FINAL REPORT SI24BT003IGS

TRIAL SI24BT003IGS-GR01

EVALUATION OF THE BIOSTIMULANT EFFECT OF PRODUCTS BASED ON MICROORGANISMS ON WHEAT (MONOCULTURE SOIL)

YEAR 2024

Promoter
IGS PROJECT

Test Entity		
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SISTEMAS DE CONTROL DE PRODUCCIÓN, SL.	**SIGNED: JOSE ANTONIO ROJAS GONZALES** **Technical Director of SICOP**	**Date**

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SUMMARY AND CONCLUSIONS

This trial was carried out in a crop of Wheat (*Triticum aestivum*) Filón variety on 18/11/2024 and ended on 30/07/2025. 4 theses were established with 4 repetitions for each of them. Each plot is made up of a total area of 20 m2. Three applications were made during the course of the trial: the first was carried out on 18/11/2024 with the culture in phenological stage BBCH 00, the second application was made on 05/03/2025 with BBCH state 22 and the last on 27/05/2025 with BBCH stage 37.

The following parameters were evaluated in the crop: vigor, total harvest, grain protein and gluten, seed weight in one hectoliter, weight of 1000 seeds, foliar analysis and phytotoxicity. In addition, analyses of the nitrogen content in the leaf, amount of bacteria and soil fungi were carried out.

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

Vigor: No differences are observed between the different treatments.

Total yield Kg/Ha: The highest yield was obtained by T4-Formulation C + Formulation A (4.96%), followed by T3-Formulation A (2.89%) compared to T1-Control. The T2-Formulation C and T5-Cepacet treatments showed slightly lower yields than the T1-Control treatment.

Seed weight hectolitre: The values are similar between treatments. T4-Formulation C + Formulation A stood out with the highest value (1.59%), the rest of the treatment did not improve this parameter.

Weight of 1000 seeds: Weight decreases slightly in all treatments compared to control.

Phytotoxicity. No symptoms of phytotoxicity were observed during the course of the test

Foliar analysis: The T2-Formulation C 2.5 kg/ha treatment showed the most marked changes, standing out for an extraordinary increase in calcium and a significant increase in magnesium, although it significantly reduced potassium. The T3-Formulation A 4L/Ha treatment showed moderate improvements in several macronutrients, especially phosphorus, but potassium also decreased. The T4-Formulation C 2.5 kg/ha + Formulation A 4L/Ha treatment did not potentiate individual effects and significantly reduced nitrogen and potassium, although it moderately increased phosphorus and magnesium. Finally, T5-CEPACET showed some slight changes, highlighting only an increase in phosphorus.

The T2-Formulation C 2.5 kg/ha treatment showed an increase in iron and a moderate increase in manganese, copper and boron, although it presented a decrease in zinc compared to the T1-Control. The T3-Formulation A 4L/Ha treatment showed an increase in zinc and boron, while iron decreased. By contrast, manganese and copper were unchanged. The T4- Formulation C 2.5 kg/ha + Formulation A 4L/Ha treatment significantly increased manganese, copper, and zinc, but reduced iron and boron. Finally, T5-CEPACET showed the greatest increases in zinc, manganese and copper among all treatments, while iron decreased slightly and boron presented a reduction similar to that observed in treatment T4- Formulation C 2.5 kg/ha + Formulation A 4L/Ha.

% Gluten & Grain Protein:

The T1-Control treatment presented the highest values of protein and dry gluten. The T2-Formulation C 2.5 kg/ha treatment showed the most marked reductions in both protein and gluten, being the treatment with the lowest protein quality. The treatments T3-Formulation A 4 L/ha and T4 - Formulation C 2.5 kg/ha + Formulation A 4L/Ha maintained protein levels practically the same as the control, with slight decreases in gluten. Finally, T5-CEPACET presented a moderate decrease in protein and gluten, placing it at an intermediate point.

Soil bacteria analysis by qPCR:

All treatments started from the same initial Cq (15,63), but showed different behaviors over time. At T1-Control, Cq increased at the second assessment and then decreased slightly at the third, reflecting an initial reduction in bacteria with a small subsequent recovery. In T2-Formulation C 2.5 kg/ha and T3-Formulation A 4 L/ha, Cq increased consistently at both times evaluated, indicating a sustained decrease in bacterial abundance. The T4-Formulation C 2.5 kg/ha + Formulation A 4L/Ha showed the smallest increase in the second evaluation and a moderate increase in the third evaluation, being the treatment that best maintained bacterial levels. Finally, T5-CEPACET was the only one that reduced Cq in the second evaluation, indicating a clear increase in bacteria, although this effect was not sustained, since in the third evaluation it showed a greater increase in Cq among all treatments.

Soil fungal analysis by qPCR:

In the first evaluation, all treatments were based on the same Cq (29.97), however, in subsequent analyses, the presence of fungi was reduced in the second evaluation to non-detectable levels and in the last to minimal levels.

Daniel Franco
R+D Experimenter
SICOP

GENERAL INFORMATION

1.1- INFORMATION REGARDING THE PROMOTER

PROMOTER:	Inteligent Green Symbiosa Proyect
LOCATION:	European Union
HEAD OF THE TRIAL:	European Union
CONTACT:	European Union

1.2- INFORMATION REGARDING THE TEST ENTITY

TEST ENTITY:	SICOP Sistemas de Control de Producción, SL.
LOCATION:	Industrial Estate "La Gasolinera", 5 18680, Salobreña (GRANADA)
TECHNICAL DIRECTOR:	Jose Antonio Rojas Gonzales Tel: +34 699 910 851 e-mail: josea.rojas@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 SI24BT003IGS study, will be shown to third parties without prior notification and authorization 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- ARCHIVE

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. EXPERIMENTAL MATERIAL

2.1- TESTED FORMULATION

PRODUCT	ACTIVE MATERIAL
PRODUCT A	BACTERIA
PRODUCT C	BACTERIA

2.2- CULTIVATION

Crop:	Winter wheat
Botanical Name:	*Triticum aestivum*
Order:	Poales
Family:	Pooideae
Genus:	*Triticum*
Species:	*Triticum aestivum*
Variety:	Filón
Sowing date:	18/11/2024
Planting density:	240 kg/ha
Cultivation system:	Open air. Rainfed
Planting system:	Distance between lines 14 cm and distance between plants 0 cm
Special requirement	DORIAN software and Crop monoculture soil

2.3- OBJECTIVE

Evaluation of the biostimulant effect of microorganism-based products in wheat in monoculture soil mode.

2.4- EXPERIMENTAL USE

CULTIVATION	OBJECT OF THE STUDY	APPLICATION TYPE
Wheat	Evaluation of the biostimulant effect of microorganism-based products in wheat in monoculture soil mode.	In sowing and foliar

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	LOCATION
SI24BT003IGS	SI24BT003IGS-01	Biostimulant	Treviño County

Image 1.- General aspect of the field test.

3.1.2 TEST LOCATION

The trial was carried out in the open field in the County of Treviño (Burgos) with cadastral data: Polygon 527, Plot 10100 and Enclosure 1.

Image 2. Global location of the trial. Lat.: 42.716482N Long.: -2.728570E

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 crop was carried out in rainfed conditions and a fertilizer (N, P, K and S) was applied to the plant next to the sowing and 3 months after it.

Image 3. Trial overview

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.

