# FINAL REPORT SI24BT004IGS

## SI24BT004IGS ESSAY

# EVALUATION OF THE BIOSTIMULANT EFFECT OF PRODUCTS BASED ON MICROORGANISMS ON GRAPEVINE.

## YEAR 2024

| Promoter |
| --- |
|  |
| IGS PROJECT |

| Test Entity | | |
| --- | --- | --- |
| GROUP sicop | 15827314W ANA MARIA EUSEBIA ORRICO (R: B18546630) Firmado digitalmente por 15827314W ANA MARIA EUSEBIA ORRICO (R: B18546630) Fecha: 2024.12.19 10:50:27 +01'00' | **19/12/2024** |
| **SISTEMAS DE CONTROL DE PRODUCCIÓN, SL.** | **SIGNED: ANA ORRICO MARÍN Technical Director of SICOP** | **Date** |

**STUDY COMPLETION: 05/07/2024**

# INDEX

## SUMMARY AND CONCLUSIONS

This trial was carried out in a crop of Vinra (*Vitis vinifera*) white Victoria variety in a pot on 14/03/2024 and ended on 05/07/2024. 3 theses were established with 4 plots for each of them. Each plot is made up of 7 plants in 10 liter pots, having a theoretical framework of application of 2.4m x 1.6m i.e. 3.84m2 per plant, 107.52m2 per thesis. Three applications were made during the course of the trial: the first was carried out on 18/03/2024 with the culture in phenological stage BBCH 07, the second application was carried out on 05/04/2024 with BBCH stage 18 and the last on 21/06/2024 with BBCH 53 status. The planting density was 2,604.00 plants/ha

The following parameters were evaluated in the crop: vigor, bud breakage, plant height, SPAD, leaf area, fresh aboveground and root biomass.

In summary, it can be concluded under the conditions tested:

- **Vigor.** Vigor is improved in the T2-Product B and T3-Cepacet treatments by 4.89% and 8.42% respectively at the time of evaluation 95DDT.

- **Stem length.** This parameter is improved in the three evaluations carried out, with the T2-Product B treatment yielding the best results.

- **SPAD.** None of the proposed treatments improves this parameter.

- **Leaf area.** The T2-Product B treatment progressively improves the leaf area until higher than control values are obtained.

- **Fresh aboveground and root biomass.** The T2-Product B treatment improves the volume of fresh aboveground biomass, the rest of the treatments do not seem to improve this parameter.

- **Phytotoxicity**. No symptoms of phytotoxicity were observed in the theses tested.

Daniel Franco Aragón
Experimental Biologist
SICOP

# OVERVIEW

## 1.1- INFORMATION REGARDING THE PROMOTER

| | |
|---|---|
| **PROMOTER:** | Inteligent Green Symbiosa Project |
| **LOCALIZATION:** | - |
| **HEAD OF THE TRIAL:** | - |
| **CONTACT:** | - |

## 1.2- INFORMATION REGARDING THE TEST ENTITY

| | |
|---|---|
| **TEST ENTITY:** | SICOP<br>Sistemas de Control de Producción, SL. |
| **LOCALIZATION:** | Industrial Estate "La Gasolinera", 5<br>18680, Salobreña (GRANADA) |
| **TECHNICAL DIRECTOR:** | Ana Orrico Marín<br>Tel: +34 699 910 841<br>e-mail: ana@sicop.es |
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## 1.3- CONFIDENTIALITY

All information recorded in this document must be strictly confidential.

No information related to this report, as part of the SI24BT004IGS study, will be shown to third parties without prior notification and authorisation from the promoter, unless requested by the administrative authorities.

The promoter may not reveal or show to third parties the internal procedures of SICOP provided in this report without prior notification and authorization from SICOP, unless required by the administrative authorities.

## 1.4- DISTRIBUTION OF THE REPORT

| | |
|---|---|
| **ORIGINAL OF THE FINAL REPORT** | IGS Project |
| **COPY OF THE FINAL REPORT** | SICOP |
| **FIELD DATA** | SICOP |

## 1.5- FILE

SICOP will keep the primary field data of this study and the copy of the final report on file for 10 years. Unless expressly requested by the promoter, SICOP will destroy said documentation at the end of the archiving period.

## 1.6- STATEMENT FROM THE TECHNICAL DIRECTOR

This study has been carried out under the EOR 50/03 accreditation granted by the Spanish Ministry of Agriculture, Food and the Environment for the performance of officially recognised tests in accordance with Royal Decree 2163/1994, of 4 November, which implements the harmonised community authorisation system for the marketing and use of plant protection products (BOE no. 276, of 18 November 1994) and in compliance with Regulation (EC) No. 1107/2009 of the European Parliament and of the Council of 21 October 2009 on the placing of plant protection products on the market.

The design of the experiments, the data collection, the analysis of the results and the final report have been carried out in accordance with the "Good Experimental Practices", the "Good Agricultural Practices" and the corresponding EPPO guidelines.

The data included in this report faithfully reflect the data obtained during the conduct of the study.

SICOP is not responsible for decisions made or actions taken based on this report.

The report includes annexes.

# 2. MATERIAL EXPERIMENTAL

## 2.1- TESTED FORMULATION

| PRODUCT | ACTIVE MATERIAL |
|---|---|
| PRODUCT B | BACTERIA |
| Cepacet | (BACILLUS MEGATERIUM CEPA CECT 9689)<br>0.01% MYCORRHIZAE |

## 2.2- CULTIVATION

Crop: Vine
Botanical Name: *Vitis vinifera*
Order: Vitals
Family: Vitaceae
Genus: *Vitis*
Species: *Vitis vinifera*
Variety: Victoria Blanca
Transplant date: 18/03/2024
Planting density: 2,604,000 plants/m2
Planter dimensions: 10L
Watering mode: 3L/h drippers
Cultivation system: 10-liter planters in semi-field conditions.
Planting system: Sowing in a nursery and subsequent transplanting in a pot.

## 2.3- OBJECTIVE

To evaluate the biostimulant effect of microorganism-based products under semi-field conditions.

## 2.4- EXPERIMENTAL USE

| CULTIVATION | OBJECT OF THE STUDY | APPLICATION TYPE |
|---|---|---|
| Grapevine | Biostimulant effect: Vigor, Leaf Area, Plant Height, Fresh Aerial and Root Biomass. | Irrigation |

# 3. STUDY OF ACTION IN THE FIELD

## 3.1- MATERIALS AND METHODS

### 3.1.1 LIST OF TESTS CARRIED OUT

| STUDY CODE | TRIAL CODE | TYPE OF TEST | LOCALIZATION |
|---|---|---|---|
| SI24BT004IGS | SI24BT004IGS | Biostimulant | Salobreña |

Photograph 1.- General appearance of the test in semi-field conditions.

### 3.1.2 TEST LOCATION

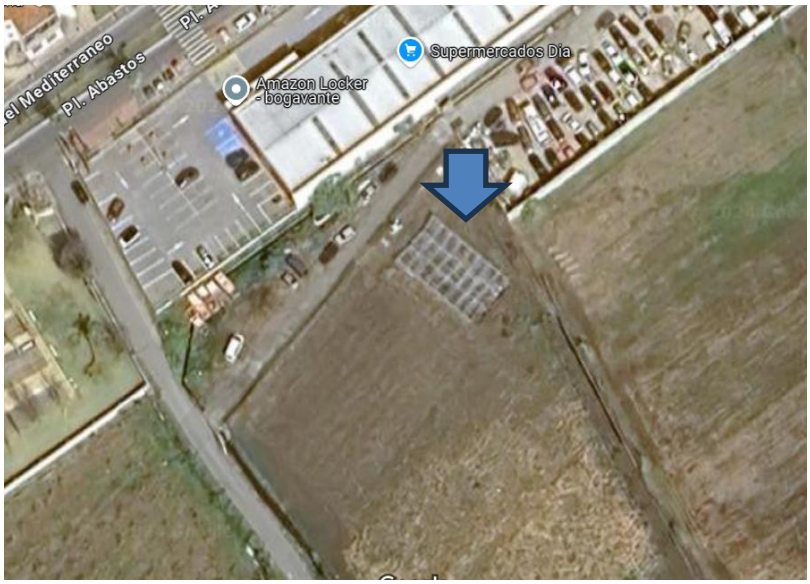


Image 1. Global location of the trial.

### 3.1.3 STUDY CONDITIONS

The design of the trial was done using completely random blocks. Four repetitions of each of the theses contained in the protocol were performed, including the control in the trial plots.

The culture was carried out in semi-field conditions under an *antithrips mesh roof*. Irrigation was carried out in an automated manner using 3L/h water drippers and fertilization was applied manually in the middle of the trial.


Image 2. EDATOOL probe installed in a planter, this instrument is composed of two tensiometers and a temperature and soil EC probe.

The following graph shows the climatic conditions during the trial and for which the results of this study are valid. These data were collected by EDAGRO's EDATOOL probe, providing meteorological information and the state of the soil of the planters (see Annex I).

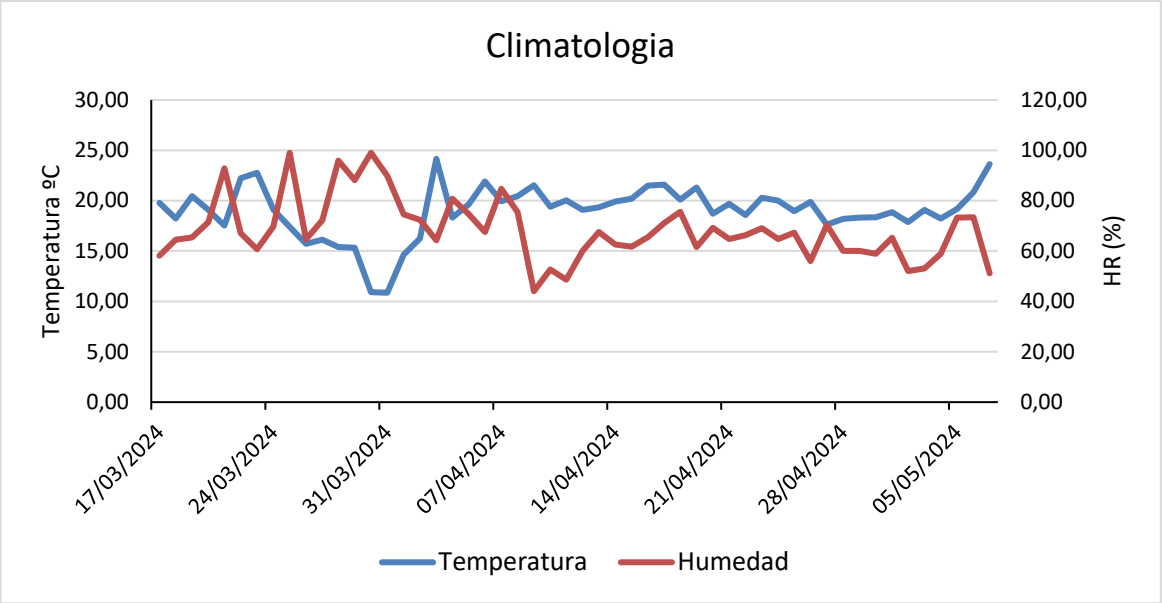


Figure 1. Weather data during the test. Source: EDATOOL

### 3.1.4 CHARACTERISTICS OF THE PLOT

The test was carried out in a semi-field facility, each cabin has dimensions of 5m x 2.25m, that is, 11.25m$^2$. The plots were randomly distributed, with each cabin containing a total of two repetitions located on the sides as can be seen in photograph 1. Each thesis is made up of 4 repetitions, so the essay is composed of 12 independent plots each composed of 10 pots of 0.6 l (9 cm x 9 cm x 10 cm). The theoretical planting frame used to carry out the product dosage was 4m x1.5m, which meant a planting density of 1,666.00 plants/m2.

Image 3. View of a Plot

### 3.1.5 TREATMENTS TESTED

#### 3.1.5.1 HANDLING OF TEST PRODUCTS

The test substances were received at SICOP's facilities from Symbiagro. This was stored in SICOP's BPE product warehouse, where temperature and humidity are periodically controlled to ensure the correct conservation of the test products.

#### 3.1.5.2 LIST OF TREATMENTS AND TRIAL SKETCH

| THESIS | PRODUCT | APPLICATION | DOSE |
|---|---|---|---|
| 1 | Control | WATER | - |
| 2 | Product B | 1A: Transplanting<br>2A: 18 DAT*<br>3A: 95 DAT* | 1A: 200g/100L<br>2A and 3A: 5kg/ha |
| 3 | Cepacet | | 2L/ha |

*Days after the transplant. The application dates were established based on the BBCH of the plants, therefore, they vary slightly with those proposed in the protocols.

**Sketch of the trial in the culture chamber**

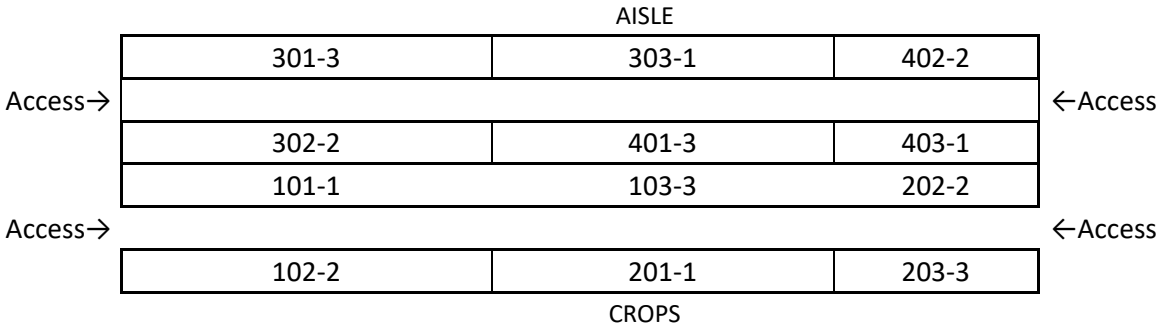


Image 3. Sketch of the distribution of the test in the booths.

#### 3.1.5.3 PRODUCT APPLICATIONS

A total of 3 applications were carried out by irrigation according to the stage of development of the plant (BBCH). The treatments were applied manually with a 300ml measuring cup of which each plant received an amount of 100ml of broth. In each application the floor was wet with 100ml of water so that the product penetrated the soil and after the application another 100ml was added to seal the product.

Image 5.-Measuring cup with which the test products were applied.

### 3.1.6 EVALUATION METHODOLOGY

The following parameters were evaluated:

-SPAD. Amount of chlorophyll with the Konica Minolta SPAD-502 instrument

-Vigor. With the Trimble GreenSeeker instrument.

- Plant height. With a tape measure.

-Leaf area. Through *Petiole Software*.

- Fresh aboveground and root biomass. With precision scale.

### 3.1.7 CALENDAR OF ACTIONS

At the beginning of the trial, a plan is established that includes the actions to be carried out at all times in accordance with the protocol. The following table shows the final schedule of actions:

| Date | Performance |
|---|---|
| 18/03/2024 | Transplant + 1st application + 1st evaluation* |
| 25/03/2024 | 2nd evaluation + Bud breakage |
| 05/04/2024 | 3rd evaluation (vigor + Length + Leaf area) + 2nd application |
| 21/06/2024 | 4th evaluation (vigor + length + leaf area) + 3rd application |
| 05/07/2024 | 5th evaluation (vigor + SPAD + Stem length + leaf area + biomass) |

*The evaluation is not carried out since the plants lack leaves.

## 3.2- RESULTS AND DISCUSSION

### 3.2.1 VIGOR (NDVI)

To measure crop vigor, or normalized difference vegetation index (NDVI) during the study, the "Green Seeker" instrument was used to obtain objective and comparable values between the different treatments. 7 plants per plot were independently evaluated once the plants produced leaves, i.e. 18DDT. The following table shows the results of the evaluations carried out:

| | NVDI 18DDT 05/04/2024 | NVDI 95DDT 21/06/2024 | NVDI 109DDT 05/07/2024 |
|---|---|---|---|
| T1- Control | 0.37 to | 0.31 to | 0.43 to |
| T2- Product B* | 0.31 to | 0.33 to | 0.40 to |
| T3- Cepacet 2L/Ha | 0.34 to | 0.34 to | 0.41 to |

There are no improvements in this value in the 18DDT or 109DDT assessments, however, in 95DDT there is an improvement in the T2 and T3 treatments with respect to the control.

