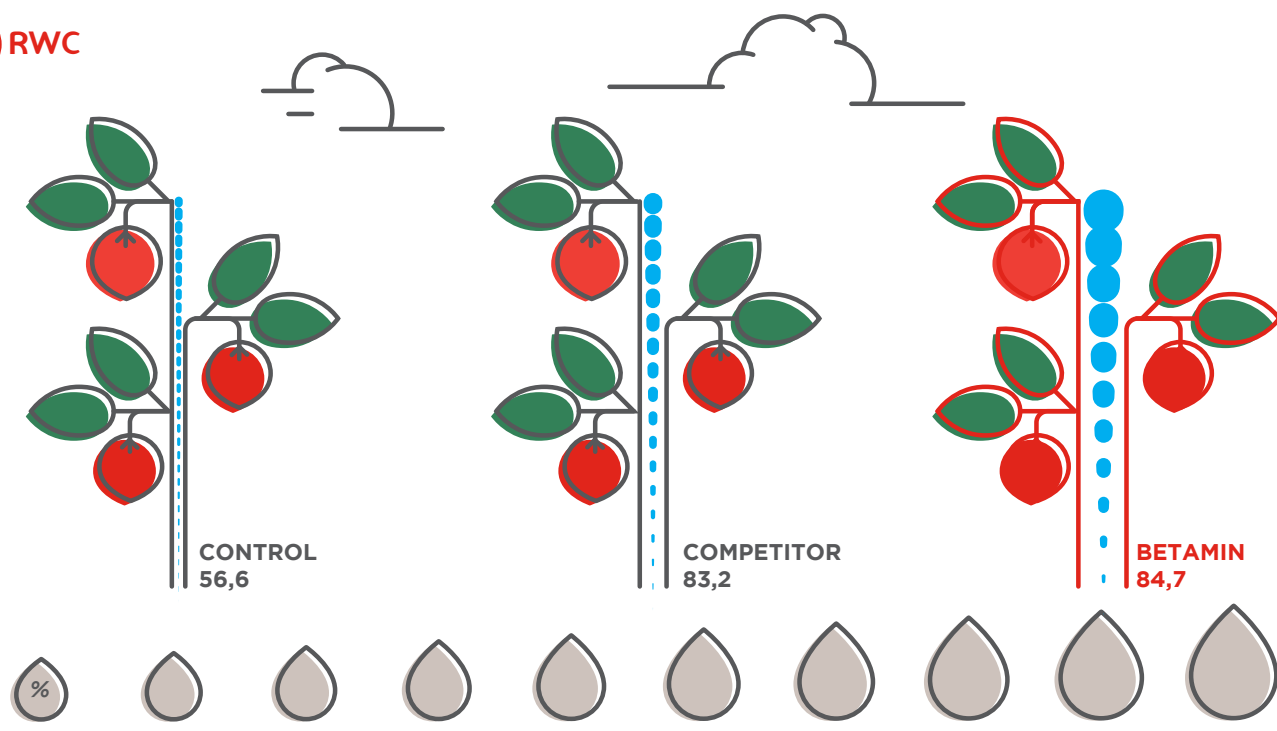


FIG 2 - RWC (Relative Water Content) in three compared treatments.

Betaines act as osmoprotectants, helping cells keep its water balance even under water stress conditions, thus supporting a more stable RWC (Relative Water Content) value by reducing water loss from plant tissues. A good turgor pressure supports cells expansion and the elongation of developing tissues, with a consequent improvement in vegetative development and plants height.