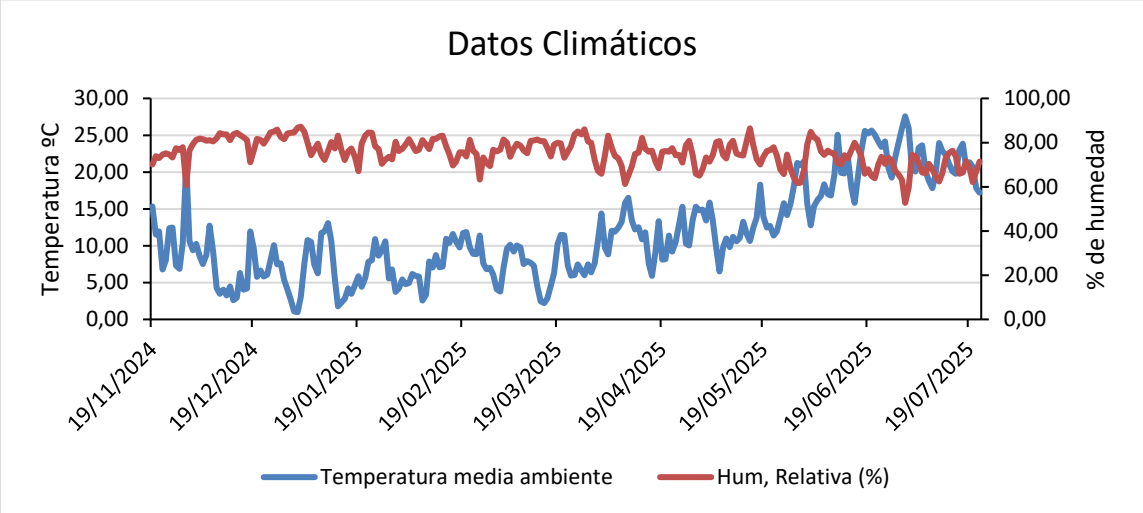


Figure 1. Weather data during the test. Source: EDATOOL

3.1.4 CHARACTERISTICS OF THE PLOT

The trial was carried out in the open field in a rainfed system. Each thesis is made up of 4 repetitions, so the essay is composed of 16 independent plots. The treatments were made up of plots of 20 m2 (2 m x 10 m) that were randomly distributed. The sowing dose used in the trial was 240 kg/ha. On the other hand, the planting frame used was 14 cm between lines and 0 cm between plants.

Image 3. View of a plot after transplanting.

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	TREATMENT	DOSE	APPLICATIONS
1	Water	-	1A: At Sowing 2A: At Tillering stage 3A: At Flag-leaf stage
2	FORMULATION C	2.5 kg/ha	1A: At Sowing
3	FORMULATION A	4 L/ha	1A: At Tillering stage 2A: At Flag-leaf stage
4	FORMULATION C (SOWING) FORMULATION A (PLANT DEVELOPMENT)	2.5 kg/ha 4 L/ha	1A: At Sowing (Formulation C) 2A: At Tillering stage (Formulation A) 3A: At Flag-leaf stage (Formulation A)

Sketch of the trial in the open field

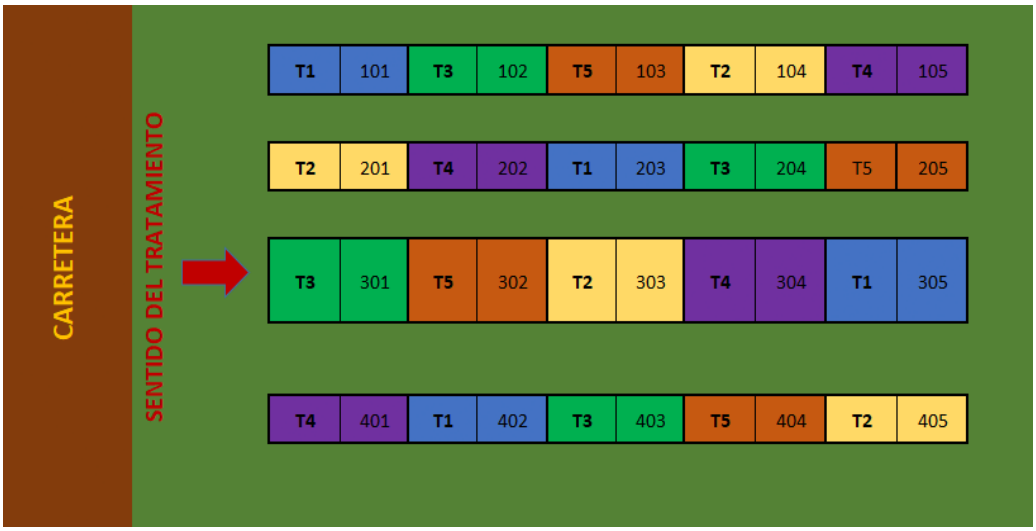


Image 4. Sketch of the distribution of the trial. T1 (101, 203, 305, 402) T2(104, 201, 303, 405) T3 (102, 204, 301,403), T4(105, 202, 304, 401) and T5 (103, 205, 302, 404)

3.1.5.3 PRODUCT APPLICATIONS

A total of 3 applications were carried out as established in the protocol. The application of the Formulation C product was carried out during sowing by mixing with the seed, while the application of Formulation A was applied foliarly during the vegetative growth of the plant. The seed treatments were applied manually while the foliar treatments were applied with a backpack with an application motor.

Image 5.-Motorized backpack for foliar application

3.1.6 EVALUATION METHODOLOGY

The following parameters were evaluated:

- Visual vigour individually per plot.

- Total yield and % moisture of the harvest.

- Weight per hectolitre of seeds after harvest.

- Weight of 1000 seeds after harvest.

- Phytotoxicity during the development of the assay.

-Analytics

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
18/11/2024	Sowing and 1st application + sending soil sample
20/12/2024	1st Evaluation (germination) Vigor
05/03/2025	2nd Application + Soil Sample Submission
13/05/2025	2nd Evaluation (7DD2A) Vigor + soil sample submission
27/05/2025	3rd Application + Soil Sample Submission
04/06/2025	3rd Evaluation (7DD3A) Vigor + Soil and Leaf Sample Submission
30/07/2025	HARVEST

**DAA: Days after application.

3.2- RESULTS AND DISCUSSION

3.2.1 VIGOR (NDVI)

The measurement of crop vigor was carried out visually independently of each plot. The following table shows the results of the evaluations carried out:

	7DA1A	7DA2A	7DA3A
T1 - Control	100 a	100 a	100 a
T2 - Formulation C 2.5 kg/ha	100 a	100 a	100 a
T3 - Formulation A 4 L/ha	100 a	100 a	100 a
T4 - Formulation C 2.5 kg/ha + Formulation A 4 L/ha	100 a	100 a	100 a

Throughout the development of the trial, no differences in the vigor parameter were observed between the different evaluations and different treatments.