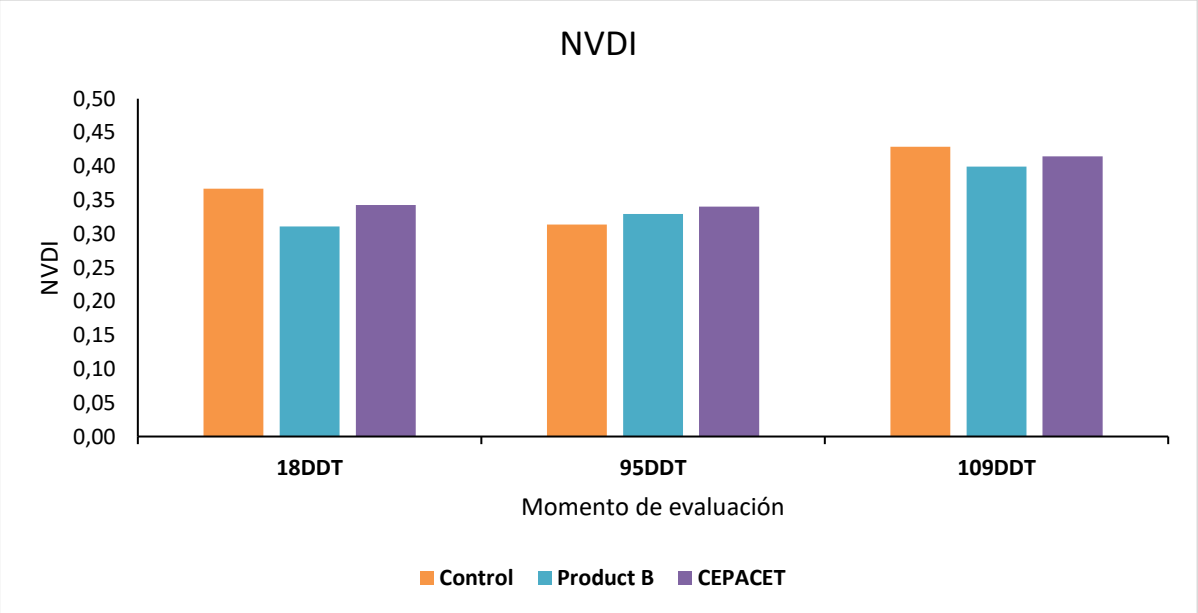


Figure 2. Evaluation of vigor

Statistical analysis

There are no statistically different differences between treatments. (P=.05, Student-Newman-Keuls).

**% difference of treatments in force with respect to T1-Control.**

| | NVDI 18DDT 05/04/2024 | NVDI 95DDT 21/06/2024 | NVDI 109DDT 05/07/2024 |
|---|---|---|---|
| T2- Product B | -15.19 | 4.89 | -6.83 |
| T3- Cepacet | -6.52 | 8.42 | -3.33 |

During the development of the trial, in the second evaluation an increase of 4.89% can be seen for treatment with T2-product B and 8.42% for treatment with T3-Cepacet. The rest of the evaluations do not show an increase in this parameter.

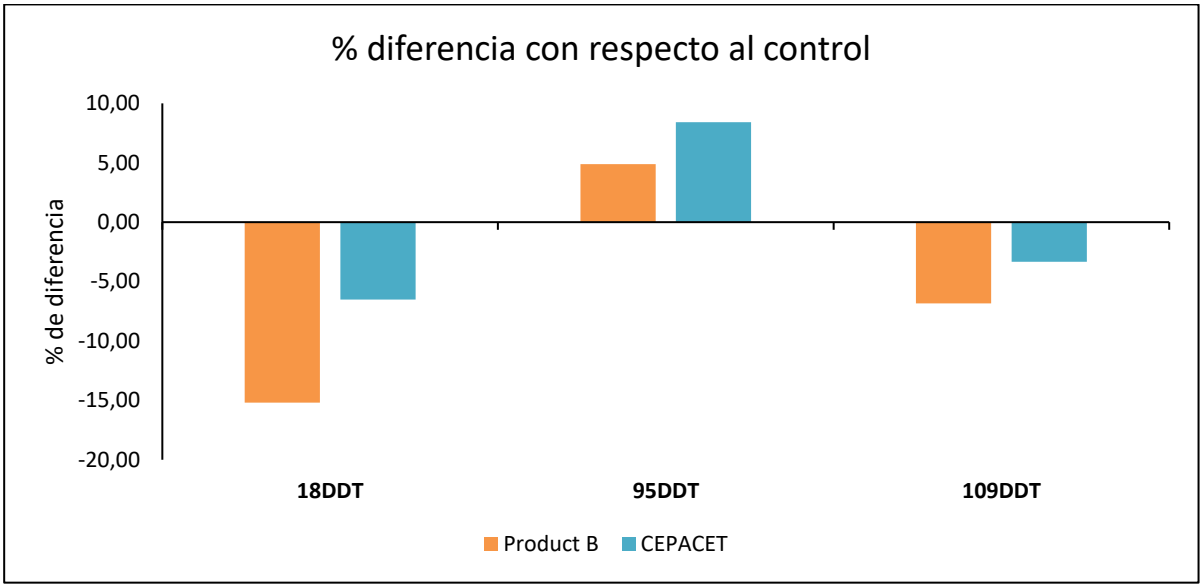


Figure 3. % difference in vigor with respect to control. No improvement is observed.

### 3.2.2 HEIGHT

Three evaluations were carried out to know the height (in cm) of each of the plants. Since vines are a relatively slow-growing crop, changes in height over the trial period were not noticeable. All of the 7 floors that make up the plots were measured. The following table shows the averages obtained in each thesis tested:

| | Height 18DDT 05/04/2024 | Height 95DDT 21/06/2024 | Height 109DDT 05/07/2024 |
|---|---|---|---|
| T1- Control | 117.19 to | 129.64 to | 138.82 to |
| T2- Product B | 123.82 to | 135.25 to | 143.89 to |
| T3-Cepacet | 119.82 to | 133.79 to | 140.57 to |

Table 4. Table with the average height data obtained in the different evaluations.

As can be seen in the table, in all evaluations the T2-Product B treatment obtains values higher than the T1-Control and T3-Cepacet control with respect to plant height.

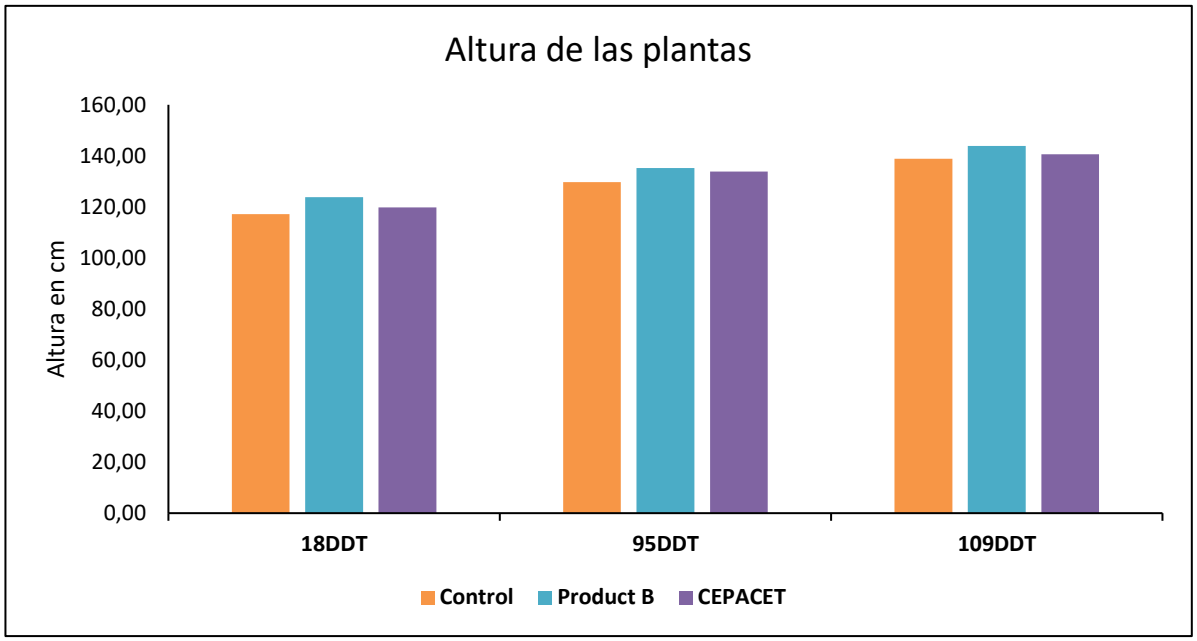


Figure 4. Altitude assessment

Statistical analysis

There are no significant differences after statistical analysis between treatments. (P=.05, Student-Newman-Keuls).

**% difference of treatments with respect to height at T1-Control.**

| | Height 18DDT 05/04/2024 | Height 95DDT 21/06/2024 | Height 109DDT 05/07/2024 |
|---|---|---|---|
| T2- Product B | 5.66 | 4.33 | 3.36 |
| T3- Cepacet | 2.24 | 3.20 | 1.26 |

The T2-Product B treatment produces an increase of 5.66% in the first evaluation, although this effect decreases to 3.36% at 109DDT. On the other hand, the T3-Cepacet treatment also obtains higher values at the T1 control, although its effect is less and does not exceed the T2-Product B treatment.

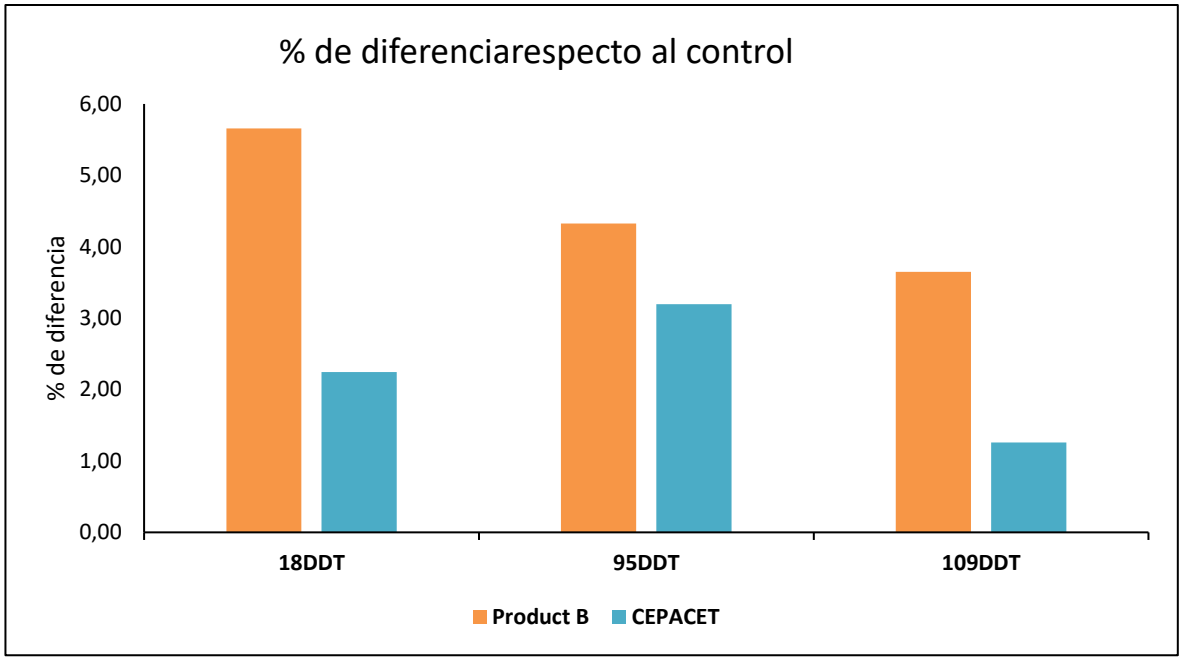


Figure 4. Table with the differences in % with respect to the control. The T2 treatment improves plant height in all evaluations.

### 3.2.3 LEAF AREA

A total of three evaluations were carried out, taking as samples 15 unfolded leaves of similar size and development of each plot. The following table shows the averages in cm2 obtained in each thesis tested:

| | 18DDT 05/04/2024 | 95DDT 21/06/2024 | 109DDT 05/07/2024 |
|---|---|---|---|
| T1- Control | 38.52 to | 60.80 to | 58.96 to |
| T2- Product B | 35.25 to | 59.92 to | 63.52 to |
| T3-Cepacet | 39.41 to | 57.24 to | 60.42 to |

In the 18DDT evaluation, the T3-Cepacet treatment slightly improves the leaf area. In the following evaluation (95DDT) none of the treatments achieves a greater leaf area compared to the control. Finally, in the last 109DDT evaluation, the T2-Product B and T3-Cepacet treatments achieved a value of 63.52$^{cm2}$ and 39.41cm2 respectively, compared to 58.96cm2 of the T1-Control treatment.

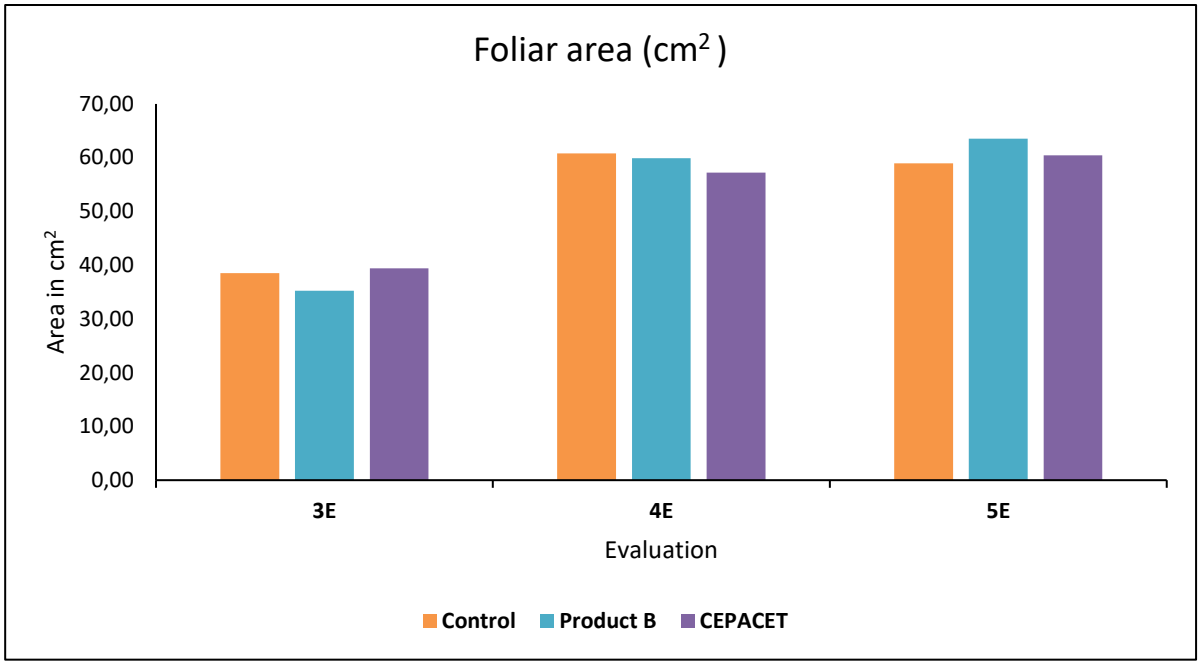


Figure 5. Leaf area of plants in cm2.

Statistical analysis

There are no statistically significant differences between treatments. (P=.05, Student-Newman-Keuls).

**% difference of treatments with respect to the leaf area of T1-Control.**

| | 18DDT<br>2E | 95DDT<br>3E | 109DDT<br>4E |
|---|---|---|---|
| T2- Product B | -8.48 | -1.43 | 7.73 |
| T3- Cepacet | 2.32 | -5.85 | 2.47 |

At 18DDT, the T2-Product B treatment did not improve the leaf area, however, the T3-Cepacet treatment did improve by 2.32% compared to the control. In the following 95DDT evaluation, none of the treatments managed to improve this parameter. At 109DDT, both treatments improved foliar are, T2-Product B treatment by 7.73% and T3-Cepacet treatment by 2.47%.

### 3.2.4 AIR AND ROOT FRESH WEIGHT

The fresh weight of both the aerial and the root parts was carried out in evaluation 5, obtaining the following data:

| | Aerial part (g) | Root part (g) |
|---|---|---|
| T1- Control | 146.33 to | 90.00 to |
| T2- Product B | 155.08 to | 86.08 to |
| T3-Cepacet | 145.83 to | 79.83 to |

As can be seen, in the aerial part of the plants, the T2-Product B treatment is the one that manages to reach the highest weight of 155.08g compared to the 146.33g of the control. On the other hand, the T3-Cepacet treatment equals the result of the control with 145.83g. The weights of the root part are not improved in any of the treatments tested.