DRY MATTER

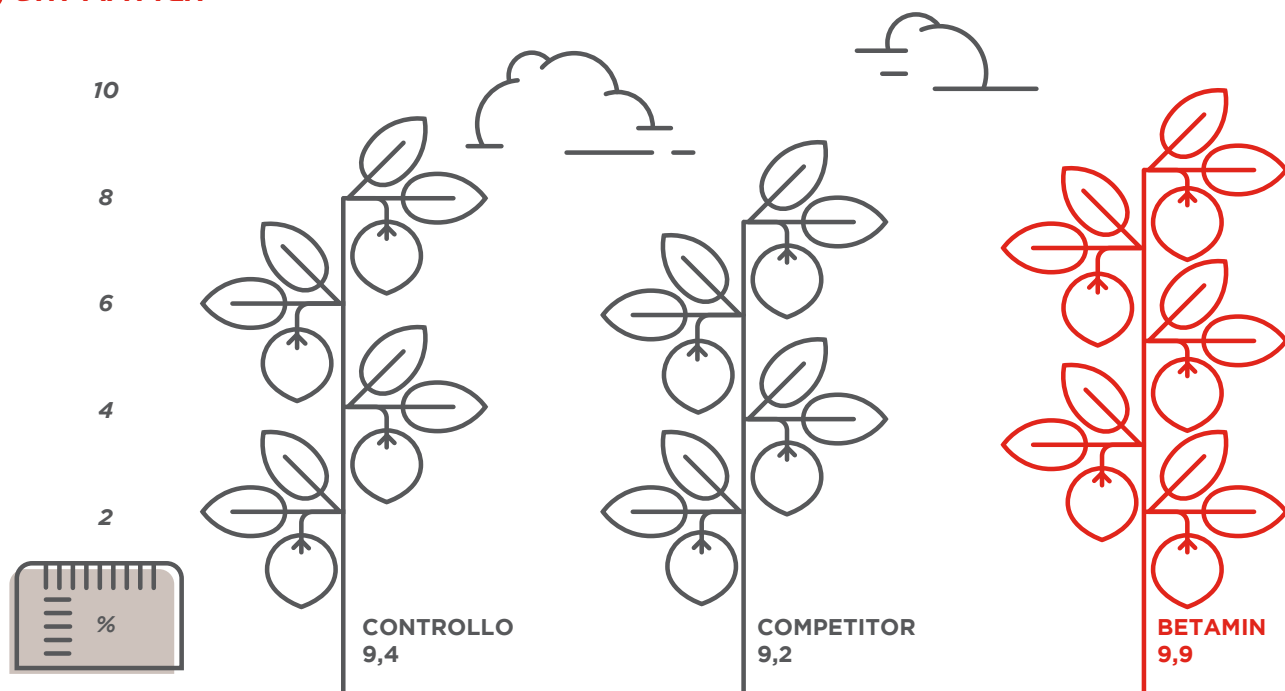


FIG 3 - Average dry matter in three compared treatments.

Betamin keeps an active photosynthetic activity even under stress conditions (drought, salinity and extreme temperatures), thus increasing photosynthetic efficiency and improving carbon fixation. This results in a bigger production and accumulation of photosynthates, leading to higher dry matter values or its better preservation, compared with untreated plants under stress conditions.