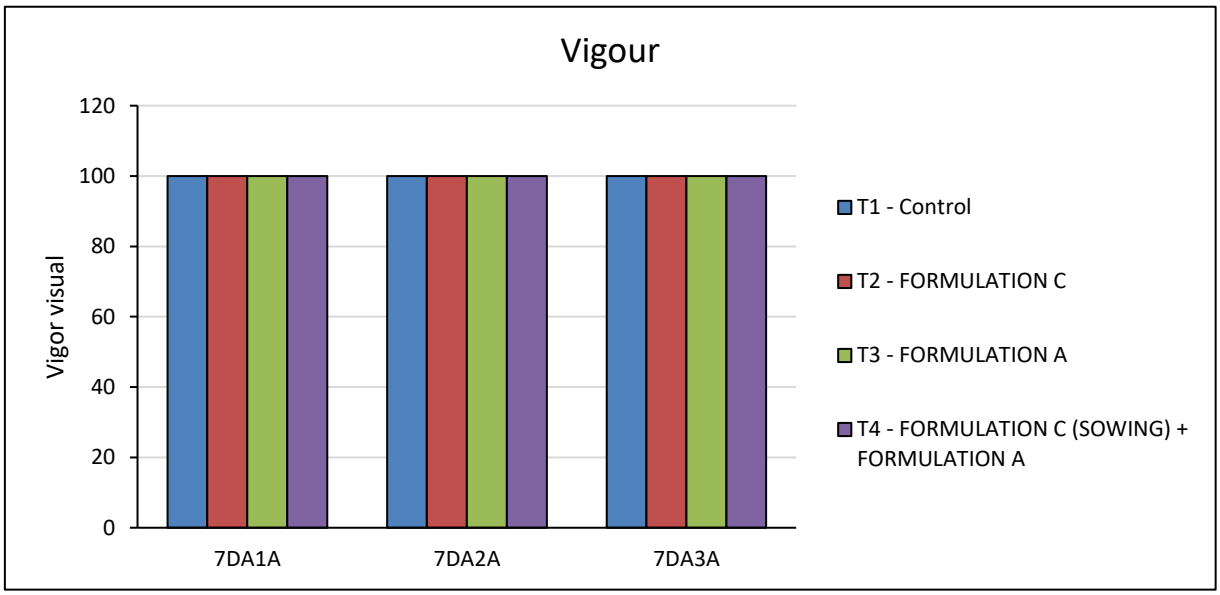


Figure 2. Assessment of visual vigor

Statistical analysis

No statistically significant differences were obtained between the treatments evaluated at different study times. (P=.15 Student-Newman-Keuls).

3.2.2 TOTAL YIELD Kg/HA AND GRAMS/1,000 SEEDS

A harvest was carried out on 07/30/2025 and the weight of 1000 selected seeds and kilograms obtained in one hectare of the crop was evaluated. On the other hand, the average moisture obtained in the grain is 12.50%. The following tables show the averages of harvest yield by thesis:

	Grams/1,000seeds	Kg/ha
T1 - Control	42.70 a	5793 a
T2 - Formulation C 2.5 kg/ha	41.53 a	5563 a
T3 - Formulation A 4 L/ha	40.83 a	5960 a
T4 - + Formulation C 2.5 kg/ha Formulation A 4 L/ha	41.10 a	6080 a
T5-CEPACET	39.28 a	5753

During the evaluation of this parameter, treatments based on microorganisms from the rhizosphere showed differentiated effects, expressed as grams per hectolitre and kilograms per hectare. T1 - Control presented intermediate values with 42.70 g/1,000 seeds and 5793 kg/ha, while T2 - Formulation C 2.5 kg/ha slightly reduced both parameters with respect to control, reaching 41.53 g/1,000 seeds and 5563 kg/ha. On the other hand, T3 - Formulation A 4 L/ha showed a decrease in weight per 1,000 seeds (40.83 g) but a notable increase in production with 5960 kg/ha. The combination T4 - Formulation C 2.5 kg/ha + Formulation A 4 L/ha offered the highest yield in the study with 6080 kg/ha, maintaining a weight of 41.10 g/1,000 seeds, suggesting a complementary effect between both products. Finally, T5 - CEPACET presented the lowest weight per 1,000 seeds (39.28 g), although its production per hectare (5753 kg/ha) remained close to the control, indicating that its effect is reflected more in the efficiency of grain formation than in its individual weight.

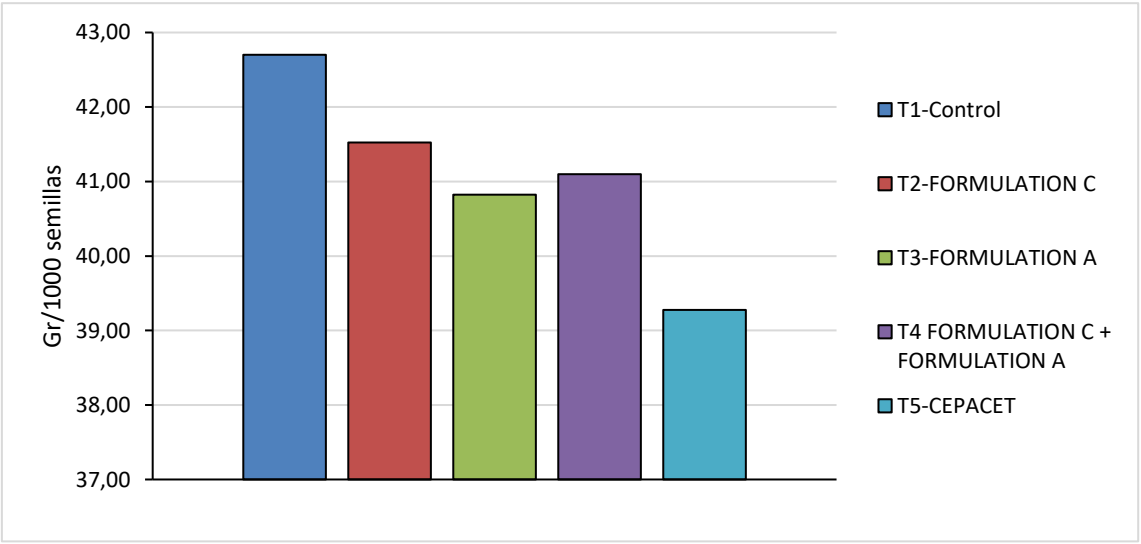


Figure 3. Evaluation of grams in 1,000 seeds

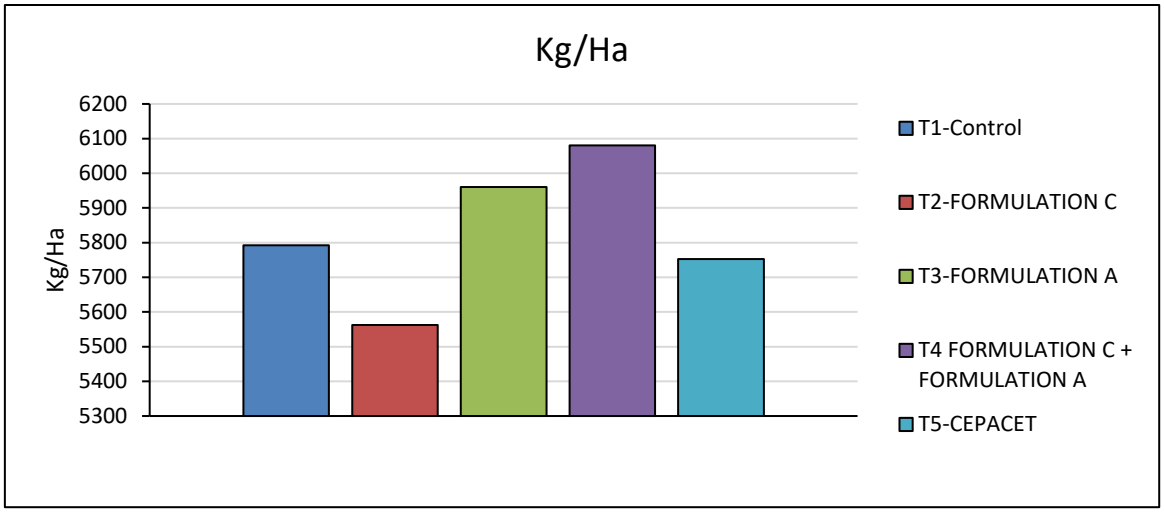


Figure 3. Evaluation of the harvest expressed in Kg/Ha

Statistical analysis

No statistically significant differences were obtained between the treatments evaluated at different study times. (P=.15 Student-Newman-Keuls).