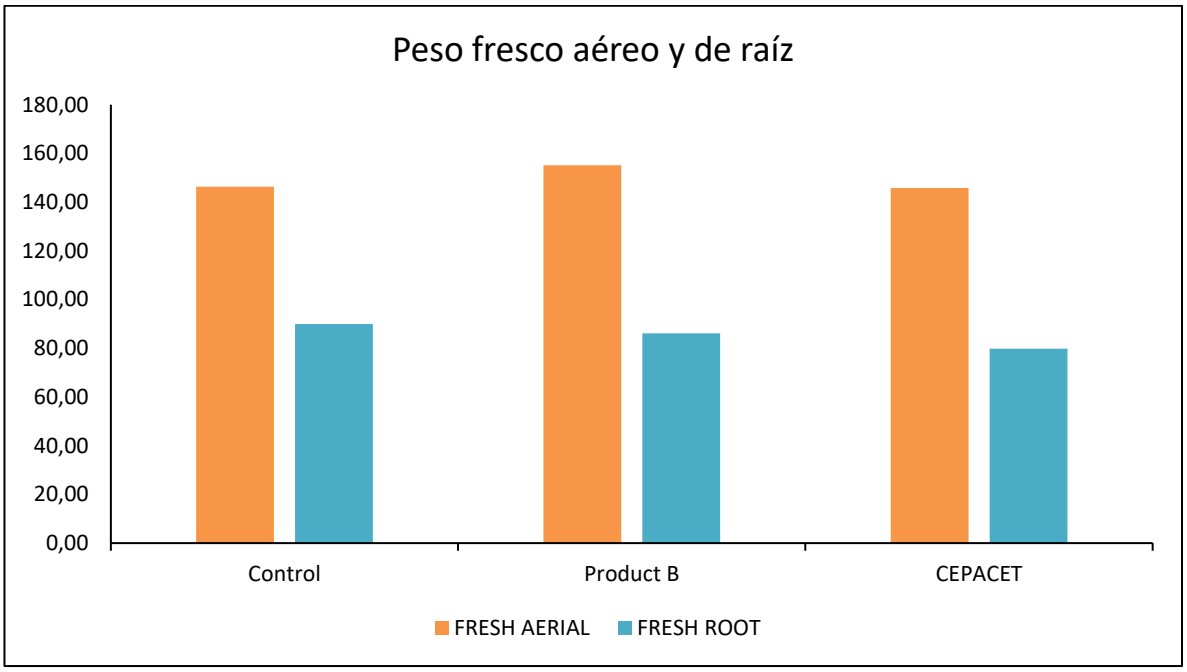


Figure 6. Fresh air and root weight.

Statistical analysis

No statistically significant differences were obtained between the theses tested. (P=.05, Student-Newman-Keuls).

**% difference of treatments with respect to the aerial and root part of T1-Control.**

| | Aerial part (g) | Root part (g) |
|---|---|---|
| T2- Product B | 5.98 | -4.35 |
| T3-Cepacet | -0.34 | -11.30 |

Treatment with T2-Product B improves by 5.98% compared to control, this is the only value of this treatment that improves compared to control. The T3-Cepacet treatment does not improve the parameters compared to the control.

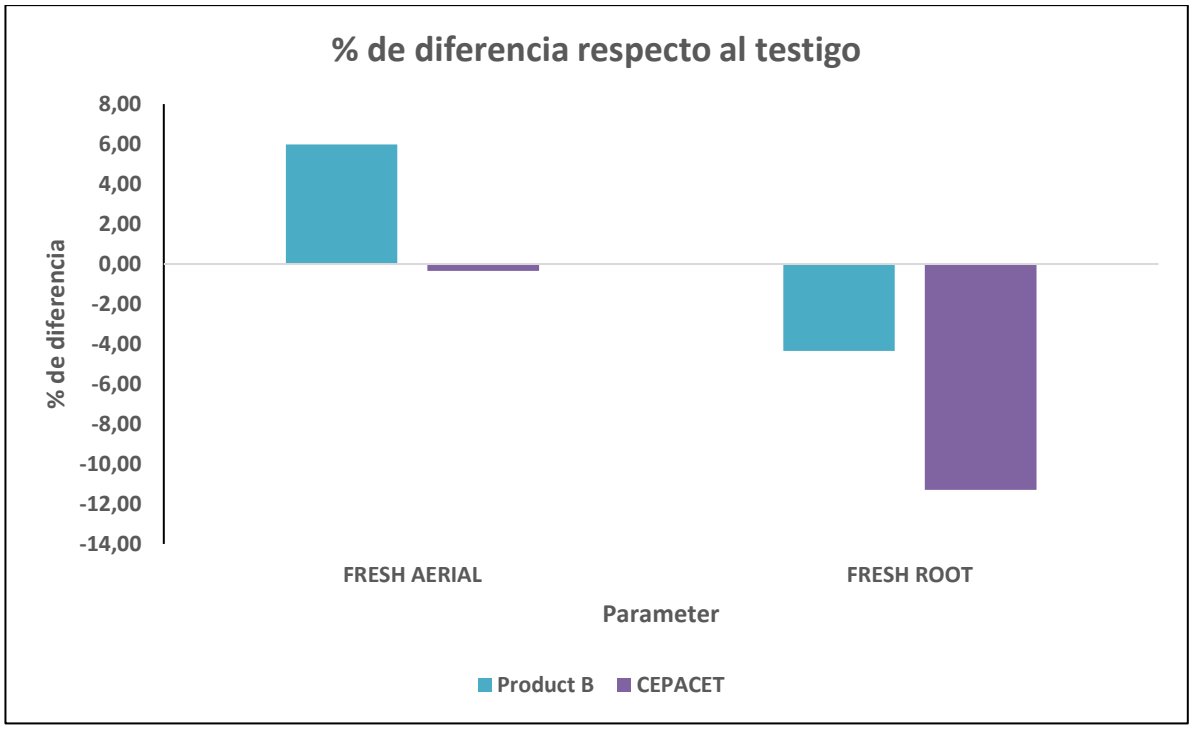


Figure 7. % difference between the T1-Control treatment and the rest of the treatments.

### 3.2.5 PHYTOTOXICITY

In each evaluation, the presence of any symptoms of phytotoxicity was examined, and no symptoms of phytotoxicity were observed after the application of any of the products and doses tested.

# Annex I. CLIMATE DATA

Data obtained from the Almuñécar weather station:

| | Tª min (ºC) | Tª max (ºC) | Middle temperature | HR min (%) | HR max (%) | HR medium |
|---|---|---|---|---|---|---|
| 18/03/2024 | 8.38 | 22.88 | 15.25 | 37.72 | 95.70 | 71.10 |
| 19/03/2024 | 11.17 | 24.53 | 17.11 | 29.30 | 98.30 | 69.05 |
| 20/03/2024 | 10.97 | 21.88 | 16.42 | 42.59 | 95.20 | 71.50 |
| 21/03/2024 | 12.24 | 20.69 | 17.02 | 51.47 | 100.00 | 80.10 |
| 22/03/2024 | 13.49 | 27.80 | 19.08 | 27.69 | 94.20 | 64.47 |
| 23/03/2024 | 13.62 | 27.87 | 19.64 | 25.49 | 91.60 | 60.33 |
| 24/03/2024 | 13.97 | 25.82 | 18.16 | 31.91 | 100.00 | 67.49 |
| 25/03/2024 | 13.50 | 18.62 | 15.61 | 64.63 | 100.00 | 90.30 |
| 26/03/2024 | 9.83 | 17.29 | 13.48 | 29.17 | 100.00 | 56.99 |
| 27/03/2024 | 12.24 | 19.02 | 15.51 | 36.46 | 95.70 | 63.51 |
| 28/03/2024 | 14.29 | 19.03 | 16.43 | 58.03 | 96.60 | 76.60 |
| 29/03/2024 | 11.57 | 17.23 | 14.52 | 61.30 | 100.00 | 81.20 |
| 30/03/2024 | 9.77 | 12.91 | 11.48 | 68.94 | 100.00 | 97.50 |
| 31/03/2024 | 8.31 | 14.50 | 12.03 | 57.25 | 100.00 | 92.10 |
| 01/04/2024 | 6.78 | 18.74 | 13.19 | 48.80 | 100.00 | 76.00 |
| 02/04/2024 | 7.64 | 21.08 | 14.20 | 36.85 | 100.00 | 70.30 |
| 03/04/2024 | 7.51 | 21.15 | 14.46 | 46.93 | 100.00 | 82.50 |
| 04/04/2024 | 8.24 | 22.62 | 15.30 | 44.59 | 100.00 | 80.90 |
| 05/04/2024 | 8.38 | 23.94 | 16.03 | 35.65 | 100.00 | 73.50 |
| 06/04/2024 | 11.44 | 32.81 | 19.97 | 22.02 | 100.00 | 65.02 |
| 07/04/2024 | 14.43 | 24.35 | 18.32 | 51.60 | 100.00 | 80.20 |
| 08/04/2024 | 12.97 | 24.41 | 19.33 | 35.58 | 100.00 | 63.34 |
| 09/04/2024 | 12.04 | 21.75 | 17.33 | 25.30 | 84.60 | 49.55 |
| 10/04/2024 | 8.45 | 21.10 | 14.91 | 16.76 | 100.00 | 57.40 |
| 11/04/2024 | 7.64 | 21.55 | 14.83 | 30.11 | 94.10 | 64.57 |
| 12/04/2024 | 9.71 | 19.55 | 14.76 | 45.01 | 100.00 | 74.40 |
| 13/04/2024 | 9.64 | 20.95 | 15.37 | 41.99 | 100.00 | 74.00 |
| 14/04/2024 | 9.31 | 22.75 | 16.34 | 33.11 | 100.00 | 68.39 |
| 15/04/2024 | 10.30 | 25.47 | 18.01 | 27.43 | 98.60 | 65.06 |
| 16/04/2024 | 11.90 | 28.40 | 20.13 | 28.44 | 96.10 | 62.66 |
| 17/04/2024 | 13.64 | 27.56 | 18.88 | 29.04 | 100.00 | 78.10 |
| 18/04/2024 | 13.64 | 21.01 | 17.56 | 67.69 | 100.00 | 87.40 |
| 19/04/2024 | 13.57 | 19.95 | 17.51 | 43.21 | 97.50 | 72.20 |
| 20/04/2024 | 14.03 | 19.08 | 16.32 | 58.01 | 97.60 | 80.60 |
| 21/04/2024 | 11.97 | 21.55 | 16.75 | 38.52 | 98.70 | 72.40 |
| 22/04/2024 | 9.17 | 20.95 | 15.78 | 45.01 | 100.00 | 78.30 |
| 23/04/2024 | 13.51 | 20.48 | 17.16 | 50.00 | 100.00 | 79.90 |
| 24/04/2024 | 10.57 | 22.41 | 16.53 | 35.38 | 100.00 | 72.80 |
| 25/04/2024 | 10.50 | 22.55 | 16.97 | 38.88 | 98.70 | 68.25 |
| 26/04/2024 | 12.57 | 21.48 | 17.90 | 40.87 | 91.50 | 55.99 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 27/04/2024 | 11.10 | 19.55 | 15.46 | 54.41 | 95.30 | 75.90 |
| 28/04/2024 | 9.70 | 20.68 | 16.22 | 35.71 | 97.90 | 62.56 |
| 29/04/2024 | 11.04 | 22.28 | 16.45 | 32.98 | 94.80 | 60.71 |
| 30/04/2024 | 10.03 | 21.35 | 16.40 | 40.99 | 90.60 | 61.15 |
| 01/05/2024 | 11.64 | 22.35 | 17.21 | 22.50 | 99.80 | 61.00 |
| 02/05/2024 | 10.43 | 19.81 | 16.08 | 31.53 | 94.10 | 50.42 |
| 03/05/2024 | 8.90 | 21.80 | 16.74 | 29.79 | 90.60 | 48.49 |
| 04/05/2024 | 7.04 | 23.27 | 15.87 | 31.77 | 96.90 | 63.61 |
| 05/05/2024 | 8.97 | 27.73 | 17.86 | 25.96 | 100.00 | 72.80 |
| 06/05/2024 | 12.71 | 26.60 | 20.59 | 32.78 | 100.00 | 63.43 |
| 07/05/2024 | 13.22 | 23.15 | 19.13 | 36.65 | 100.00 | 67.94 |
| 08/05/2024 | 11.24 | 22.28 | 17.22 | 39.12 | 100.00 | 74.20 |
| 09/05/2024 | 10.43 | 24.81 | 17.96 | 26.30 | 96.60 | 64.81 |
| 10/05/2024 | 11.50 | 23.08 | 18.10 | 36.57 | 94.50 | 66.13 |
| 11/05/2024 | 13.16 | 24.00 | 19.23 | 32.12 | 100.00 | 67.06 |
| 12/05/2024 | 11.44 | 22.40 | 17.72 | 51.60 | 100.00 | 76.40 |
| 13/05/2024 | 11.24 | 23.46 | 17.98 | 50.58 | 100.00 | 80.40 |
| 14/05/2024 | 12.64 | 25.33 | 20.26 | 28.77 | 100.00 | 60.34 |
| 15/05/2024 | 17.63 | 25.41 | 21.22 | 20.36 | 42.20 | 33.64 |
| 16/05/2024 | 17.02 | 22.68 | 20.10 | 34.12 | 63.90 | 42.52 |
| 17/05/2024 | 13.29 | 24.80 | 20.15 | 43.34 | 96.80 | 59.31 |
| 18/05/2024 | 11.30 | 24.53 | 18.33 | 39.17 | 100.00 | 69.98 |
| 19/05/2024 | 11.90 | 23.80 | 18.19 | 36.90 | 100.00 | 68.66 |
| 20/05/2024 | 12.44 | 23.02 | 18.32 | 35.72 | 100.00 | 65.10 |
| 21/05/2024 | 11.50 | 24.22 | 19.38 | 32.79 | 100.00 | 55.99 |
| 22/05/2024 | 14.76 | 25.20 | 20.79 | 33.37 | 96.00 | 51.21 |
| 23/05/2024 | 12.17 | 24.86 | 19.25 | 28.23 | 94.80 | 54.71 |
| 24/05/2024 | 13.71 | 24.00 | 19.28 | 36.72 | 99.30 | 61.19 |
| 25/05/2024 | 14.29 | 24.60 | 19.60 | 51.18 | 100.00 | 79.00 |
| 26/05/2024 | 15.63 | 25.87 | 20.57 | 49.25 | 100.00 | 78.10 |
| 27/05/2024 | 15.09 | 24.86 | 20.31 | 56.72 | 100.00 | 88.30 |
| 28/05/2024 | 15.69 | 24.80 | 20.35 | 59.26 | 100.00 | 89.00 |
| 29/05/2024 | 16.29 | 24.20 | 20.72 | 62.40 | 100.00 | 87.40 |
| 30/05/2024 | 13.44 | 25.47 | 20.20 | 54.87 | 100.00 | 80.30 |
| 31/05/2024 | 14.49 | 27.66 | 21.38 | 42.84 | 100.00 | 80.10 |
| 01/06/2024 | 16.89 | 24.60 | 20.63 | 55.59 | 100.00 | 86.20 |
| 02/06/2024 | 16.89 | 24.40 | 20.46 | 43.84 | 100.00 | 77.70 |
| 03/06/2024 | 13.90 | 25.40 | 20.64 | 37.64 | 100.00 | 62.21 |
| 04/06/2024 | 14.42 | 26.20 | 20.74 | 33.03 | 92.10 | 54.64 |
| 05/06/2024 | 13.64 | 26.47 | 20.71 | 47.73 | 97.30 | 73.00 |
| 06/06/2024 | 17.76 | 33.92 | 25.02 | 24.62 | 93.20 | 51.25 |
| 07/06/2024 | 18.88 | 29.33 | 24.12 | 40.10 | 100.00 | 64.83 |
| 08/06/2024 | 17.48 | 26.87 | 22.54 | 40.84 | 100.00 | 67.95 |
| 09/06/2024 | 13.90 | 26.07 | 20.60 | 46.11 | 100.00 | 68.48 |
| 10/06/2024 | 16.43 | 27.66 | 22.47 | 43.64 | 100.00 | 66.86 |
| 11/06/2024 | 15.89 | 27.06 | 21.43 | 45.11 | 100.00 | 74.60 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 12/06/2024 | 14.96 | 26.46 | 21.13 | 47.64 | 100.00 | 77.30 |
| 13/06/2024 | 17.67 | 25.13 | 21.16 | 61.61 | 100.00 | 85.93 |
| 14/06/2024 | 16.29 | 30.31 | 22.74 | 30.49 | 100.00 | 62.34 |
| 15/06/2024 | 17.23 | 31.05 | 23.15 | 38.43 | 100.00 | 64.67 |
| 16/06/2024 | 13.51 | 26.40 | 21.02 | 46.91 | 100.00 | 75.40 |
| 17/06/2024 | 14.82 | 26.33 | 21.04 | 51.20 | 100.00 | 78.50 |
| 18/06/2024 | 14.56 | 29.06 | 22.02 | 37.10 | 100.00 | 71.60 |
| 19/06/2024 | 14.76 | 25.47 | 20.96 | 34.57 | 100.00 | 63.45 |
| 20/06/2024 | 12.77 | 25.20 | 20.77 | 32.91 | 100.00 | 59.58 |
| 21/06/2024 | 15.49 | 28.91 | 23.26 | 30.22 | 100.00 | 49.14 |
| 22/06/2024 | 15.09 | 29.05 | 22.62 | 27.69 | 63.04 | 45.81 |
| 23/06/2024 | 14.96 | 28.92 | 22.33 | 27.09 | 74.70 | 46.85 |
| 24/06/2024 | 16.29 | 27.80 | 22.51 | 36.44 | 100.00 | 61.41 |
| 25/06/2024 | 16.16 | 28.53 | 22.73 | 38.17 | 100.00 | 68.16 |
| 26/06/2024 | 18.42 | 28.14 | 23.24 | 35.30 | 100.00 | 64.04 |
| 27/06/2024 | 17.56 | 25.87 | 21.99 | 45.85 | 100.00 | 71.70 |
| 28/06/2024 | 16.89 | 28.92 | 23.40 | 33.96 | 100.00 | 58.99 |
| 29/06/2024 | 15.16 | 28.33 | 22.34 | 44.11 | 100.00 | 70.50 |
| 30/06/2024 | 16.09 | 28.92 | 22.03 | 40.23 | 100.00 | 76.60 |
| 01/07/2024 | 16.36 | 32.32 | 23.21 | 32.62 | 100.00 | 73.00 |
| 02/07/2024 | 16.69 | 29.85 | 23.04 | 41.43 | 100.00 | 75.10 |
| 03/07/2024 | 15.76 | 31.45 | 23.40 | 34.09 | 100.00 | 67.39 |
| 04/07/2024 | 17.10 | 34.18 | 25.44 | 21.08 | 100.00 | 57.23 |
| 05/07/2024 | 15.89 | 31.31 | 24.32 | 33.76 | 93.30 | 53.13 |