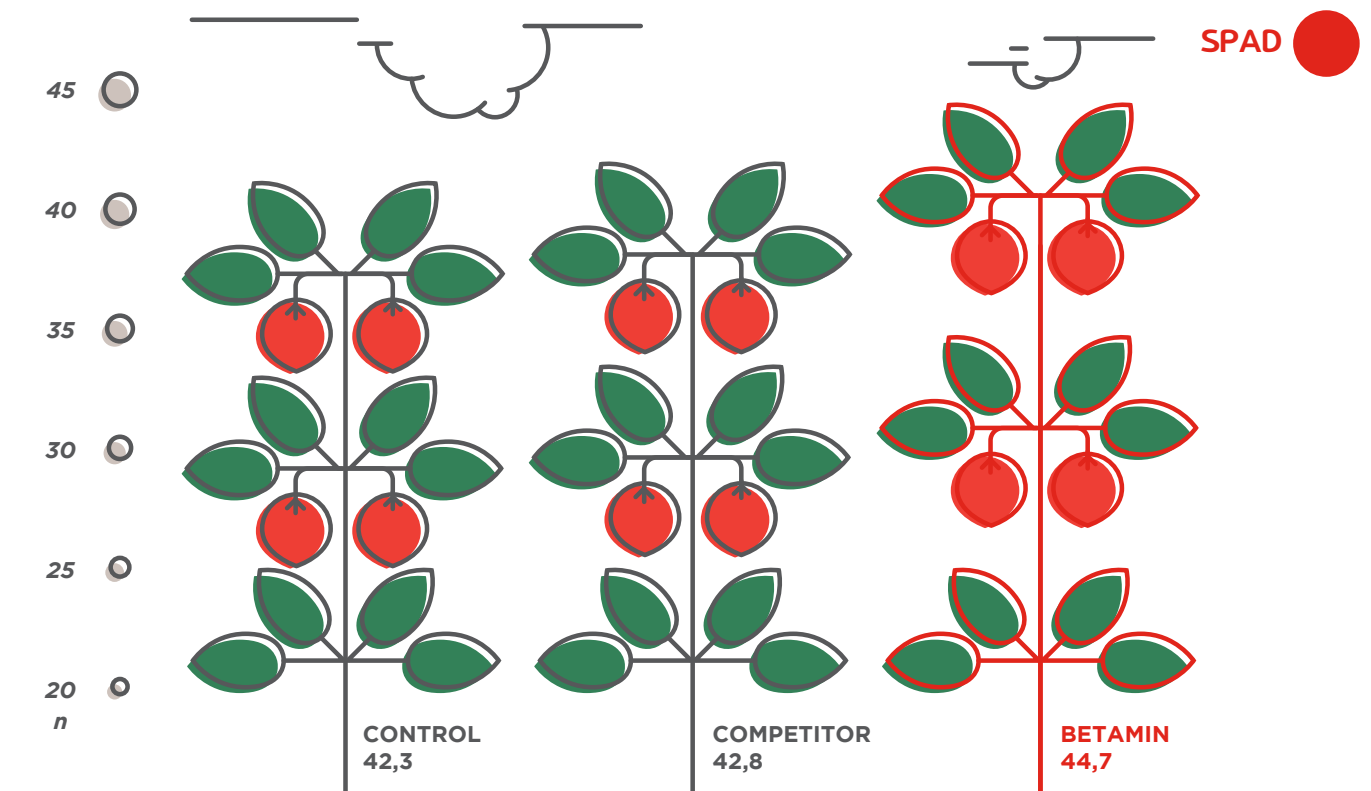
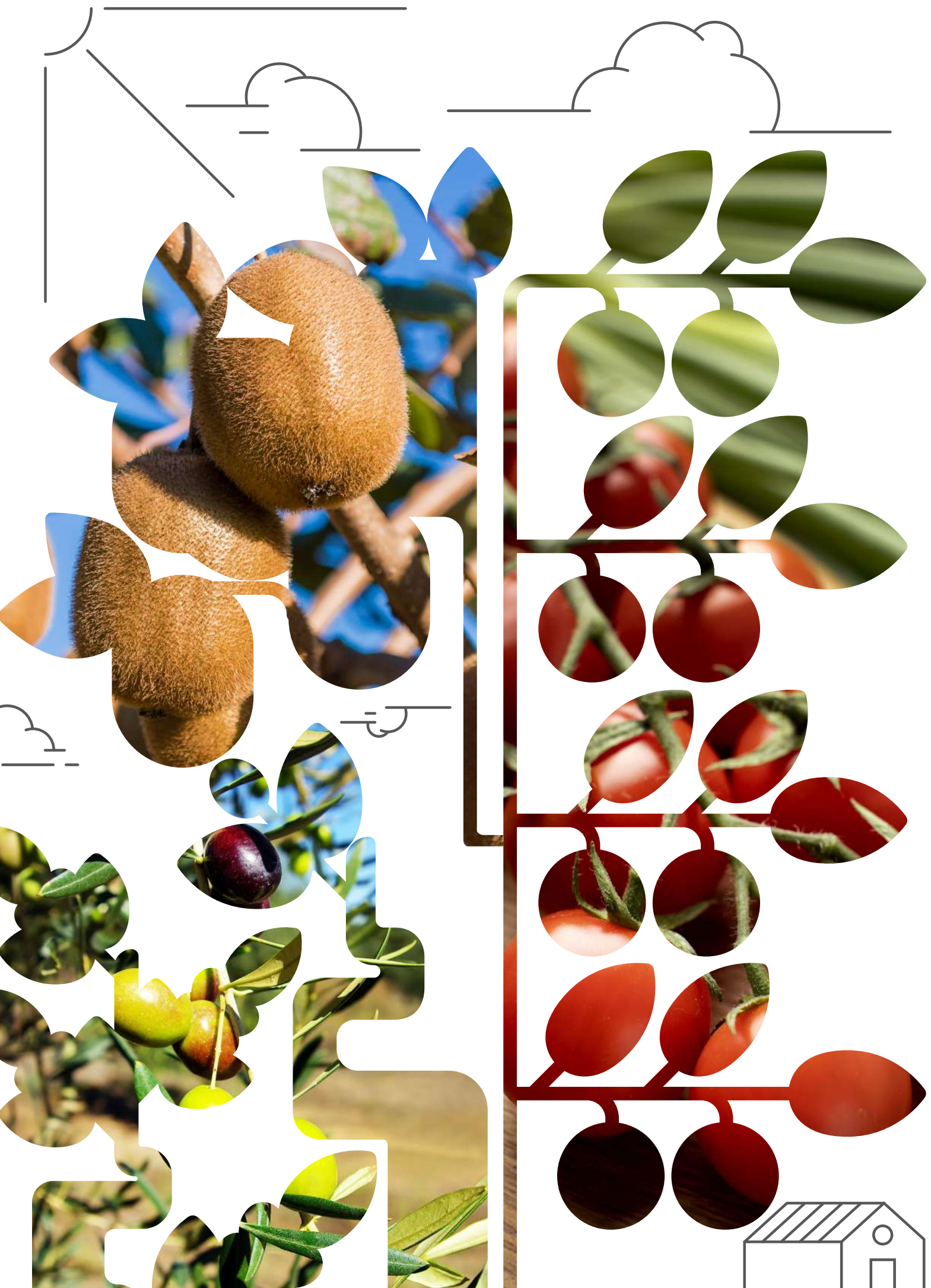


FIG 4 - Average SPAD values in three compared treatments.

Betamin keeps chlorophyll active and functional over a longer time, by reducing senescence and pigment degradation. As a result, leaves show higher and more stable SPAD values compared with untreated plants, even under abiotic stress conditions.





LEGEND



bottle



jerrycan



foliar application



fertigation



BIO allowed in organic agriculture



RS technology