% difference of treatments in total crop yield compared to T1-Control.

	% difference g/1000seeds	% difference in Kg/ha
T2-Formulation C 2.5 kg/ha	-2.75	-3.97
T3- Formulation A 4 L/ha	-4.39	2.89
T4 - Formulation C 2.5 kg/ha + Formulation A 4 L/ha	-3.75	4.96
T5- CEPACET	-8.02	-0.69

Compared to T1 – Control, the treatments evaluated showed that T2 – Formulation C 2.5 kg/ha presented reductions in both the weight of 1,000 seeds (-2.75 %) and in yield per hectare (-3.97 %), indicating a slightly lower performance than the control. T3 – Formulation A 4 L/ha, despite reducing the weight of the seeds by -4.39 %, achieved an increase of 2.89 % in production, which suggests that it favored the generation of more grain. The combination T4 – Formulation C 2.5 kg/ha + Formulation A 4 L/ha again showed a moderate reduction in seed weight (-3.75 %), but it was the most efficient treatment in yield, with an increase of 4.96 % compared to the control. Finally, T5 – CEPACET reflected the largest drop in the weight of 1,000 seeds (-8.02%), although its yield only decreased -0.69%, indicating that its effect is manifested more in the quality or size of the grain than in the total productivity per hectare.

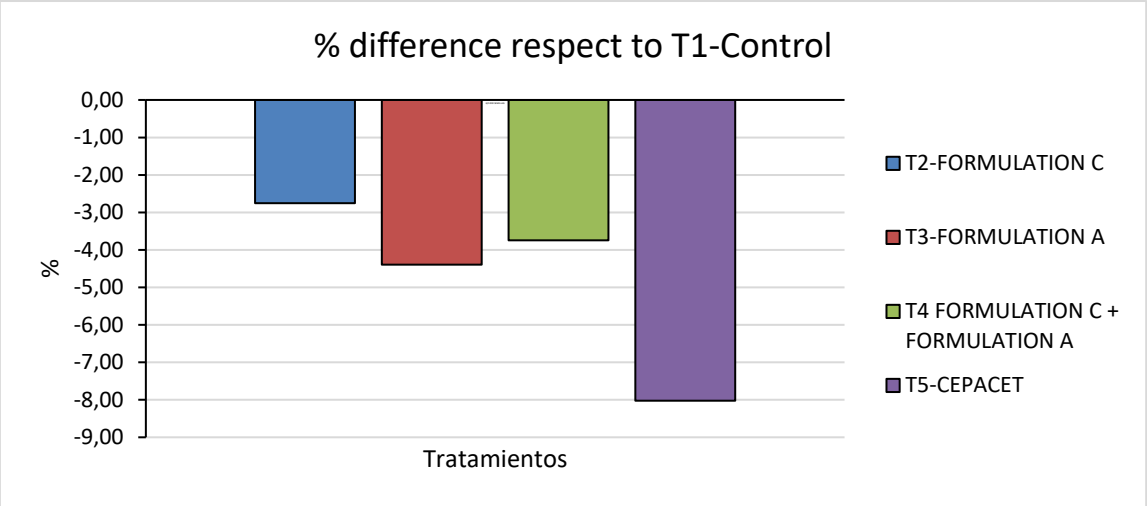


Figure 5. Percentage difference between treatments and T1 – Control

3.2.3 WEIGHT HECTOLITER OF SEEDS

Hectoliter weight is the weight of a mass of grains occupying the volume of 100 litres. Because the hectoliter is too large a volume, in the laboratory it is determined using a 1-liter container. The cereal is placed to the level of the previously tarred container and weighed. The following table shows the averages obtained in each thesis tested:

	Kg/Hl
T1 - Control	58.35 ab
T2 - Formulation C 2.5 kg/ha	58.08 ab
T3 - Formulation A 4 L/ha	56.13b
T4 - Formulation C 2.5 kg/ha + Formulation A 4 L/ha	59.28 a
T5-CEPACET	58.43 ab

The treatments show discrete variations with respect to the T1-Control, since the treatments applied influence both the density and the quality of the grain. T1 – Control registered 58.35 kg/Hl, a reference value against which T2 – Formulation C 2.5 kg/ha showed little change, with 58.08 kg/Hl. The T3 – Formulation A 4 L/ha presented the greatest reduction in the study, decreasing to 56.13 kg/Hl, which suggests a more notable effect on grain density. In contrast, the combination T4 – Formulation C 2.5 kg/ha + Formulation A 4 L/ha was the most remarkable treatment, reaching 59.28 kg/Hl and surpassing the control, which indicates a possible positive synergy in the physical quality of the grain. Finally, T5 – CEPACET maintained values very close to the control with 58.43 kg/Hl, evidencing a minimal impact on this evaluated parameter.

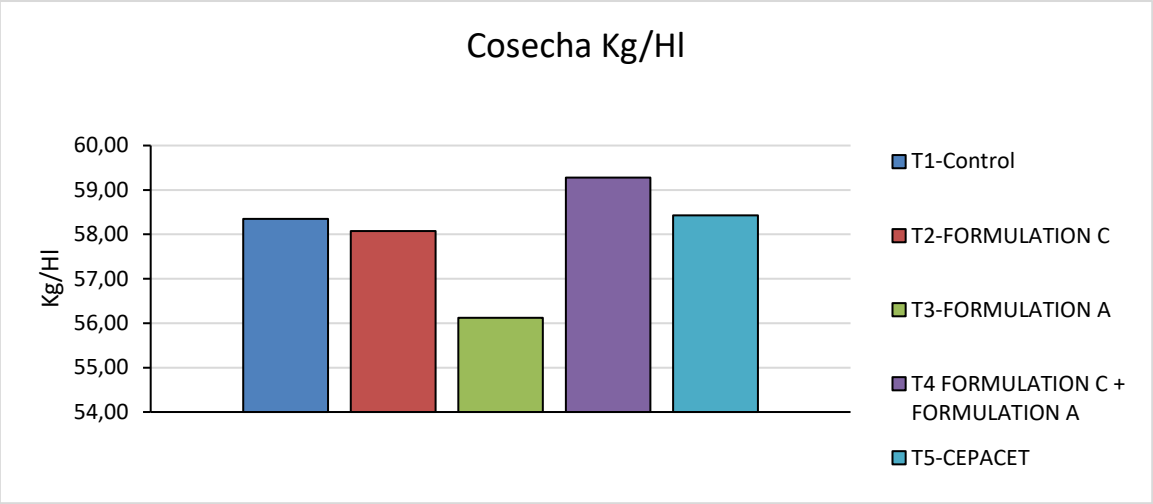


Figure 6. Evaluation of kilograms per hectoliter

Statistical analysis

There are no statistically significant differences between treatments and control, however, there are differences between T3-Formulation A and T4-Formulation C + Formulation A treatments (P=.15Student-Newman-Keuls).