Data obtained through EDATOOL:

| Date | Average temperature | Humidity | DPV | Surface tension | Tension depth | CE | Soil Temperature | Humidity Earth |
|---|---|---|---|---|---|---|---|---|
| 03/04/2024 | 17.68 | 57.32 | 10.33 | 11.42 | 10.95 | 0.73 | 11.41 | 27.00 |
| 04/04/2024 | 14.52 | 67.23 | 8.68 | 10.93 | 10.72 | 0.84 | 12.80 | 28.62 |
| 05/04/2024 | 17.51 | 51.19 | 14.65 | 11.73 | 11.21 | 0.75 | 13.69 | 27.81 |
| 06/04/2024 | 21.25 | 38.97 | 16.92 | 13.76 | 13.32 | 0.76 | 15.52 | 27.43 |
| 07/04/2024 | 19.22 | 57.39 | 11.81 | 15.17 | 14.46 | 0.73 | 16.07 | 27.00 |
| 08/04/2024 | 14.63 | 76.42 | 5.54 | 16.39 | 15.59 | 0.72 | 16.51 | 26.00 |
| 09/04/2024 | 12.56 | 59.93 | 8.82 | 13.04 | 13.21 | 1.28 | 15.23 | 28.39 |
| 10/04/2024 | 14.58 | 50.13 | 12.35 | 13.73 | 13.45 | 1.35 | 14.83 | 26.25 |
| 11/04/2024 | 17.05 | 55.55 | 11.72 | 12.89 | 13.43 | 1.39 | 15.95 | 28.34 |
| 12/04/2024 | 16.03 | 46.75 | 11.32 | 12.92 | 12.78 | 1.10 | 16.12 | 27.05 |
| 13/04/2024 | 16.97 | 51.68 | 12.54 | 13.45 | 13.98 | 1.26 | 16.12 | 27.92 |
| 14/04/2024 | 17.12 | 48.44 | 12.63 | 14.25 | 14.42 | 1.18 | 16.37 | 26.93 |
| 15/04/2024 | 19.55 | 56.39 | 15.56 | 17.72 | 17.48 | 1.27 | 17.63 | 26.00 |
| 16/04/2024 | 20.47 | 66.47 | 12.33 | 14.33 | 15.26 | 1.87 | 18.56 | 28.02 |
| 17/04/2024 | 19.94 | 56.58 | 14.19 | 16.21 | 16.45 | 1.87 | 18.95 | 26.10 |
| 18/04/2024 | 18.51 | 65.57 | 10.89 | 15.38 | 16.38 | 2.19 | 19.00 | 27.71 |
| 19/04/2024 | 15.90 | 70.13 | 6.97 | 15.43 | 15.81 | 1.90 | 18.40 | 26.37 |
| 20/04/2024 | 12.11 | 86.79 | 3.33 | 18.25 | 18.75 | 2.12 | 17.06 | 26.46 |
| 21/04/2024 | 13.71 | 72.76 | 7.42 | 13.79 | 15.32 | 2.16 | 15.02 | 27.31 |
| 22/04/2024 | 14.42 | 68.88 | 7.59 | 16.50 | 16.94 | 1.97 | 15.54 | 26.00 |
| 23/04/2024 | 14.08 | 49.73 | 10.76 | 13.81 | 14.64 | 2.29 | 15.63 | 27.93 |
| 24/04/2024 | 13.13 | 54.68 | 10.02 | 15.32 | 15.22 | 2.32 | 15.42 | 26.08 |
| 25/04/2024 | 13.64 | 55.72 | 9.02 | 15.46 | 16.20 | 2.45 | 15.81 | 27.33 |
| 26/04/2024 | 12.46 | 64.92 | 6.72 | 16.59 | 16.87 | 1.79 | 15.36 | 26.26 |
| 27/04/2024 | 9.40 | 91.26 | 1.36 | 20.15 | 19.76 | 1.61 | 14.39 | 25.66 |
| 28/04/2024 | 10.21 | 78.73 | 4.27 | 21.87 | 21.35 | 1.58 | 13.25 | 25.00 |
| 29/04/2024 | 8.75 | 85.49 | 2.38 | 23.02 | 22.22 | 1.49 | 12.90 | 25.17 |
| 30/04/2024 | 9.97 | 84.60 | 2.71 | 16.43 | 18.33 | 2.06 | 12.30 | 27.63 |
| 01/05/2024 | 8.79 | 92.37 | 1.15 | 11.61 | 13.16 | 2.50 | 12.04 | 28.08 |
| 02/05/2024 | 10.39 | 71.58 | 5.51 | 12.08 | 11.94 | 2.15 | 11.67 | 26.76 |
| 03/05/2024 | 13.48 | 63.21 | 9.32 | 14.11 | 13.61 | 1.99 | 13.40 | 26.00 |
| 04/05/2024 | 17.00 | 53.52 | 13.25 | 13.79 | 13.81 | 1.99 | 15.08 | 27.26 |
| 05/05/2024 | 17.46 | 54.15 | 11.91 | 12.20 | 12.89 | 1.88 | 15.84 | 27.79 |
| 06/05/2024 | 14.90 | 78.00 | 5.54 | 14.92 | 14.84 | 1.80 | 16.46 | 26.15 |
| 07/05/2024 | 17.83 | 62.13 | 11.98 | 13.16 | 13.73 | 2.17 | 17.12 | 28.21 |
| 08/05/2024 | 18.21 | 52.43 | 13.67 | 15.03 | 15.00 | 2.11 | 17.87 | 26.13 |
| 09/05/2024 | 19.84 | 41.14 | 16.38 | 14.56 | 15.44 | 2.10 | 18.43 | 27.94 |
| 10/05/2024 | 20.71 | 45.82 | 17.63 | 14.90 | 15.19 | 1.34 | 19.31 | 26.79 |
| 11/05/2024 | 22.97 | 42.62 | 19.21 | 16.85 | 18.10 | 1.29 | 20.84 | 27.11 |
| 12/05/2024 | 20.55 | 52.94 | 15.57 | 18.80 | 20.00 | 1.11 | 21.13 | 26.30 |
| 13/05/2024 | 21.37 | 58.92 | 14.15 | 23.43 | 23.84 | 0.94 | 21.77 | 25.48 |
| 14/05/2024 | 16.48 | 60.03 | 9.31 | 19.71 | 21.87 | 1.57 | 20.70 | 27.06 |
| 15/05/2024 | 14.36 | 56.18 | 9.39 | 20.26 | 21.28 | 1.74 | 19.40 | 25.39 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 16/05/2024 | 13.91 | 58.91 | 9.13 | 19.84 | 21.50 | 1.80 | 18.66 | 27.45 |
| 17/05/2024 | 15.55 | 67.80 | 8.32 | 17.31 | 18.23 | 1.30 | 19.04 | 26.23 |
| 18/05/2024 | 16.57 | 60.90 | 11.74 | 18.73 | 20.32 | 1.20 | 19.53 | 27.14 |
| 19/05/2024 | 16.14 | 55.45 | 10.63 | 18.40 | 19.72 | 0.95 | 19.59 | 26.35 |
| 20/05/2024 | 15.87 | 59.02 | 10.16 | 23.97 | 24.85 | 0.88 | 19.87 | 25.39 |
| 21/05/2024 | 15.53 | 62.97 | 9.76 | 20.24 | 22.50 | 1.32 | 19.36 | 27.21 |
| 22/05/2024 | 18.03 | 55.57 | 13.68 | 20.14 | 22.00 | 1.30 | 20.14 | 25.86 |
| 23/05/2024 | 18.26 | 51.08 | 13.62 | 19.85 | 22.52 | 1.38 | 19.70 | 27.74 |
| 24/05/2024 | 20.98 | 47.92 | 17.25 | 17.49 | 18.90 | 0.98 | 20.79 | 26.33 |
| 25/05/2024 | 22.31 | 51.11 | 17.90 | 19.26 | 21.69 | 0.96 | 21.85 | 27.10 |
| 26/05/2024 | 23.79 | 50.48 | 18.77 | 19.21 | 22.05 | 0.81 | 22.83 | 26.50 |
| 27/05/2024 | 23.79 | 49.11 | 19.12 | 27.03 | 30.24 | 0.73 | 24.08 | 25.45 |
| 28/05/2024 | 23.33 | 46.73 | 20.29 | 23.58 | 27.80 | 1.59 | 23.48 | 27.37 |
| 29/05/2024 | 24.97 | 55.90 | 20.96 | 22.58 | 26.80 | 2.09 | 24.97 | 25.58 |
| 30/05/2024 | 25.86 | 44.88 | 24.80 | 23.48 | 29.72 | 2.18 | 24.68 | 27.26 |
| 31/05/2024 | 25.36 | 45.90 | 21.73 | 20.84 | 25.70 | 1.17 | 25.29 | 26.08 |
| 01/06/2024 | 23.07 | 63.14 | 14.72 | 24.92 | 31.54 | 1.16 | 24.76 | 26.63 |
| 02/06/2024 | 21.79 | 68.42 | 11.78 | 22.11 | 28.10 | 0.88 | 25.42 | 26.29 |
| 03/06/2024 | 22.13 | 61.11 | 14.75 | 33.17 | 40.86 | 0.76 | 25.16 | 25.05 |
| 04/06/2024 | 22.85 | 53.28 | 17.03 | 27.82 | 37.57 | 0.91 | 24.43 | 27.32 |
| 05/06/2024 | 24.43 | 45.95 | 21.79 | 24.95 | 32.49 | 0.73 | 25.33 | 25.95 |
| 06/06/2024 | 27.20 | 33.98 | 26.59 | 30.81 | 43.92 | 0.86 | 24.89 | 26.98 |
| 07/06/2024 | 26.76 | 41.08 | 22.70 | 26.23 | 37.44 | 0.73 | 25.72 | 26.11 |
| 08/06/2024 | 18.42 | 78.83 | 6.02 | 36.92 | 56.78 | 0.84 | 24.33 | 26.28 |
| 09/06/2024 | 17.84 | 69.93 | 8.74 | 30.93 | 53.08 | 0.75 | 23.08 | 25.52 |
| 10/06/2024 | 19.73 | 68.95 | 11.41 | 33.23 | 64.87 | 0.73 | 23.39 | 24.16 |
| 11/06/2024 | 19.21 | 69.69 | 8.65 | 31.52 | 68.54 | 1.26 | 23.70 | 26.28 |
| 12/06/2024 | 19.75 | 65.94 | 11.30 | 25.63 | 52.66 | 1.44 | 23.08 | 24.48 |
| 13/06/2024 | 22.35 | 56.78 | 17.24 | 19.35 | 61.49 | 1.51 | 23.13 | 26.60 |
| 14/06/2024 | 24.07 | 51.18 | 19.15 | 16.70 | 36.61 | 0.95 | 24.22 | 25.57 |
| 15/06/2024 | 24.33 | 50.90 | 18.25 | 18.98 | 56.07 | 1.02 | 24.94 | 26.21 |
| 16/06/2024 | 22.84 | 44.75 | 20.58 | 19.62 | 50.69 | 0.88 | 25.21 | 25.46 |
| 17/06/2024 | 23.18 | 42.03 | 21.15 | 22.18 | 67.62 | 0.73 | 25.75 | 23.38 |
| 18/06/2024 | 22.16 | 52.95 | 16.23 | 21.98 | 58.02 | 1.25 | 24.91 | 26.07 |
| 19/06/2024 | 19.15 | 62.10 | 11.39 | 23.66 | 45.74 | 1.25 | 24.92 | 24.05 |
| 20/06/2024 | 17.74 | 63.95 | 9.98 | 22.41 | 33.05 | 1.07 | 23.62 | 25.67 |
| 21/06/2024 | 22.71 | 50.90 | 20.59 | 20.02 | 9.07 | 0.70 | 23.67 | 25.20 |
| 22/06/2024 | 24.78 | 42.14 | 21.85 | 21.26 | 6.85 | 0.60 | 24.79 | 25.77 |
| 23/06/2024 | 26.36 | 38.80 | 26.07 | 20.51 | 2.37 | 0.45 | 26.07 | 24.92 |
| 24/06/2024 | 25.90 | 46.60 | 22.14 | 21.25 | 1.00 | 0.14 | 27.17 | 21.78 |
| 25/06/2024 | 26.19 | 49.47 | 22.77 | 18.65 | 1.06 | 0.85 | 26.53 | 24.61 |
| 26/06/2024 | 24.76 | 49.06 | 19.45 | 17.51 | 1.35 | 0.62 | 26.78 | 22.54 |

**Annex II. STUDY PROTOCOL**

# Study Protocol

**EOR 50/03**

**13/36/BPL51**

## Applicant: IGS PROJECT

# EVALUATION OF THE BIOSTIMULANT EFFECT OF PRODUCTS BASED ON MICROORGANISMS ON OLIVE IN SEMI-FIELD.

**YEAR 2024**

**SI24BT004IGS**
**14/03/2024**

| | |
|---|---|
| **PROTOCOL:** | **SI24BT004IGS** |
| **OBJECTIVE:** | **EVALUATION OF THE BIOSTIMULANT EFFECT OF PRODUCTS BASED ON MICROORGANISMS ON OLIVE IN SEMI-FIELD** |
| **DRAFT PROTOCOL:** | 14.03.2024 |
| **EPPO/GUIDES:** | PP1/181(5), PP1/135(4), PP1/152(4), TS 17724:2022 |

| | |
|---|---|
| **Crop** | Olive |
| **Localization** | Semi-field (SICOP facilities) |
| **Number of trials** | 1 |

## 1. EXPERIMENTAL DESIGN

| | |
|---|---|
| **Experimental design** | Completely randomized blocks |
| **Repetitions** | 4 |
| **Plot size** | 7 plants |
| **Type of application** | Irrigation |
| **Special Requirements** | DORIAN SOFTWARE |

## 2. LIST OF TREATMENTS AND APPLICATIONS

| THESIS | TREATMENT | DOSE | APPLICATIONS |
|---|---|---|---|
| T1 | Water | - | 1A: transplant<br>2A: 30 DAT<br>3A: 60 DAT |
| S2 | FORMULATION B | 1A: 200g/100L<br>2A and 3A: 5kg/ha | 1A: Transplant<br>2A: 30 DAT<br>3A: 60 DAT |
| S3 | CEPACET | 2 L/ha | 1A: Transplant<br>2A: 30 DAT<br>3A: 60 DAT |

**3 APPLICATIONS**

1A: Transplant
2A: 30 days after transplant (DAT)
3A: 60 days after transplant (DAT)

## 3. EVALUATIONS

**3 EVALUATIONS**

E1 (TRANSPLANT). Shoot length.
E2 (30 DAT): Leaf area (2 rep leaves/plants), vigour and shoot length.
E3 (60 DAT): Leaf area (2 rep leaves/plants), vigour and shoot length.
E4 (80 DAT): Leaf area (2 rep leaves/plants), vigour, shoot length. Shoot and root biomass (3 rep/plants).

## 4. INFORMATION AND VISITS

The promoter (in this case the consortium) will receive timely information, via e-mail, of the opening of the trial, action plan and evaluation results. Guided visits to the trial can be made at the consortium's convenience.

## 5. COMPLEMENTARY DATA

Temperature and humidity for the entire trial period collected by means of a datalogger placed in the trial plot.
Any other information that the experimenter considers relevant to the trial or additional information requested by the consortium.

## 6. FINAL REPORT

The final report will accurately reflect the data obtained during the study and will be delivered to the consortium in PDF format. The final report will include the corresponding ARM file.

## 8. MODIFICATIONS AND DEVIATIONS FROM THE PROTOCOL

If in the future any modification of this protocol is considered necessary and justifiable, such modification shall be made by prior agreement between the persons responsible for the consortium activity and SICOP.
Any deviation from the protocol that may occur during the trial must be included in the final report.

## 9. CONFIDENTIALITY

SICOP S.L. guarantees total confidentiality on the work in progress and the results obtained.

# Annex III. ARM



## PRODUCTION CONTROL SYSTEMS

**EVALUATION OF THE BIOSTIMULANT EFFECT OF PRODUCTS BASED ON MICROORGANISMS ON GRAPEVINE IN SEMI-FIELD CONDITIONS**

Trial ID:SI24BT004IGS1
Protocol ID:SI24BT004IGS Location:Salobreña (Granada) Trial Year:2024
Study Director:Ana Orrico Marín Sponsor Contact:
Investigator:Daniel Franco Aragón

### General Trial Information

**Study Director:** Ana Orrico Marín **Title:** Agricultural Technical Engineer
**Investigator:** Daniel Franco Aragón **Title:** Biologist

**Discipline:** BS Biostimulant
**Status:** F one-year/final
**ARM Trial Created On:** 19/Jul/2024
**Initiation Date:** Mar/18/2024
**Completion Date:** 5/Jul/2024

**Trial Location**
**City:** Salobreña **Country:** ESP Spain
**State/Prov.:** Grenade
**Climate Zone:** EPOMED EPPO Mediterranean

**Latitude of LL Corner °:** 36,73911 N
**Longitude of LL Corner °:** -3,585407 W

### Regulations

**Test Facility:** Production Control Systems
**GEP Accreditation Number:** EOR 50/03
**GEP Accreditation Link:** http://www.gepcertibase.eu/documents/2813_Resolucion_de_renovacion_EOR_SICOP(F).pdf
**Certificate Expiration:** Feb/1/2028
**Conducted Under LPG:** No **Official Trial ID:** SI24BT004IGS1
**Conducted Under GEP:** Yes **Official Protocol ID:** SI24BT004IGS
Conducted Under GEP

| No. | Destroyed? | Crop No. | Crop Code | Part Destroyed |
|---|---|---|---|---|
| 1. | YES | 1 | VITVI | CROP |

| No. | Guideline | Discipline | Description |
|---|---|---|---|
| 1. | PP 1/181(5) | GS | Conduct and reporting of efficacy evaluation trials, including GEP |
| 2. | PP 1/135(4) | GS | Phytotoxicity assessment |
| 3. | PP 1/152(4) | GS | Design and analysis of efficacy evaluation trials |
| 4. | TS 17724:2022 | | |

### Contacts

**Role:** STYDIR Study Director
**Study Director:** Ana Orrico Marín **Title:** Agricultural Technical Engineer
**Organization:** Production Control Systems
**Address 1:** Industrial Estate "La Gasolinera" **Mobile No.:** 699910841
**Country:** ESP Spain **Email:** ana@sicop.es
**City:** Salobreña/Granada **State/Prov:** GR **Postal Code:** 18680

**Role:** INVEST investigator
**Investigator:** Daniel Franco Aragón **Title:** Biologist
**Organization:** Production Control Systems
**Address 1:** Industrial Estate "La Gasolinera" **Phone No.:** 958617000 **Mobile No.:** 722434423
**Country:** ESP Spain **Email:** daniel@sicop.es
**City:** Salobreña/Granada **State/Prov:** GR **Postal Code:** 18680

### Crop Description

**Crop 1:** C VITVI Vitis vinifera European Grape **BBCH Scale:** BGRA
**Entry Date:** 19/Jul/2024 **Stage Scale:** BBCH
**Variety:** Victoria Blanca
**Planting Date:** Mar/18/2024 **Planting Rate:** 2604 P/ha
**Planting Method:** TRAHAN Transplanted - Hand
**Row Spacing:** 2,4 m **Planting Equipment:** HAS by hand

**Spacing within Row:**1,6 m

# PRODUCTION CONTROL SYSTEMS

**Site and Design**

**Treated Plot Width:** 2,4 m
**Treated Plot Length:** 11,2 m
**Treated Plot Area:** 26,88 m2
**Replications:** 4 **Treatments:** 3 **Plots:** 12
**Distance between Blocks:** 0 m
**Distance between 'Plot' Experimental Units:** 0 m

**Site Type:** POT Pot
**Experimental Unit:** 1 PLOT plot
**Tillage Type:** CONTIL conventional-till
**Study Design:** RACOBL Randomized Complete Block

**Soil Description**

**Description Name:** Universal substrate
**Fert. Level:** G Good
**Soil Drainage:** G Good
**Comment:**

Universal substrate (Compost 47%, peat 25%, coconut fiber 25%, perlite 3%)

**Weather Conditions**

**Weather Station Name:** Almuñecar **Distance:** 13 km

| No. | Date | Min Temp | Max Temp | Avg Temp | Temp Unit | Min % Relative Humidity | Max % Relative Humidity | Avg % Relative Humidity |
|---|---|---|---|---|---|---|---|---|
| 1. | Mar/18/2024 | 8,38 | 22,88 | 15,25 | C | 37,7 | 95,7 | 71,1 |
| 2. | Mar/19/2024 | 11,17 | 24,53 | 17,11 | C | 29,3 | 98,3 | 69,1 |
| 3. | Mar/20/2024 | 10,97 | 21,88 | 16,42 | C | 42,6 | 95,2 | 71,5 |
| 4. | Mar/21/2024 | 12,24 | 20,69 | 17,02 | C | 51,5 | 100 | 80,1 |
| 5. | Mar/22/2024 | 13,49 | 27,8 | 19,08 | C | 27,7 | 94,2 | 64,5 |
| 6. | Mar/23/2024 | 13,62 | 27,87 | 19,64 | C | 25,5 | 91,6 | 60,3 |
| 7. | 24/Mar/2024 | 13,97 | 25,82 | 18,16 | C | 31,9 | 100 | 67,5 |
| 8. | Mar/25/2024 | 13,5 | 18,62 | 15,61 | C | 64,6 | 100 | 90,3 |
| 9. | Mar/26/2024 | 9,83 | 17,29 | 13,48 | C | 29,2 | 100 | 57 |
| 10. | Mar/27/2024 | 12,24 | 19,02 | 15,51 | C | 36,5 | 95,7 | 63,5 |
| 11. | 28/Mar/2024 | 14,29 | 19,03 | 16,43 | C | 58 | 96,6 | 76,6 |
| 12. | Mar/29/2024 | 11,57 | 17,23 | 14,52 | C | 61,3 | 100 | 81,2 |
| 13. | Mar/30/2024 | 9,77 | 12,91 | 11,48 | C | 68,9 | 100 | 97,5 |
| 14. | Mar/31/2024 | 8,31 | 14,5 | 12,03 | C | 57,3 | 100 | 92,1 |
| 15. | 1/Apr/2024 | 6,78 | 18,74 | 13,19 | C | 48,8 | 100 | 76 |
| 16. | 2/Apr/2024 | 7,64 | 21,08 | 14,2 | C | 36,9 | 100 | 70,3 |
| 17. | 3/Apr/2024 | 7,51 | 21,15 | 14,46 | C | 46,9 | 100 | 82,5 |
| 18. | 4/Apr/2024 | 8,24 | 22,62 | 15,3 | C | 44,6 | 100 | 80,9 |
| 19. | 5/Apr/2024 | 8,38 | 23,94 | 16,03 | C | 35,7 | 100 | 73,5 |
| 20. | 6/Apr/2024 | 11,44 | 32,81 | 19,97 | C | 22 | 100 | 65 |
| 21. | 7/Apr/2024 | 14,43 | 24,35 | 18,32 | C | 51,6 | 100 | 80,2 |
| 22. | 8/Apr/2024 | 12,97 | 24,41 | 19,33 | C | 35,6 | 100 | 63,3 |
| 23. | 9/Apr/2024 | 12,04 | 21,75 | 17,33 | C | 25,3 | 84,6 | 49,6 |
| 24. | 10/Apr/2024 | 8,45 | 21,1 | 14,91 | C | 16,8 | 100 | 57,4 |
| 25. | 11/Apr/2024 | 7,64 | 21,55 | 14,83 | C | 30,1 | 94,1 | 64,6 |
| 26. | 12/Apr/2024 | 9,71 | 19,55 | 14,76 | C | 45 | 100 | 74,4 |
| 27. | 13/Apr/2024 | 9,64 | 20,95 | 15,37 | C | 42 | 100 | 74 |
| 28. | 14/Apr/2024 | 9,31 | 22,75 | 16,34 | C | 33,1 | 100 | 68,4 |
| 29. | 15/Apr/2024 | 10,3 | 25,47 | 18,01 | C | 27,4 | 98,6 | 65,1 |
| 30. | 16/Apr/2024 | 11,9 | 28,4 | 20,13 | C | 28,4 | 96,1 | 62,7 |
| 31. | 17/Apr/2024 | 13,64 | 27,56 | 18,88 | C | 29 | 100 | 78,1 |
| 32. | 18/Apr/2024 | 13,64 | 21,01 | 17,56 | C | 67,7 | 100 | 87,4 |
| 33. | 19/Apr/2024 | 13,57 | 19,95 | 17,51 | C | 43,2 | 97,5 | 72,2 |
| 34. | 20/Apr/2024 | 14,03 | 19,08 | 16,32 | C | 58 | 97,6 | 80,6 |
| 35. | 21/Apr/2024 | 11,97 | 21,55 | 16,75 | C | 38,5 | 98,7 | 72,4 |

# PRODUCTION CONTROL SYSTEMS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **36.** | 22/Apr/2024 | 9,17 | 20,95 | 15,78 | C | 45 | 100 | 78,3 |
| **37.** | 23/Apr/2024 | 13,51 | 20,48 | 17,16 | C | 50 | 100 | 79,9 |
| **38.** | 24/Apr/2024 | 10,57 | 22,41 | 16,53 | C | 35,4 | 100 | 72,8 |
| **39.** | 25/Apr/2024 | 10,5 | 22,55 | 16,97 | C | 38,9 | 98,7 | 68,3 |
| **40.** | 26/Apr/2024 | 12,57 | 21,48 | 17,9 | C | 40,9 | 91,5 | 56 |
| **41.** | 27/Apr/2024 | 11,1 | 19,55 | 15,46 | C | 54,4 | 95,3 | 75,9 |
| **42.** | 28/Apr/2024 | 9,7 | 20,68 | 16,22 | C | 35,7 | 97,9 | 62,6 |
| **43.** | 29/Apr/2024 | 11,04 | 22,28 | 16,45 | C | 33 | 94,8 | 60,7 |
| **44.** | 30/Apr/2024 | 10,03 | 21,35 | 16,4 | C | 41 | 90,6 | 61,2 |
| **45.** | 1/May/2024 | 11,64 | 22,35 | 17,21 | C | 22,5 | 99,8 | 61 |
| **46.** | 2/May/2024 | 10,43 | 19,81 | 16,08 | C | 31,5 | 94,1 | 50,4 |
| **47.** | 3/May/2024 | 8,9 | 21,8 | 16,74 | C | 29,8 | 90,6 | 48,5 |
| **48.** | 4/May/2024 | 7,04 | 23,27 | 15,87 | C | 31,8 | 96,9 | 63,6 |
| **49.** | 5/May/2024 | 8,97 | 27,73 | 17,86 | C | 26 | 100 | 72,8 |
| **50.** | 6/May/2024 | 12,71 | 26,6 | 20,59 | C | 32,8 | 100 | 63,4 |
| **51.** | 7/May/2024 | 13,22 | 23,15 | 19,13 | C | 36,7 | 100 | 67,9 |
| **52.** | 8/May/2024 | 11,24 | 22,28 | 17,22 | C | 39,1 | 100 | 74,2 |
| **53.** | 9/May/2024 | 10,43 | 24,81 | 17,96 | C | 26,3 | 96,6 | 64,8 |
| **54.** | 10/May/2024 | 11,5 | 23,08 | 18,1 | C | 36,6 | 94,5 | 66,1 |
| **55.** | 11/May/2024 | 13,16 | 24 | 19,23 | C | 32,1 | 100 | 67,1 |
| **56.** | 12/May/2024 | 11,44 | 22,4 | 17,72 | C | 51,6 | 100 | 76,4 |
| **57.** | 13/May/2024 | 11,24 | 23,46 | 17,98 | C | 50,6 | 100 | 80,4 |
| **58.** | 14/May/2024 | 12,64 | 25,33 | 20,26 | C | 28,8 | 100 | 60,3 |
| **59.** | 15/May/2024 | 17,63 | 25,41 | 21,22 | C | 20,4 | 42,2 | 33,6 |
| **60.** | 16/May/2024 | 17,02 | 22,68 | 20,1 | C | 34,1 | 63,9 | 42,5 |
| **61.** | 17/May/2024 | 13,29 | 24,8 | 20,15 | C | 43,3 | 96,8 | 59,3 |
| **62.** | 18/May/2024 | 11,3 | 24,53 | 18,33 | C | 39,2 | 100 | 70 |
| **63.** | 19/May/2024 | 11,9 | 23,8 | 18,19 | C | 36,9 | 100 | 68,7 |
| **64.** | 20/May/2024 | 12,44 | 23,02 | 18,32 | C | 35,7 | 100 | 65,1 |
| **65.** | 21/May/2024 | 11,5 | 24,22 | 19,38 | C | 32,8 | 100 | 56 |
| **66.** | 22/May/2024 | 14,76 | 25,2 | 20,79 | C | 33,4 | 96 | 51,2 |
| **67.** | 23/May/2024 | 12,17 | 24,86 | 19,25 | C | 28,2 | 94,8 | 54,7 |
| **68.** | 24/May/2024 | 13,71 | 24 | 19,28 | C | 36,7 | 99,3 | 61,2 |
| **69.** | 25/May/2024 | 14,29 | 24,6 | 19,6 | C | 51,2 | 100 | 79 |
| **70.** | 26/May/2024 | 15,63 | 25,87 | 20,57 | C | 49,3 | 100 | 78,1 |
| **71.** | 27/May/2024 | 15,09 | 24,86 | 20,31 | C | 56,7 | 100 | 88,3 |
| **72.** | 28/May/2024 | 15,69 | 24,8 | 20,35 | C | 59,3 | 100 | 89 |
| **73.** | 29/May/2024 | 16,29 | 24,2 | 20,72 | C | 62,4 | 100 | 87,4 |
| **74.** | 30/May/2024 | 13,44 | 25,47 | 20,2 | C | 54,9 | 100 | 80,3 |
| **75.** | 31/May/2024 | 14,49 | 27,66 | 21,38 | C | 42,8 | 100 | 80,1 |
| **76.** | Jun/1/2024 | 16,89 | 24,6 | 20,63 | C | 55,6 | 100 | 86,2 |
| **77.** | Jun/2/2024 | 16,89 | 24,4 | 20,46 | C | 43,8 | 100 | 77,7 |
| **78.** | Jun/3/2024 | 13,9 | 25,4 | 20,64 | C | 37,6 | 100 | 62,2 |
| **79.** | Jun/4/2024 | 14,42 | 26,2 | 20,74 | C | 33 | 92,1 | 54,6 |
| **80.** | Jun/5/2024 | 13,64 | 26,47 | 20,71 | C | 47,7 | 97,3 | 73 |
| **81.** | Jun/6/2024 | 17,76 | 33,92 | 25,02 | C | 24,6 | 93,2 | 51,3 |
| **82.** | Jun/7/2024 | 18,88 | 29,33 | 24,12 | C | 40,1 | 100 | 64,8 |
| **83.** | Jun/8/2024 | 17,48 | 26,87 | 22,54 | C | 40,8 | 100 | 68 |
| **84.** | Jun/9/2024 | 13,9 | 26,07 | 20,6 | C | 46,1 | 100 | 68,5 |
| **85.** | Jun/10/2024 | 16,43 | 27,66 | 22,47 | C | 43,6 | 100 | 66,9 |