% difference of treatments in kilograms/hectoliter with respect to T1-Control.

	% difference from T1-Control
T2 - Formulation C 2.5 kg/ha	-0,47
T3 - Formulation A 4 L/ha	-3,81
T4 - Formulation C 2.5 kg/ha + Formulation A 4 L/ha	1,59
T5-CEPACET	0,13

Compared to the T1-Control, the treatments showed moderate percentage variations in the specific weight of the grain, indicating differentiated effects on the physical quality of the wheat. T2 – Formulation C 2.5 kg/ha showed a slight decrease of 0.47 %, practically equivalent to the control value, while T3 – Formulation A 4 L/ha showed the greatest reduction with 3.81 %, suggesting a more notable impact on grain density. On the other hand, the combination T4 – Formulation C 2.5 kg/ha + Formulation A 4 L/ha stood out positively by increasing the weight per hectoliter by 1.59%, which reinforces the possible synergy observed between both products. Finally, T5 – CEPACET registered a minimum variation of 0.13%.

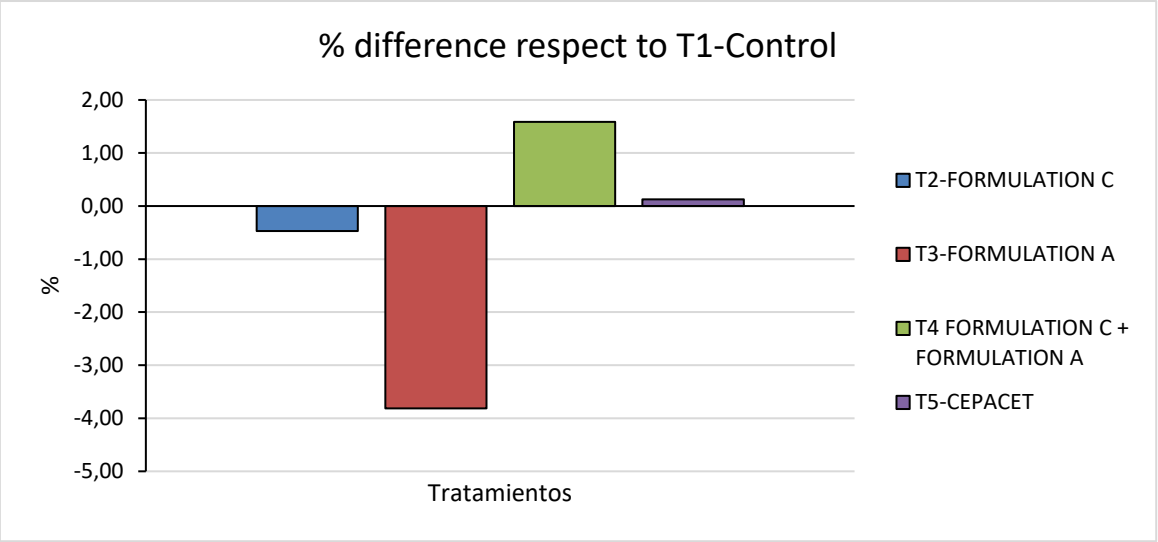


Figure 6. Percentage difference between treatments and T1-Control

3.2.4 PHYTOTOXICITY

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

3.2.5 FOLIAR AND SEED ANALYSIS

Analyses were performed for the measurement of total nitrogen (percentage of macronutrients) using the NIR technique (near-infrared spectroscopy). To this end, this parameter was evaluated during the appearance of flag leaf in wheat. The following results were obtained:

Foliar macronutrients

Treatments	N %	P %	Mg %	Wow %	K %	Na %
T1 - Control	3.60	0.22	0.16	0.41	1.52	0.01
T2 - Formulation C 2.5 kg/ha	4.05	0.20	0.20	1.63	1.09	<0.01
T3 - Formulation A 4 L/ha	3.82	0.25	0.17	0.43	1.24	<0.01
T4- Formulation C 2.5 kg/ha Formulation A 4L/Ha	3.23	0.24	0.18	0.43	1.13	<0.01
T5-CEPACET	3.53	0.24	0.16	0.40	1.36	<0.01

Foliar micronutrients

Treatments	Zn mg/Kg	Femg/Kg	Mnmg/Kg	Cumg/Kg	BMG/kg
T1 - Control	28.0	88.5	25.0	18.5	5.5
T2 - Formulation C 2.5 kg/ha	26.5	128.5	26.5	19.0	6.0
T3 - Formulation A 4 L/ha	29.0	81.0	25.0	18.5	6.0
T4- Formulation C 2.5 kg/ha Formulation A 4L/Ha	29.0	82.5	30.0	23.5	<5.0
T5-Cepacet	32	86,5	30,5	22	5

In the analysis of macronutrients in leaves they show varied nutritional values. The T1-Control shows nitrogen levels of 3.60%, phosphorus 0.22%, magnesium 0.16%, calcium 0.41%, potassium 1.52% and minimal traces of sodium. T2–Formulation C 2.5 kg/ha is characterized by a higher content of nitrogen (4.05 %) and calcium (1.63 %), together with an increase in magnesium (0.20 %), while potassium is reduced to 1.09 %. In T3 – Formulation A 4 L/ha, the values show an increase in phosphorus (0.25 %). Magnesium decreased to 0.17%, while calcium (0.43%) and potassium (1.24%) increased slightly. Nitrogen compared to the rest of the treatments, with the exception of T2-Formulation C, 2.5 kg/ha, increased to 3.82%. The combination T4 – Formulation C 2.5 kg/ha + Formulation A 4 L/ha has the lowest level of nitrogen (3.23%), although with slightly elevated phosphorus (0.24%) and magnesium (0.18%) and a stable calcium content. Finally, T5 – CEPACET offers an intermediate profile, with nitrogen of 3.53%, a phosphorus of 0.24%, magnesium and calcium similar to the control and a potassium of 1.36%, always keeping the sodium almost imperceptible.