# PRODUCTION CONTROL SYSTEMS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **86.** | Jun/11/2024 | 15,89 | 27,06 | 21,43 | C | 45,1 | 100 | 74,6 |
| **87.** | Jun/12/2024 | 14,96 | 26,46 | 21,13 | C | 47,6 | 100 | 77,3 |
| **88.** | Jun/13/2024 | 17,67 | 25,13 | 21,16 | C | 61,6 | 100 | 85,9 |
| **89.** | Jun/14/2024 | 16,29 | 30,31 | 22,74 | C | 30,5 | 100 | 62,3 |
| **90.** | Jun/15/2024 | 17,23 | 31,05 | 23,15 | C | 38,4 | 100 | 64,7 |
| **91.** | Jun/16/2024 | 13,51 | 26,4 | 21,02 | C | 46,9 | 100 | 75,4 |
| **92.** | Jun/17/2024 | 14,82 | 26,33 | 21,04 | C | 51,2 | 100 | 78,5 |
| **93.** | Jun/18/2024 | 14,56 | 29,06 | 22,02 | C | 37,1 | 100 | 71,6 |
| **94.** | Jun/19/2024 | 14,76 | 25,47 | 20,96 | C | 34,6 | 100 | 63,5 |
| **95.** | Jun/20/2024 | 12,77 | 25,2 | 20,77 | C | 32,9 | 100 | 59,6 |
| **96.** | Jun/21/2024 | 15,49 | 28,91 | 23,26 | C | 30,2 | 100 | 49,1 |
| **97.** | Jun/22/2024 | 15,09 | 29,05 | 22,62 | C | 27,7 | 63 | 45,8 |
| **98.** | Jun/23/2024 | 14,96 | 28,92 | 22,33 | C | 27,1 | 74,7 | 46,9 |
| **99.** | Jun/24/2024 | 16,29 | 27,8 | 22,51 | C | 36,4 | 100 | 61,4 |
| **100.** | Jun/25/2024 | 16,16 | 28,53 | 22,73 | C | 38,2 | 100 | 68,2 |
| **101.** | Jun/26/2024 | 18,42 | 28,14 | 23,24 | C | 35,3 | 100 | 64 |
| **102.** | Jun/27/2024 | 17,56 | 25,87 | 21,99 | C | 45,9 | 100 | 71,7 |
| **103.** | Jun/28/2024 | 16,89 | 28,92 | 23,4 | C | 34 | 100 | 59 |
| **104.** | Jun/29/2024 | 15,16 | 28,33 | 22,34 | C | 44,1 | 100 | 70,5 |
| **105.** | Jun/30/2024 | 16,09 | 28,92 | 22,03 | C | 40,2 | 100 | 76,6 |
| **106.** | 1/Jul/2024 | 16,36 | 32,32 | 23,21 | C | 32,6 | 100 | 73 |
| **107.** | 2/Jul/2024 | 16,69 | 29,85 | 23,04 | C | 41,4 | 100 | 75,1 |
| **108.** | 3/Jul/2024 | 15,76 | 31,45 | 23,4 | C | 34,1 | 100 | 67,4 |
| **109.** | 4/Jul/2024 | 17,1 | 34,18 | 25,44 | C | 21,1 | 100 | 57,2 |
| **110.** | 5/Jul/2024 | 15,89 | 31,31 | 24,32 | C | 33,8 | 93,3 | 53,1 |

**Application Description**

| | To | B | C |
|---|---|---|---|
| **Date** | Mar/18/2024 | 5/Apr/2024 | Jun/21/2024 |
| **Start Time** | 11:30 | 10:00 | 10:21 |
| **Stop Time** | 12:02 | 10:36 | 10:51 |
| **Standard** | DRAT | CHEM | CHEM |
| **Method** | IRRIGATES | IRRIGATES | IRRIGATES |
| **Timing** | ATTRAN | POEMCR | POEMCR |
| **Placement** | SOIL | WATER | WATER |
| **Mixed/Prepared By** | Daniel Franco Aragón | Daniel Franco Aragón | Daniel Franco Aragón |
| **Applied By** | Daniel Franco Aragón | Daniel Franco Aragón | Daniel Franco Aragón |
| **Entry Date** | 19/Jul/2024 | 19/Jul/2024 | 19/Jul/2024 |
| **Air Temperature Start, Stop** | 29,7; 29.7 C | 20,9; 24.9 C | 20,3; 22 C |
| **% Relative Humidity Start, Stop** | 22; 28 | 50; 45 | 51; 49 |
| **Wet Leaves (Y/N)** | N; no | N; no | N; no |
| **Problems with Application?** | N; no | N; no | N; no |

**Crop Stage At Each Application**

| | To | B | C |
|---|---|---|---|
| **Crop 1 Code, BBCH Scale** | VITVI; BGRA | VITVI; BGRA | VITVI; BGRA |
| **Stage Majority, Percent** | 05; 100 | 18; 100 | 53; 100 |
| **Diameter Average** | 1 cm | 15 cm | 30 cm |
| **Height Average** | 1.1 m | 1.18 m | 1.31 m |

# PRODUCTION CONTROL SYSTEMS

**Application Equipment**

| | To | B | C |
|---|---|---|---|
| **Equipment Name** | MARUYAMA | MARUYAMA | MARUYAMA |
| **Equipment Type** | IRRGAT | IRRGAT | IRRGAT |
| **Operation Pressure** | 1 BAR | 1 BAR | 1 BAR |
| **Application Amount** | 10000 L/ha | 10000 L/ha | 10000 L/ha |
| **Mix Overage** | 0 mL | 0 mL | 0 mL |
| **Mix Size** | 107.5 L | 107.5 L | 107.5 L |

**Notes**

| No. | Context | Date | Time | By | Notes |
|---|---|---|---|---|---|
| 1. | STATUS | 19/Jul/2024 | 13:07 | Pedro Gómez Bayona | Automatically added by ARM: Trial Status updated to 'S' dur |
| 2. | STATUS | 19/Jul/2024 | 13:10 | Pedro Gómez Bayona | Automatically added by ARM: Status changed to: F: changed b |

| Rep | Blk | | | | | | |
|---|---|---|---|---|---|---|---|
| 4 | 4 | 401 | 3 | 402 | 2 | 403 | 1 |
| 3 | 3 | 301 | 3 | 302 | 2 | 303 | 1 |
| 2 | 2 | 201 | 1 | 202 | 2 | 203 | 3 |
| 1 | 1 | 101 | 1 | 102 | 2 | 103 | 3 |

| Trt No. | Type | Treatment Name | Description | Rate | Rate Unit | Appl Code |
|---|---|---|---|---|---|---|
| 1 | CHK | Untreated Check | not treated | | | |
| 2 | Biostim | FORMULATION B | | 0,2 | kg/100 l | To |
| | Biostim | FORMULATION B | | 5 | kg/ha | BC |
| 3 | Biostim | CEPACET | | 2 | l/ha | ABC |

Additional Treatment Information

Type

CHK = Check or Untreated

BIOSTIM = Biostimulant

Rate Unit

kg/100 L = Kilograms Dry Product per 100 Liters Mix (US=LB/100 GAL)|]

kg/ha = Kilograms Dry Product per Hectare (US=kg/A)|

L/ha = Liters Product per Hectare (US=GAL/A)|T

Replications: 4, Untreated treatments: 1, Conduct under GLP/GEP: Yes (GEP with no protection), Design: Randomized Complete Block (RCB), Treatment units: Treated 'Plot' experimental unit size, Dry Form. Unit: %, Treated 'Plot' experimental unit size Width: 2.4 meters, Treated 'Plot' experimental unit size Length: 11.2 meters, Application amount: 200 L/ha, Mix size: 2.15 L, Format definitions: G-All7.def, G-All7.frm

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# PRODUCTION CONTROL SYSTEMS

**EVALUATION OF THE BIOSTIMULANT EFFECT OF PRODUCTS BASED ON MICROORGANISMS ON GRAPEVINE IN SEMI-FIELD CONDITIONS**

Trial ID:SI24BT004IGS1
Protocol ID:SI24BT004IGS Location:Salobreña (Granada) Trial Year:2024
Study Director:Ana Orrico Marín Sponsor Contact:
Investigator:Daniel Franco Aragón

| Assessed By | | | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> |
|---|---|---|---|---|---|---|---|
| Rating Date | | | Mar/25/2024 | 5/Apr/2024 | 19/Apr/2024 | Jun/28/2024 | 5/Apr/2024 |
| Part Rated | | | PLANT; C | PLANT; C | PLANT; C | PLANT; C | PLANT; C |
| Rating Type | | | PHYGEN | PHYGEN | PHYGEN | PHYGEN | HEIGHT |
| Rating Unit | | | % | % | % | % | cm |
| Rating Min/Max/Interval | | | 0; 100; - | 0; 100; - | 0; 100; - | 0; 100; - | |
| Sample Size | | | 1 PLOT | 1 PLOT | 1 PLOT | 1 PLOT | 7 PLANT |
| Collection Basis | | | 1 PLOT | 1 PLOT | 1 PLOT | 1 PLOT | 1 PLANT |
| Number of Subsamples | | | 1 | 1 | 1 | 1 | 7 |
| Crop Type, Code | | | C; VITVI | C; VITVI | C; VITVI | C; VITVI | C; VITVI |
| Crop Scientific Name | | | Vitis vinifera | Vitis vinifera | Vitis vinifera | Vitis vinifera | Vitis vinifera |
| Crop Name | | | European Grape | European Grape | European Grape | European Grape | European Grape |
| Crop Variety | | | Victoria Blanca | Victoria Blanca | Victoria Blanca | Victoria Blanca | Victoria Blanca |
| Days After First/Last Applic. | | | 7; 7 | 18; 18 | 32; 14 | 102; 7 | 18; 18 |
| Trt-Eval Interval | | | 7 DA-A | 18 DA-A | 14 DA-B | 7 DA-C | 18 DA-A |
| Plant-Eval Interval | | | 7 DP-1 | 18 DP-1 | 32 DP-1 | 102 DP-1 | 18 DP-1 |
| Description | | | Phytotoxicity | Phytotoxicity | Phytotoxicity | Phytotoxicity | Plant Height |
| Number of Decimals | | | 2 | 2 | 2 | 2 | 2 |
| Data Entry Date | | | 19/Jul/2024 | 19/Jul/2024 | 19/Jul/2024 | 19/Jul/2024 | 22/Jul/2024 |
| Trt No. | Treatment Name | Rate Rate Unit | 1 | 2 | 3 | 4 | 5 |
| 1 | Untreated Check | | 0,00Na | 0,00Na | 0,00Na | 0,00Na | 117,18to |
| 2 | FORMULATION B<br>FORMULATION B | 0,2kg/100 l<br>5kg/ha | 0,00Na | 0,00Na | 0,00Na | 0,00Na | 123,82to |
| 3 | CEPACET | 2l/ha | 0,00Na | 0,00Na | 0,00Na | 0,00Na | 119,82to |
| LSD P=.05 | | | . | . | . | . | 23,814 |
| Standard Deviation | | | 0,000 | 0,000 | 0,000 | 0,000 | 13,764 |
| CV | | | 0,0 | 0,0 | 0,0 | 0,0 | 11,44 |
| Grand Mean | | | 0,000 | 0,000 | 0,000 | 0,000 | 120,274 |
| Bartlett's X2^ | | | . | . | . | . | 0,474 |
| P(Bartlett's X2) | | | . | . | . | . | 0,789 |
| Rank X2 | | | . | . | . | . | . |
| P(Rank X2) | | | . | . | . | . | . |
| Shapiro-Wilk^ | | | . | . | . | . | 0,9284 |
| P(Shapiro-Wilk)^ | | | . | . | . | . | 0,3638 |
| Skewness^ | | | . | . | . | . | -0,2284 |
| P(Skewness)^ | | | . | . | . | . | 0,7552 |
| Kurtosis^ | | | . | . | . | . | -1,0893 |
| P(Kurtosis)^ | | | . | . | . | . | 0,4472 |
| Replicate F | | | Nan | Nan | Nan | Nan | 0,855 |
| Replicate Prob(F) | | | Nan | Nan | Nan | Nan | 0,5131 |
| Treatment F | | | Nan | Nan | Nan | Nan | 0,236 |
| Treatment Prob(F) | | | Nan | Nan | Nan | Nan | 0,7966 |

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) or mean separation letters for columns 1,2,3,4 because error variance is 0.
Mean separation letters are 'na' (not applicable) when error variance is 0
^Calculated from residual.

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# PRODUCTION CONTROL SYSTEMS

| | | | | | | |
|---|---|---|---|---|---|---|
| Assessed By | | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> |
| Rating Date | | Jun/21/2024 | 5/Jul/2024 | Mar/25/2024 | Mar/25/2024 | 5/Apr/2024 |
| Part Rated | | PLANT; C | PLANT; C | BUD; C | BUD; C | PLANT; C |
| Rating Type | | HEIGHT | HEIGHT | COUNT | COUNT | GNDVI |
| Rating Unit | | cm | cm | NUMBER | NUMBER | 0-1 |
| Rating Min/Max/Interval | | | | | | 0; 1; 1 |
| Sample Size | | 7 PLANT | 7 PLANT | 7 PLANT | 7 PLANT | 7 PLANT |
| Collection Basis | | 1 PLANT | 1 PLANT | 1 PLANT | 1 PLANT | 1 PLANT |
| Number of Subsamples | | 7 | 7 | 7 | 7 | 7 |
| Crop Type, Code | | C; VITVI | C; VITVI | C; VITVI | C; VITVI | C; VITVI |
| Crop Scientific Name | | Vitis vinifera | Vitis vinifera | Vitis vinifera | Vitis vinifera | Vitis vinifera |
| Crop Name | | European Grape | European Grape | European Grape | European Grape | European Grape |
| Crop Variety | | Victoria Blanca | Victoria Blanca | Victoria Blanca | Victoria Blanca | Victoria Blanca |
| Days After First/Last Applic. | | 95; 77 | 109; 14 | 7; 7 | 7; 7 | 18; 18 |
| Trt-Eval Interval | | 77 DA-B | 14 DA-C | 7 DA-A | 7 DA-A | 18 DA-A |
| Plant-Eval Interval | | 95 DP-1 | 109 DP-1 | 7 DP-1 | 7 DP-1 | 18 DP-1 |
| Description | | Plant Height | Plant Height | number. of buds/pla> | number. sprouted bu> | Vigor (NDVI) |
| Number of Decimals | | 2 | 2 | 2 | 2 | 2 |
| Data Entry Date | | 22/Jul/2024 | 22/Jul/2024 | 22/Jul/2024 | 22/Jul/2024 | 22/Jul/2024 |
| Trt No. | Treatment Name | Rate | Rate Unit | 6 | 7 | 8 | 9 | 10 |
| 1 | Untreated Check | | | 129,64to | 138,82to | 11,96to | 6,79to | 0,37to |
| 2 | FORMULATION B | 0,2kg/100 l | | 135,25to | 143,89to | 12,11to | 6,79to | 0,31to |
| | FORMULATION B | 5kg/ha | | | | | | |
| 3 | CEPACET | 2l/ha | | 133,79to | 140,57to | 11,79to | 6,11to | 0,34to |
| LSD P=.05 | | | | 24,551 | 23,639 | 1,653 | 2,054 | 0,096 |
| Standard Deviation | | | | 14,189 | 13,662 | 0,956 | 1,187 | 0,056 |
| CV | | | | 10,68 | 9,68 | 8,0 | 18,1 | 16,33 |
| Grand Mean | | | | 132,893 | 141,095 | 11,952 | 6,560 | 0,340 |
| Bartlett's X2^ | | | | 0,046 | 0,281 | 0,749 | 1,055 | 0,485 |
| P(Bartlett's X2) | | | | 0,977 | 0,869 | 0,687 | 0,59 | 0,785 |
| Rank X2 | | | | . | . | . | . | . |
| P(Rank X2) | | | | . | . | . | . | . |
| Shapiro-Wilk^ | | | | 0,9187 | 0,9519 | 0,9587 | 0,9395 | 0,8987 |
| P(Shapiro-Wilk)^ | | | | 0,2756 | 0,6646 | 0,7656 | 0,4921 | 0,1528 |
| Skewness^ | | | | 0,2316 | 0,0098 | -0,192 | -0,744 | -0,8555 |
| P(Skewness)^ | | | | 0,7519 | 0,9893 | 0,7931 | 0,3201 | 0,2564 |
| Kurtosis^ | | | | -1,5091 | -1,2127 | -0,4401 | -0,0373 | -0,3849 |
| P(Kurtosis)^ | | | | 0,2981 | 0,3989 | 0,756 | 0,979 | 0,7858 |
| Replicate F | | | | 0,679 | 1,179 | 10,950 | 0,358 | 3,190 |
| Replicate Prob(F) | | | | 0,5963 | 0,3933 | 0,0076 | 0,7856 | 0,1054 |
| Treatment F | | | | 0,168 | 0,142 | 0,114 | 0,435 | 1,013 |
| Treatment Prob(F) | | | | 0,8492 | 0,8703 | 0,8945 | 0,6659 | 0,4179 |

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) or mean separation letters for columns 1,2,3,4 because error variance is 0.
Mean separation letters are 'na' (not applicable) when error variance is 0
^Calculated from residual.