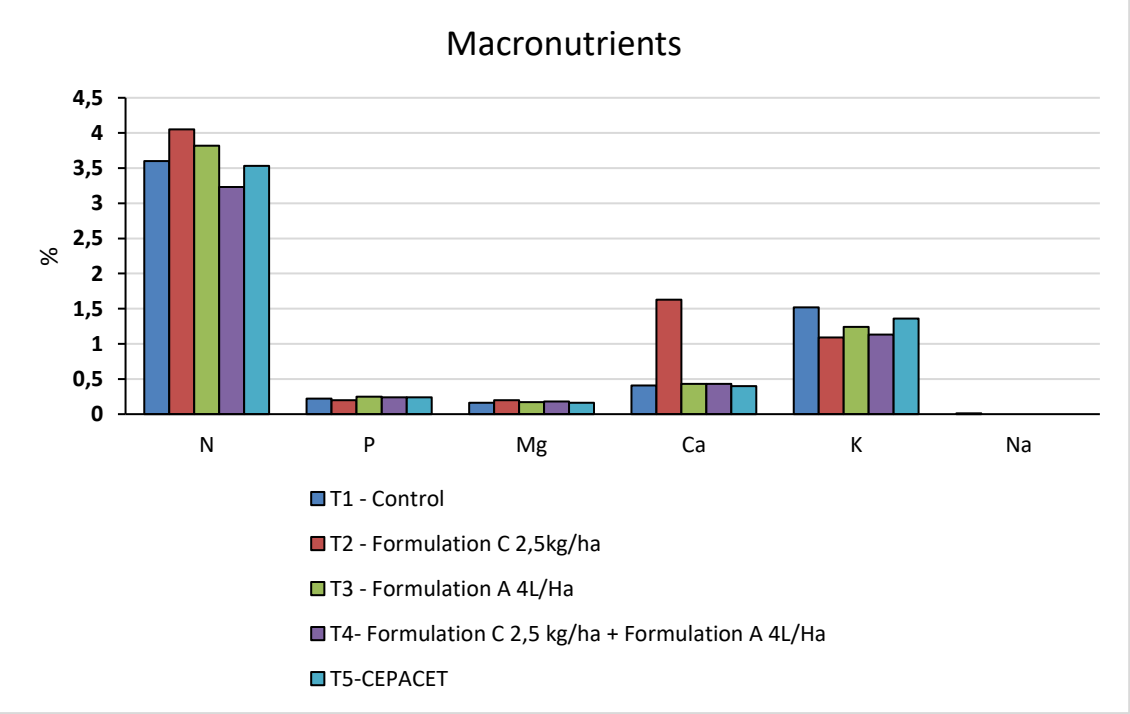


Figure 9. Analysis of macronutrients in % between the different treatments.

Regarding micronutrients, the values obtained for foliar micronutrients show responses according to the treatments applied. T1-Control has moderate levels of Zn, Mn and Cu, while Fe has a relatively low value and B remains low.

The T2 - Formulation C 2.5kg/Ha stands out mainly for its marked increase in the foliar content of Fe, reaching 128.5 mg/Kg, the highest value among all treatments. A slight increase in Mn and a general trend similar or slightly higher than those of the control in Zn, Cu and B are also observed. This suggests that this treatment favors the availability or mobility of iron in the plant, while the impact on the other micronutrients is subtle. On the other hand, the T3 - Formulation A 4L/ha has a very similar profile to the control. The values of Zn, Mn and Cu show practically no changes, although a slight increase is observed in Zn and B. Overall, the results show that this treatment generates a minimal modification in the foliar concentration of micronutrients.

Finally, T4- Formulation C 2.5 kg/ha+ Formulation A 4L/Ha produces some of the most noticeable effects. The increase in Mn stands out, reaching 30 mg/kg, and the increase in Cu to 23.5 mg/kg, the highest values among the treatments. In contrast, B appears with a value <5.0, indicating a concentration below the limit of quantification. The values of Zn and Fe remain in ranges similar to those of T3 – Formulation A 4L/Ha, suggesting that the combination of products selectively potentiates certain micronutrients, especially Mn and Cu, while not significantly increasing the concentration of Zn and Fe.

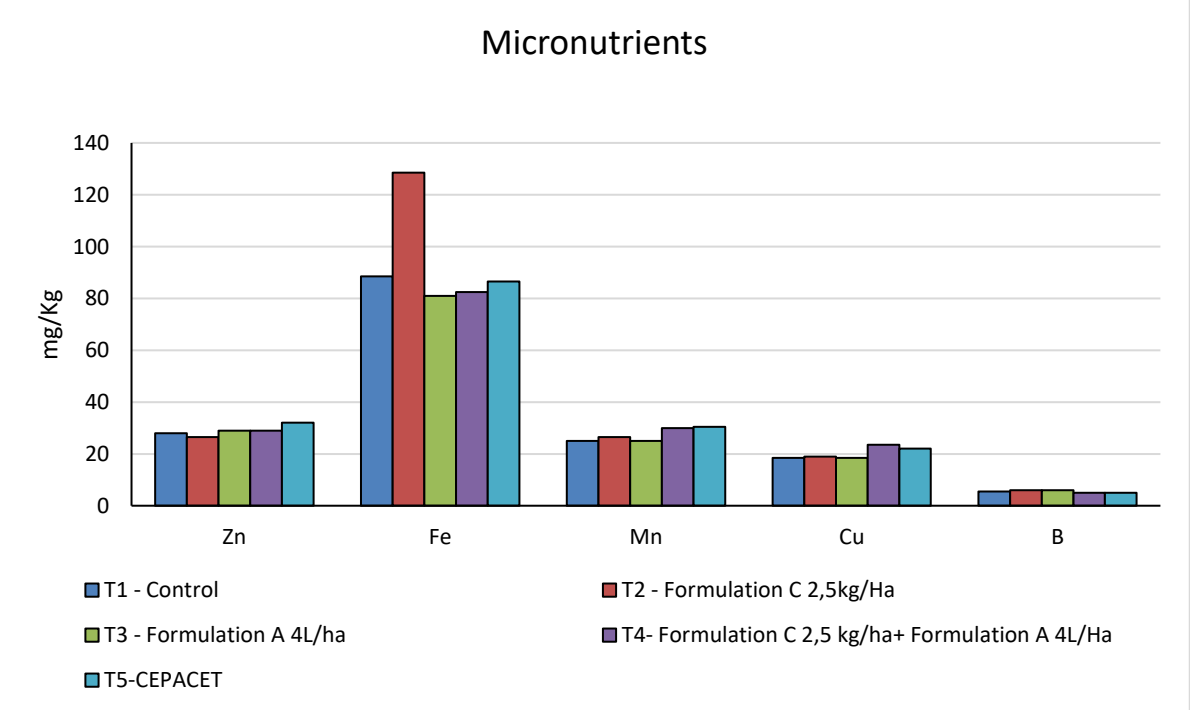


Figure 10. Analysis of micronutrients in mg/kg between the different treatments.

% difference of foliar analysis treatments compared to T1-Control.

The T2-Formulation C 2.5 kg/ha treatment showed the most marked changes, highlighting a very high increase in calcium and a significant increase in magnesium and nitrogen, although accompanied by reductions in potassium and phosphorus. In T3-Formulation A 4 L/ha, the increases were more moderate, especially in phosphorus, while potassium decreased without affecting sodium, which remained unchanged in all treatments. T4-Formulation C 2.5 kg/ha + Formulation A 4L/Ha showed an increase in phosphorus, magnesium and calcium, but a significant reduction in nitrogen and potassium. Finally, T5-CEPACET generated slight variations, with a moderate increase in phosphorus and moderate reductions in the other elements, being the most balanced treatment.