Jul/22/2024 (SI24BT004IGS1) ARM 2024.1 AOV Means Table Page 8 of 14

# PRODUCTION CONTROL SYSTEMS

| Assessed By | | | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> |
|---|---|---|---|---|---|---|---|
| Rating Date | | | Jun/21/2024 | 5/Jul/2024 | 5/Apr/2024 | 5/Jul/2024 | 5/Apr/2024 |
| Part Rated | | | PLANT; C | PLANT; C | LEAF; C | LEAF; C | LEAF; C |
| Rating Type | | | GNDVI | GNDVI | CONCHL | CONCHL | LAI |
| Rating Unit | | | 0-1 | 0-1 | SPAD | SPAD | cm2 |
| Rating Min/Max/Interval | | | 0; 1; 1 | 0; 1; 1 | | | |
| Sample Size | | | 7 PLANT | 7 PLANT | 15 LEAF | 15 LEAF | 15 LEAF |
| Collection Basis | | | 1 PLANT | 1 PLANT | 1 LEAF | 1 LEAF | 1 LEAF |
| Number of Subsamples | | | 7 | 7 | 15 | 15 | 15 |
| Crop Type, Code | | | C; VITVI | C; VITVI | C; VITVI | C; VITVI | C; VITVI |
| Crop Scientific Name | | | Vitis vinifera | Vitis vinifera | Vitis vinifera | Vitis vinifera | Vitis vinifera |
| Crop Name | | | European Grape | European Grape | European Grape | European Grape | European Grape |
| Crop Variety | | | Victoria Blanca | Victoria Blanca | Victoria Blanca | Victoria Blanca | Victoria Blanca |
| Days After First/Last Applic. | | | 95; 77 | 109; 14 | 18; 18 | 109; 14 | 18; 18 |
| Trt-Eval Interval | | | 77 DA-B | 14 DA-C | 18 DA-A | 14 DA-C | 18 DA-A |
| Plant-Eval Interval | | | 95 DP-1 | 109 DP-1 | 18 DP-1 | 109 DP-1 | 18 DP-1 |
| Description | | | Vigor (NDVI) | Vigor (NDVI) | SPAD | SPAD | Leaf Area |
| Number of Decimals | | | 2 | 2 | 2 | 2 | 2 |
| Data Entry Date | | | 22/Jul/2024 | 22/Jul/2024 | 22/Jul/2024 | 22/Jul/2024 | 22/Jul/2024 |
| Trt No. | Treatment Name | Rate | 11 | 12 | 13 | 14 | 15 |
| 1 | Untreated Check | | 0,31to | 0,43to | 23,47to | 28,62to | 38,52to |
| 2 | FORMULATION B | 0,2kg/100 l | 0,33to | 0,40to | 22,97to | 27,20to | 35,25to |
| | FORMULATION B | 5kg/ha | | | | | |
| 3 | CEPACET | 2l/ha | 0,34to | 0,41to | 22,39to | 26,00to | 39,41to |
| LSD P=.05 | | | 0,080 | 0,089 | 2,241 | 4,848 | 4,990 |
| Standard Deviation | | | 0,046 | 0,051 | 1,295 | 2,802 | 2,884 |
| CV | | | 14,05 | 12,42 | 5,64 | 10,27 | 7,64 |
| Grand Mean | | | 0,328 | 0,414 | 22,943 | 27,272 | 37,726 |
| Bartlett's X2^ | | | 0,224 | 1,523 | 4,944 | 0,271 | 1,298 |
| P(Bartlett's X2) | | | 0,894 | 0,467 | 0,084 | 0,873 | 0,523 |
| Rank X2 | | | . | . | . | . | . |
| P(Rank X2) | | | . | . | . | . | . |
| Shapiro-Wilk^ | | | 0,8435* | 0,9165 | 0,9723 | 0,8419* | 0,9485 |
| P(Shapiro-Wilk)^ | | | 0,0306* | 0,258 | 0,9335 | 0,0292* | 0,6151 |
| Skewness^ | | | 0,785 | -0,7661 | -0,2143 | -0,647 | 0,6632 |
| P(Skewness)^ | | | 0,2954 | 0,3067 | 0,7699 | 0,3846 | 0,3733 |
| Kurtosis^ | | | -0,9764 | -0,0124 | 1,2094 | -1,3308 | 0,4947 |
| P(Kurtosis)^ | | | 0,4945 | 0,993 | 0,4001 | 0,3562 | 0,7271 |
| Replicate F | | | 0,484 | 1,726 | 1,355 | 0,458 | 13,362 |
| Replicate Prob(F) | | | 0,7057 | 0,2606 | 0,3429 | 0,7218 | 0,0046 |
| Treatment F | | | 0,332 | 0,324 | 0,695 | 0,877 | 2,304 |
| Treatment Prob(F) | | | 0,7298 | 0,7352 | 0,5354 | 0,4633 | 0,1810 |

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) or mean separation letters for columns 1,2,3,4 because error variance is 0.
Mean separation letters are 'na' (not applicable) when error variance is 0
^Calculated from residual.

Jul/22/2024 (SI24BT004IGS1) ARM 2024.1 AOV Means Table Page 9 of 14

# PRODUCTION CONTROL SYSTEMS

| | | | | | | |
|---|---|---|---|---|---|---|
| Assessed By | | | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> |
| Rating Date | | | Jun/21/2024 | 5/Jul/2024 | 5/Jul/2024 | 5/Jul/2024 |
| Part Rated | | | LEAF; C | LEAF; C | PLANT; C | ROOT; C |
| Rating Type | | | LAI | LAI | WEIFRE | WEIFRE |
| Rating Unit | | | cm2 | cm2 | g | g |
| Rating Min/Max/Interval | | | | | | |
| Sample Size | | | 15 LEAF | 15 LEAF | 3 PLANT | 3 PLANT |
| Collection Basis | | | 1 LEAF | 1 LEAF | 1 PLANT | 1 PLANT |
| Number of Subsamples | | | 15 | 15 | 3 | 3 |
| Crop Type, Code | | | C; VITVI | C; VITVI | C; VITVI | C; VITVI |
| Crop Scientific Name | | | Vitis vinifera | Vitis vinifera | Vitis vinifera | Vitis vinifera |
| Crop Name | | | European Grape | European Grape | European Grape | European Grape |
| Crop Variety | | | Victoria Blanca | Victoria Blanca | Victoria Blanca | Victoria Blanca |
| Days After First/Last Applic. | | | 95; 77 | 109; 14 | 109; 14 | 109; 14 |
| Trt-Eval Interval | | | 77 DA-B | 14 DA-C | 14 DA-C | 14 DA-C |
| Plant-Eval Interval | | | 95 DP-1 | 109 DP-1 | 109 DP-1 | 109 DP-1 |
| Description | | | Leaf Area | Leaf Area | Fresh weight of> | Root fresh weig> |
| Number of Decimals | | | 2 | 2 | 2 | 2 |
| Data Entry Date | | | 22/Jul/2024 | 22/Jul/2024 | 22/Jul/2024 | 22/Jul/2024 |
| Trt No. | Treatment Name | Rate | Rate Unit | 16 | 17 | 18 | 19 |
| 1 | Untreated Check | | | 60,80to | 58,96to | 146,33to | 90,00to |
| 2 | FORMULATION B | 0,2kg/100 l | | 59,92to | 63,52to | 155,08to | 86,08to |
| | FORMULATION B | 5kg/ha | | | | | |
| 3 | CEPACET | 2l/ha | | 57,24to | 60,42to | 145,83to | 79,83to |
| LSD P=.05 | | | | 10,883 | 9,197 | 26,598 | 21,906 |
| Standard Deviation | | | | 6,290 | 5,315 | 15,372 | 12,661 |
| CV | | | | 10,6 | 8,72 | 10,31 | 14,84 |
| Grand Mean | | | | 59,319 | 60,966 | 149,083 | 85,306 |
| Bartlett's X2^ | | | | 0,602 | 0,41 | 0,47 | 0,513 |
| P(Bartlett's X2) | | | | 0,74 | 0,815 | 0,791 | 0,774 |
| Rank X2 | | | | . | . | . | . |
| P(Rank X2) | | | | . | . | . | . |
| Shapiro-Wilk^ | | | | 0,9734 | 0,9563 | 0,9283 | 0,8812 |
| P(Shapiro-Wilk)^ | | | | 0,9431 | 0,7293 | 0,3628 | 0,0908 |
| Skewness^ | | | | -0,1175 | 0,0192 | 0,5011 | -0,6945 |
| P(Skewness)^ | | | | 0,8724 | 0,979 | 0,4977 | 0,352 |
| Kurtosis^ | | | | -0,4918 | -0,8764 | -1,0431 | -0,9181 |
| P(Kurtosis)^ | | | | 0,7286 | 0,5389 | 0,4662 | 0,5201 |
| Replicate F | | | | 3,776 | 6,419 | 4,537 | 0,082 |
| Replicate Prob(F) | | | | 0,0781 | 0,0266 | 0,0549 | 0,9673 |
| Treatment F | | | | 0,348 | 0,768 | 0,458 | 0,656 |
| Treatment Prob(F) | | | | 0,7196 | 0,5047 | 0,6529 | 0,5525 |

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Could not calculate LSD (% mean diff) or mean separation letters for columns 1,2,3,4 because error variance is 0.
Mean separation letters are 'na' (not applicable) when error variance is 0
^Calculated from residual.

Jul/22/2024 (SI24BT004IGS1) ARM 2024.1 Assessment Data Summary Page 10 of 14

# PRODUCTION CONTROL SYSTEMS

**EVALUATION OF THE BIOSTIMULANT EFFECT OF PRODUCTS BASED ON MICROORGANISMS ON GRAPEVINE IN SEMI-FIELD CONDITIONS**

Trial ID:SI24BT004IGS1
Protocol ID:SI24BT004IGS Location:Salobreña (Granada) Trial Year:2024
Study Director:Ana Orrico Marín Sponsor Contact:
Investigator:Daniel Franco Aragón

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Assessed By | | | | | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> |
| Rating Date | | | | | Mar/25/2024 | 5/Apr/2024 | 19/Apr/2024 | Jun/28/2024 | 5/Apr/2024 |
| Part Rated | | | | | PLANT; C | PLANT; C | PLANT; C | PLANT; C | PLANT; C |
| Rating Type | | | | | PHYGEN | PHYGEN | PHYGEN | PHYGEN | HEIGHT |
| Rating Unit | | | | | % | % | % | % | cm |
| Rating Min/Max/Interval | | | | | 0; 100; - | 0; 100; - | 0; 100; - | 0; 100; - | |
| Sample Size | | | | | 1 PLOT | 1 PLOT | 1 PLOT | 1 PLOT | 7 PLANT |
| Collection Basis | | | | | 1 PLOT | 1 PLOT | 1 PLOT | 1 PLOT | 1 PLANT |
| Number of Subsamples | | | | | 1 | 1 | 1 | 1 | 7 |
| Crop Type, Code | | | | | C; VITVI | C; VITVI | C; VITVI | C; VITVI | C; VITVI |
| Crop Scientific Name | | | | | Vitis vinifera | Vitis vinifera | Vitis vinifera | Vitis vinifera | Vitis vinifera |
| Crop Name | | | | | European Grape | European Grape | European Grape | European Grape | European Grape |
| Crop Variety | | | | | Victoria Blanca | Victoria Blanca | Victoria Blanca | Victoria Blanca | Victoria Blanca |
| Days After First/Last Applic. | | | | | 7; 7 | 18; 18 | 32; 14 | 102; 7 | 18; 18 |
| Trt-Eval Interval | | | | | 7 DA-A | 18 DA-A | 14 DA-B | 7 DA-C | 18 DA-A |
| Plant-Eval Interval | | | | | 7 DP-1 | 18 DP-1 | 32 DP-1 | 102 DP-1 | 18 DP-1 |
| Description | | | | | Phytotoxicity | Phytotoxicity | Phytotoxicity | Phytotoxicity | Plant Height |
| Number of Decimals | | | | | 2 | 2 | 2 | 2 | 2 |
| Data Entry Date | | | | | 19/Jul/2024 | 19/Jul/2024 | 19/Jul/2024 | 19/Jul/2024 | 22/Jul/2024 |
| Trt No. | Treatment Name | Rate | Rate Unit | Plot | 1 | 2 | 3 | 4 | 5 |
| 1 | Untreated Check | | | 101 | 0,00 | 0,00 | 0,00 | 0,00 | 106,00 |
| | | | | 201 | 0,00 | 0,00 | 0,00 | 0,00 | 124,29 |
| | | | | 303 | 0,00 | 0,00 | 0,00 | 0,00 | 127,71 |
| | | | | 403 | 0,00 | 0,00 | 0,00 | 0,00 | 110,71 |
| | | | | Mean = | 0,00 | 0,00 | 0,00 | 0,00 | 117,18 |
| 2 | FORMULATION B | 0,2kg/100 l | | 102 | 0,00 | 0,00 | 0,00 | 0,00 | 107,57 |
| | FORMULATION B | 5kg/ha | | 202 | 0,00 | 0,00 | 0,00 | 0,00 | 129,29 |
| | | | | 302 | 0,00 | 0,00 | 0,00 | 0,00 | 111,57 |
| | | | | 402 | 0,00 | 0,00 | 0,00 | 0,00 | 146,86 |
| | | | | Mean = | 0,00 | 0,00 | 0,00 | 0,00 | 123,82 |
| 3 | CEPACET | 2l/ha | | 103 | 0,00 | 0,00 | 0,00 | 0,00 | 116,57 |
| | | | | 203 | 0,00 | 0,00 | 0,00 | 0,00 | 107,43 |
| | | | | 301 | 0,00 | 0,00 | 0,00 | 0,00 | 131,71 |
| | | | | 401 | 0,00 | 0,00 | 0,00 | 0,00 | 123,57 |
| | | | | Mean = | 0,00 | 0,00 | 0,00 | 0,00 | 119,82 |

# PRODUCTION CONTROL SYSTEMS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Assessed By | | | | | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> |
| Rating Date | | | | | Jun/21/2024 | 5/Jul/2024 | Mar/25/2024 | Mar/25/2024 | 5/Apr/2024 |
| Part Rated | | | | | PLANT; C | PLANT; C | BUD; C | BUD; C | PLANT; C |
| Rating Type | | | | | HEIGHT | HEIGHT | COUNT | COUNT | GNDVI |
| Rating Unit | | | | | cm | cm | NUMBER | NUMBER | 0-1 |
| Rating Min/Max/Interval | | | | | | | | | 0; 1; 1 |
| Sample Size | | | | | 7 PLANT | 7 PLANT | 7 PLANT | 7 PLANT | 7 PLANT |
| Collection Basis | | | | | 1 PLANT | 1 PLANT | 1 PLANT | 1 PLANT | 1 PLANT |
| Number of Subsamples | | | | | 7 | 7 | 7 | 7 | 7 |
| Crop Type, Code | | | | | C; VITVI | C; VITVI | C; VITVI | C; VITVI | C; VITVI |
| Crop Scientific Name | | | | | Vitis vinifera | Vitis vinifera | Vitis vinifera | Vitis vinifera | Vitis vinifera |
| Crop Name | | | | | European Grape | European Grape | European Grape | European Grape | European Grape |
| Crop Variety | | | | | Victoria Blanca | Victoria Blanca | Victoria Blanca | Victoria Blanca | Victoria Blanca |
| Days After First/Last Applic. | | | | | 95; 77 | 109; 14 | 7; 7 | 7; 7 | 18; 18 |
| Trt-Eval Interval | | | | | 77 DA-B | 14 DA-C | 7 DA-A | 7 DA-A | 18 DA-A |
| Plant-Eval Interval | | | | | 95 DP-1 | 109 DP-1 | 7 DP-1 | 7 DP-1 | 18 DP-1 |
| Description | | | | | Plant Height | Plant Height | number. of buds/pla> | number. sprouted bu> | Vigor (NDVI) |
| Number of Decimals | | | | | 2 | 2 | 2 | 2 | 2 |
| Data Entry Date | | | | | 22/Jul/2024 | 22/Jul/2024 | 22/Jul/2024 | 22/Jul/2024 | 22/Jul/2024 |
| Trt No. | Treatment Name | Rate | Rate Unit | Plot | 6 | 7 | 8 | 9 | 10 |
| 1 | Untreated Check | | | 101 | 112,86 | 122,00 | 9,29 | 6,57 | 0,25 |
| | | | | 201 | 143,29 | 149,00 | 12,29 | 8,00 | 0,35 |
| | | | | 303 | 139,43 | 146,57 | 14,14 | 7,14 | 0,47 |
| | | | | 403 | 123,00 | 137,71 | 12,14 | 5,43 | 0,39 |
| | | | | Mean = | 129,64 | 138,82 | 11,96 | 6,79 | 0,37 |
| 2 | FORMULATION B | 0,2kg/100 l | | 102 | 118,29 | 130,00 | 9,29 | 6,71 | 0,30 |
| | FORMULATION B | 5kg/ha | | 202 | 140,71 | 146,00 | 13,71 | 6,86 | 0,30 |
| | | | | 302 | 125,71 | 129,57 | 12,00 | 5,29 | 0,30 |
| | | | | 402 | 156,29 | 170,00 | 13,43 | 8,29 | 0,34 |
| | | | | Mean = | 135,25 | 143,89 | 12,11 | 6,79 | 0,31 |
| 3 | CEPACET | 2l/ha | | 103 | 137,57 | 137,71 | 9,14 | 5,57 | 0,30 |
| | | | | 203 | 123,57 | 129,43 | 11,57 | 5,57 | 0,26 |
| | | | | 301 | 140,14 | 150,57 | 13,14 | 6,00 | 0,45 |
| | | | | 401 | 133,86 | 144,57 | 13,29 | 7,29 | 0,36 |
| | | | | Mean = | 133,79 | 140,57 | 11,79 | 6,11 | 0,34 |

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# PRODUCTION CONTROL SYSTEMS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Assessed By | | | | | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> |
| Rating Date | | | | | Jun/21/2024 | 5/Jul/2024 | 5/Apr/2024 | 5/Jul/2024 | 5/Apr/2024 |
| Part Rated | | | | | PLANT; C | PLANT; C | LEAF; C | LEAF; C | LEAF; C |
| Rating Type | | | | | GNDVI | GNDVI | CONCHL | CONCHL | LAI |
| Rating Unit | | | | | 0-1 | 0-1 | SPAD | SPAD | cm2 |
| Rating Min/Max/Interval | | | | | 0; 1; 1 | 0; 1; 1 | | | |
| Sample Size | | | | | 7 PLANT | 7 PLANT | 15 LEAF | 15 LEAF | 15 LEAF |
| Collection Basis | | | | | 1 PLANT | 1 PLANT | 1 LEAF | 1 LEAF | 1 LEAF |
| Number of Subsamples | | | | | 7 | 7 | 15 | 15 | 15 |
| Crop Type, Code | | | | | C; VITVI | C; VITVI | C; VITVI | C; VITVI | C; VITVI |
| Crop Scientific Name | | | | | Vitis vinifera | Vitis vinifera | Vitis vinifera | Vitis vinifera | Vitis vinifera |
| Crop Name | | | | | European Grape | European Grape | European Grape | European Grape | European Grape |
| Crop Variety | | | | | Victoria Blanca | Victoria Blanca | Victoria Blanca | Victoria Blanca | Victoria Blanca |
| Days After First/Last Applic. | | | | | 95; 77 | 109; 14 | 18; 18 | 109; 14 | 18; 18 |
| Trt-Eval Interval | | | | | 77 DA-B | 14 DA-C | 18 DA-A | 14 DA-C | 18 DA-A |
| Plant-Eval Interval | | | | | 95 DP-1 | 109 DP-1 | 18 DP-1 | 109 DP-1 | 18 DP-1 |
| Description | | | | | Vigor (NDVI) | Vigor (NDVI) | SPAD | SPAD | Leaf Area |
| Number of Decimals | | | | | 2 | 2 | 2 | 2 | 2 |
| Data Entry Date | | | | | 22/Jul/2024 | 22/Jul/2024 | 22/Jul/2024 | 22/Jul/2024 | 22/Jul/2024 |
| Trt No. | Treatment Name | Rate | Rate Unit | Plot | 11 | 12 | 13 | 14 | 15 |
| 1 | Untreated Check | | | 101 | 0,28 | 0,45 | 25,09 | 26,25 | 46,86 |
| | | | | 201 | 0,29 | 0,32 | 22,95 | 27,80 | 31,74 |
| | | | | 303 | 0,39 | 0,53 | 24,30 | 29,58 | 35,68 |
| | | | | 403 | 0,29 | 0,42 | 21,53 | 30,84 | 39,79 |
| | | | | Mean = | 0,31 | 0,43 | 23,47 | 28,62 | 38,52 |
| 2 | FORMULATION B | 0,2kg/100 l | | 102 | 0,30 | 0,40 | 23,39 | 28,51 | 41,50 |
| | FORMULATION B | 5kg/ha | | 202 | 0,37 | 0,41 | 21,91 | 29,35 | 28,16 |
| | | | | 302 | 0,34 | 0,39 | 23,41 | 26,51 | 33,34 |
| | | | | 402 | 0,30 | 0,39 | 23,17 | 24,42 | 38,01 |
| | | | | Mean = | 0,33 | 0,40 | 22,97 | 27,20 | 35,25 |
| 3 | CEPACET | 2l/ha | | 103 | 0,39 | 0,39 | 22,87 | 27,86 | 46,18 |
| | | | | 203 | 0,30 | 0,39 | 20,33 | 28,01 | 30,05 |
| | | | | 301 | 0,33 | 0,49 | 22,10 | 21,22 | 43,93 |
| | | | | 401 | 0,34 | 0,38 | 24,26 | 26,90 | 37,49 |
| | | | | Mean = | 0,34 | 0,41 | 22,39 | 26,00 | 39,41 |

# PRODUCTION CONTROL SYSTEMS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Assessed By | | | | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> | Daniel Franco A> |
| Rating Date | | | | Jun/21/2024 | 5/Jul/2024 | 5/Jul/2024 | 5/Jul/2024 |
| Part Rated | | | | LEAF; C | LEAF; C | PLANT; C | ROOT; C |
| Rating Type | | | | LAI | LAI | WEIFRE | WEIFRE |
| Rating Unit | | | | cm2 | cm2 | g | g |
| Rating Min/Max/Interval | | | | | | | |
| Sample Size | | | | 15 LEAF | 15 LEAF | 3 PLANT | 3 PLANT |
| Collection Basis | | | | 1 LEAF | 1 LEAF | 1 PLANT | 1 PLANT |
| Number of Subsamples | | | | 15 | 15 | 3 | 3 |
| Crop Type, Code | | | | C; VITVI | C; VITVI | C; VITVI | C; VITVI |
| Crop Scientific Name | | | | Vitis vinifera | Vitis vinifera | Vitis vinifera | Vitis vinifera |
| Crop Name | | | | European Grape | European Grape | European Grape | European Grape |
| Crop Variety | | | | Victoria Blanca | Victoria Blanca | Victoria Blanca | Victoria Blanca |
| Days After First/Last Applic. | | | | 95; 77 | 109; 14 | 109; 14 | 109; 14 |
| Trt-Eval Interval | | | | 77 DA-B | 14 DA-C | 14 DA-C | 14 DA-C |
| Plant-Eval Interval | | | | 95 DP-1 | 109 DP-1 | 109 DP-1 | 109 DP-1 |
| Description | | | | Leaf Area | Leaf Area | Fresh weight of> | Root fresh weig> |
| Number of Decimals | | | | 2 | 2 | 2 | 2 |
| Data Entry Date | | | | 22/Jul/2024 | 22/Jul/2024 | 22/Jul/2024 | 22/Jul/2024 |
| Trt No. | Treatment Name | Rate | Rate Unit | Plot | 16 | 17 | 18 | 19 |
| 1 | Untreated Check | | | 101 | 73,00 | 46,17 | 112,67 | 82,67 |
| | | | | 201 | 56,61 | 60,61 | 146,00 | 105,33 |
| | | | | 303 | 66,08 | 67,89 | 163,00 | 96,33 |
| | | | | 403 | 47,49 | 61,17 | 163,67 | 75,67 |
| | | | | Mean = | 60,80 | 58,96 | 146,33 | 90,00 |
| 2 | FORMULATION B | 0,2kg/100 l | | 102 | 65,83 | 47,63 | 120,00 | 88,00 |
| | FORMULATION B | 5kg/ha | | 202 | 47,44 | 73,54 | 167,67 | 93,33 |
| | | | | 302 | 64,23 | 68,22 | 147,33 | 73,67 |
| | | | | 402 | 62,20 | 64,70 | 185,33 | 89,33 |
| | | | | Mean = | 59,92 | 63,52 | 155,08 | 86,08 |
| 3 | CEPACET | 2l/ha | | 103 | 58,52 | 55,68 | 141,67 | 82,33 |
| | | | | 203 | 53,77 | 68,09 | 130,33 | 66,67 |
| | | | | 301 | 64,78 | 58,40 | 148,33 | 83,00 |
| | | | | 401 | 51,88 | 59,50 | 163,00 | 87,33 |
| | | | | Mean = | 57,24 | 60,42 | 145,83 | 79,83 |

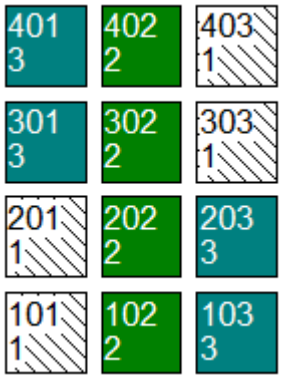
# PRODUCTION CONTROL SYSTEMS

**EVALUATION OF THE BIOSTIMULANT EFFECT OF PRODUCTS BASED ON MICROORGANISMS ON GRAPEVINE IN SEMI-FIELD CONDITIONS**

Trial ID:SI24BT004IGS1
Protocol ID:SI24BT004IGS Location:Salobreña (Granada) Trial Year:2024
Study Director:Ana Orrico Marín Sponsor Contact:
Investigator:Daniel Franco Aragón

**Trial Map Treatment Description**

| Trt | Code | Description |
|---|---|---|
| 1 | CHK | Untreated Check |
| 2 | | FORMULATION B 0.2 kg/100 L;FORMULATION B 5 kg/100 L |
| 3 | | CEPACET 2 L/ha |




| Trt No. | Type | Treatment Name | Description | Rate | Rate Unit | Appl Code | Rep 1 | 2 | 3 | 4 | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CHK | Untreated Check | not treated | | | | 101 | 201 | 303 | 403 | |
| 2 | Biostim | FORMULATION B | | 0,2 | kg/100 l | To | 102 | 202 | 302 | 402 | |
| | Biostim | FORMULATION B | | 5 | kg/ha | BC | | | | | |
| 3 | Biostim | CEPACET | | 2 | l/ha | ABC | 103 | 203 | 301 | 401 | |

Sort Order: Replicate 1

Trial Comments

# Annex IV. EOR ACCREDITATION

Junta de Andalucía

CONSEJERÍA DE AGRICULTURA, PESCA , AGUA Y DESARROLLO RURAL
Dirección General de la Producción Agrícola y Ganadera

**RESOLUCIÓN DE LA DIRECCION GENERAL DE LA PRODUCCION AGRICOLA Y GANADERA MEDIANTE LA QUE SE AUTORIZA LA RENOVACIÓN DE INSCRIPCIÓN EN EL REGISTRO OFICIAL PARA LA REALIZACIÓN DE ENSAYOS CON PRODUCTOS FITOSANITARIOS**

**ANTECEDENTES**

**PRIMERO.-** Examinada la solicitud de renovación para realizar ensayos con productos fitosanitarios presentada por la empresa SISTEMAS DE CONTROL DE PRODUCCIÓN, SL. el 23 de diciembre de 2022, con objeto de comprobar que se mantienen los requisitos establecidos en el Anexo IV y el cumplimiento de las exigencias técnicas dispuestas en el anexo III del Real Decreto 285/2021, de 20 de abril.

**SEGUNDO.-** La documentación aportada fue debidamente notificada a la Dirección General de la Producción Agrícola y Ganadera de la Consejería de Agricultura, Pesca, Agua y Desarrollo Rural de la Junta de Andalucía, en cumplimiento con el artículo 20 del Real Decreto 285/2021.

Y teniendo en cuenta los siguientes

**FUNDAMENTOS DE DERECHO**

**PRIMERO.-** Real Decreto 285/2021, de 20 de abril, por el que se establecen las condiciones de almacenamiento, comercialización, importación o exportación, control oficial y autorización de ensayos con productos fitosanitarios, y se modifica el Real Decreto 1311/2012, de 14 de septiembre, por el que se establece el marco de actuación para conseguir un uso sostenible de los productos fitosanitarios.

El citado Real Decreto establece en su artículo 20, que los titulares autorizados para realizar ensayos con productos con productos fitosanitarios podrán solicitar la renovación de la autorización en el plazo máximo de 3 meses antes de que esta se extinga como consecuencia del transcurso del plazo por la que se otorgó inicialmente.

La solicitud de renovación se dirigirá al órgano competente de la comunidad autónoma que concedió la autorización inicialmente, siguiendo los procedimientos establecidos al efecto por los mismos.

**SEGUNDO.-** El artículo 48 del Estatuto de Autonomía para Andalucía atribuye la competencia exclusiva en materia de agricultura, ganadería y desarrollo rural, de acuerdo con las bases y la ordenación de la actuación económica general, y en los términos de lo dispuesto en los artículos 38, 131 y 149.1.11.ª, 13.ª, 16.ª, 20.ª y 23.ª de la Constitución Española.



Tabladilla, s/n
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41071 Sevilla

| | | | |
|---|---|---|---|
| FIRMADO POR | MANUEL GOMEZ GALERA | 31/01/2023 | PÁGINA 1/2 |
| VERIFICACIÓN | Pk2jmP7S8SBP5WSYTZAN2DM8U87K2C | https://ws050.juntadeandalucia.es/verificarFirma | |

Junta de Andalucía

**CONSEJERÍA DE AGRICULTURA, PESCA , AGUA Y DESARROLLO RURAL**
**Dirección General de la Producción Agrícola y Ganadera**

**TERCERO.-** El Decreto 157/2022, de 9 de agosto, por el que se establece la estructura orgánica de la Consejería de Agricultura, Pesca, Agua y Desarrollo Rural, contempla en su artículo 11.b) que a la Dirección General de la Producción Agrícola y Ganadera le corresponden, además de las funciones establecidas en el artículo 30 de la Ley 9/2007, de 22 de octubre, la dirección, planificación y coordinación de las funciones de inspección y evaluación fitopatológica así como la dirección, planificación y coordinación de las funciones de inspección y evaluación en materia de higiene de la producción primaria agrícola y utilización de productos fitosanitarios en cumplimiento de las disposiciones sobre sanidad vegetal y seguridad alimentaria en general.

A la vista de todo ello,

**RESUELVO**

Estimar la solicitud de renovación en el Registro oficial de empresas que realicen ensayos con productos fitosanitarios a la empresa SISTEMAS DE CONTROL DE PRODUCCIÓN, SL. como EOR n.° 50/03, por un periodo de cinco años desde la fecha de notificación de la resolución al al cumplirse los requisitos establecidos por la regulación de aplicación y de conformidad con lo establecido en el Fundamento de Derecho Primero, por un periodo igual al de la autorización oficial.

Notifíquese la presente Resolución a la persona interesada en legal forma, con indicación de que contra la misma, que no pone fin a la vía administrativa, podrá interponer recurso de alzada ante la persona titular de la Consejería de Agricultura, Pesca, Agua y Desarrollo Rural, en el plazo de un mes contado a partir del día siguiente a aquel en que tenga lugar la notificación del presente acto, todo ello de conformidad con lo establecido en los artículos 121 y siguientes de la Ley 39/2015, de 1 de octubre, del Procedimiento Administrativo Común de las Administraciones Públicas, y en el artículo 115.1 de la Ley 9/2007, de 22 de octubre, de la Administración de la Junta de Andalucía.

Sevilla, (ver fecha de firma electrónica)
EL DIRECTOR GENERAL DE LA PRODUCCIÓN AGRÍCOLA Y GANADERA

Fdo: Manuel Gómez Galera



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|---|---|---|---|
| FIRMADO POR | MANUEL GOMEZ GALERA | 31/01/2023 | PÁGINA 2/2 |
| VERIFICACIÓN | Pk2jmP7S8SBP5WSYTZAN2DM8U87K2C | https://ws050.juntadeandalucia.es/verificarFirma | |