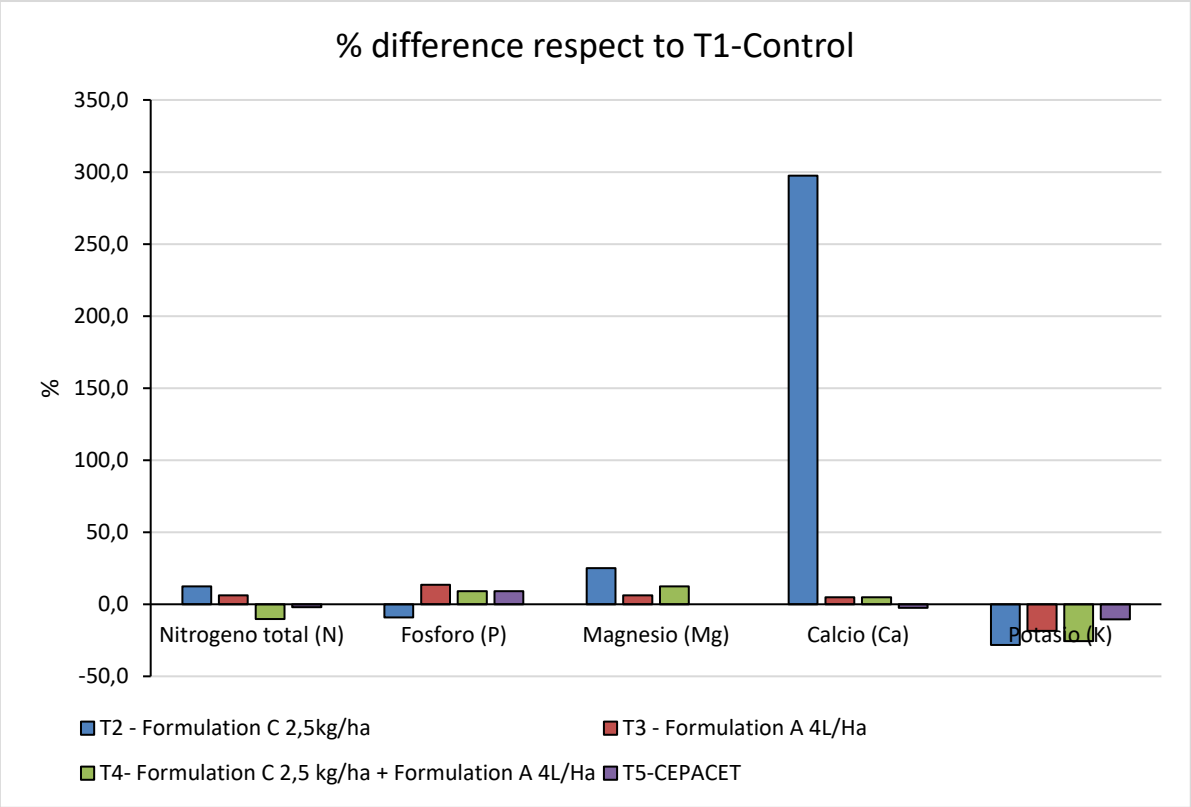
% difference in macroelements between treatments and T1-Control

Treatments	N %	P %	Mg %	Wow %	K %	Na %
T2 - Formulation C 2.5 kg/ha	12.5	-9,1	25,0	297,6	-28,3	0
T3 - Formulation A 4 L/ha	6.1	13,6	6,3	4,9	-18,4	0
T4- Formulation C 2.5 kg/ha Formulation A 4L/Ha	-10.3	9,1	12,5	4,9	-25,7	0
T5-CEPACET	-1.9	9,1	0,0	-2,4	-10,5	0

% difference of microelements between treatments and T1-Control

Treatments	Zn %	Fe%	Mn%	Co%	B%
T2 - Formulation C 2.5 kg/ha	-5.4	45.2	6.0	2.7	9.1
T3 - Formulation A 4 L/ha	3.6	-8.5	0.0	0.0	9.1
T4- Formulation C 2.5 kg/ha Formulation A 4L/Ha	3.6	-6.8	20.0	27.0	-9.1
T5-CEPACET	14.3	-2.3	22.0	18.9	-9.1

The T2-Formulation C 2.5 kg/ha treatment promoted a notable increase in iron (45.2 %) and boron (9.1 %), although it slightly reduced zinc (-5.4 %). T3-Formulation A 4 L/ha only moderately increased zinc and boron (3.6 % and 9.1 %, respectively), while iron decreased (-8.5 %) and did not affect manganese or cobalt. The combination of T4-Formulation C + Formulation A generated significant increases in manganese (20%) and cobalt (27%), although it reduced boron (-9.1%), and maintained slight increases in zinc and small decreases in iron. Finally, T5-CEPACET showed the largest increases in zinc (14.3%), manganese (22%) and cobalt (18.9%), with a slight decrease in iron (-2.3%) and boron (-9.1%).



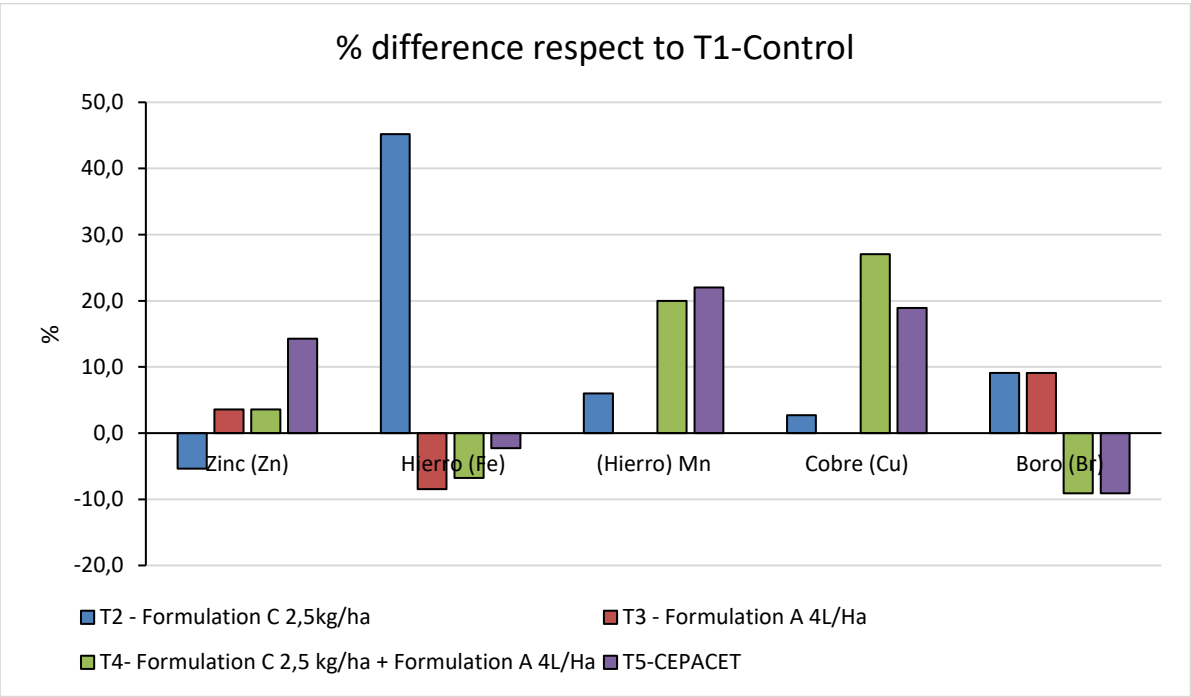


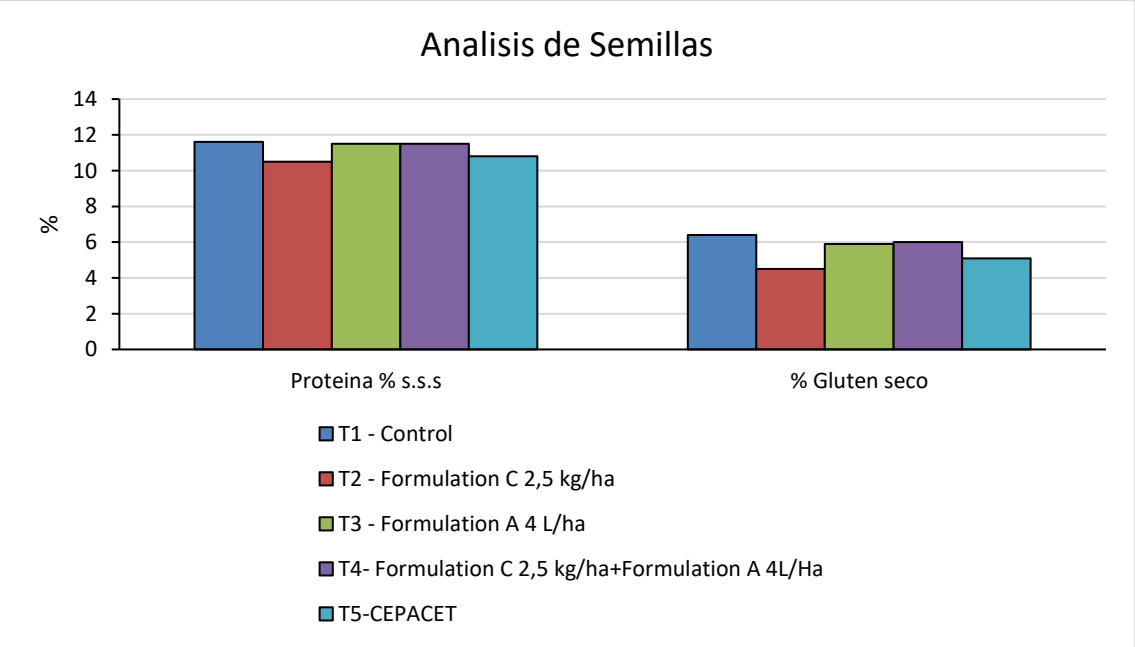
Figure 10. Percentage difference between treatments and T1 – Control

3.2.6 PROTEIN AND GLUTEN

The analysis was carried out to measure the protein (percentage) and gluten (percentage) content using the NIR (near-infrared spectroscopy) technique. To this end, this parameter was evaluated in the grain after the wheat harvest. The data show that the treatments had different effects on protein and dry gluten in the crop. T2-Formulation C 2.5 kg/ha presented the lowest

values of both protein (10.5%) and dry gluten (4.5%), indicating a negative impact on grain quality. T3-Formulation A 4 L/ha and T4-Formulation C 2.5 kg/ha + Formulation A 4L/Ha maintained levels close to control (11.5% protein and 5.9% dry gluten), showing that these treatments preserve protein quality. On the other hand, T5-CEPACET moderately reduced protein (10.8%) and dry gluten (5.1%), although less than T2.

Treatments	Proteins s.s.s (%)	Dry gluten (%)
T1-Control	11,6	6.4
T2-Formulation C 2.5 kg/ha	10.5	4.5
T3-Formulation A 4 L/ha	11,5	5.9
T4-Formulation C 2.5 kg/ha + Formulation A 4L/Ha	11,5	6
T5-CEPACET	10.8	5.1



% difference between the treatments in % Protein and % Gluten compared to T1-Control.

The results show that T3-Formulation A 4 L/ha and T4-Formulation C 2.5 kg/ha + Formulation A 4L/Ha present the lowest reductions in protein and dry gluten, indicating a practically neutral effect of grain quality. On the other hand, T2-Formulation C 2.5 kg/ha and T5-Cepacet generate more pronounced decreases, especially in gluten, suggesting a negative impact on wheat quality. In general, formulations that include treatment with Formulation A are the ones that best preserve quality parameters.

Treatments	% protein	% dried gluten
T2-Formulation C 2.5 kg/ha	-9.48	-29.69
T3-Formulation A 4 L/ha	-0.86	-7.81
T4- Formulation C 2.5 kg/ha + Formulation A 4L/Ha	-0.86	-6.25
T5-Cepacet	-6.90	-20.31

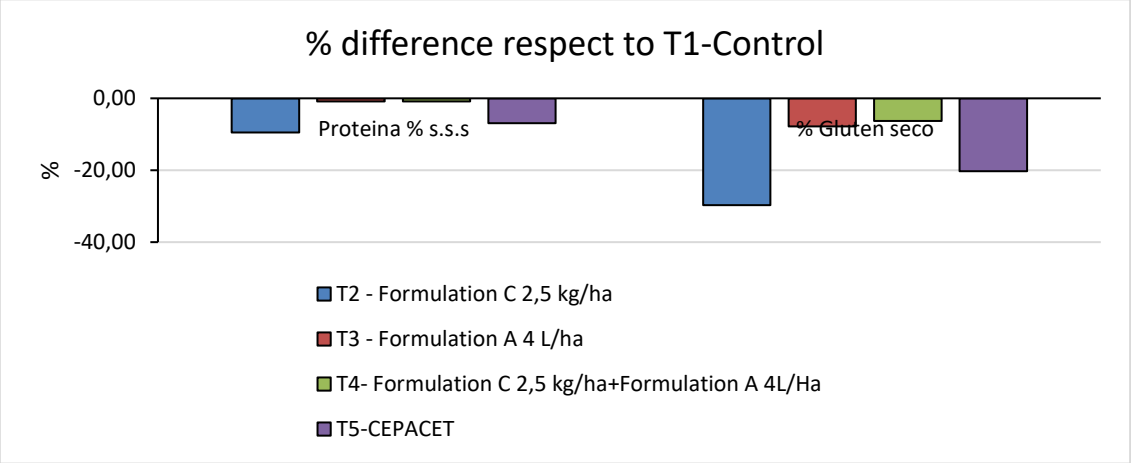


Figure 12. Percentage difference between treatments and T1 – Control

3.2.7 BACTERIA ANALYSIS

Through this analysis we can know the Ct value of each sample with which to estimate which treatment has the largest number of bacteria. To do this, a DNA extraction is carried out with a commercial Tiaris brand extraction kit. Once the DNA has been obtained, through the polymerase chain reaction and the specific design of primers, the genetic material of the total soil bacteria is amplified through the BioRad "CFX Duet" thermal cycler. Ct values are inversely proportional to the amount of genetic material present, which indicates that lower Ct values imply a greater amount of genetic material, and with it a greater number of bacteria and/or fungi. The following Ct values are obtained:

Treatments	1st Application (18/11/2024)	2nd Application (11/03/2025)	3rd Application (06/06/2025)
T1-Control	15.63	20.45	19.19
T2-Formulation C 2.5 kg/ha	15.63	21.09	20.25
T3-Formulation A 4 L/ha	15.63	21.58	20.22
T4-Formulation C 2.5 kg/ha + Formulation A 4L/Ha	15.63	19.46	19.99
T5-Cepacet	15.63	18.39	21.05

In the first application (18/11/2024), all treatments have the same value (15.63), which indicates homogeneous initial conditions. After the second application (11/03/2025), T5-Cepacet had the lowest cycle (18.39), suggesting greater bacterial abundance, while T3-Formulation A 4 L/ha showed the highest Cq (21.58), indicating lower abundance. In the third application (06/06/2025), T5-Cepacet maintained high abundance values (21.05), and the other treatments were in an intermediate range (19.19–20.25).

3.2.8 SOIL BACTERIA COUNT

To count soil bacteria, it was planted in culture plates to later count the number of colonies (CFU) with which to obtain the number of total cells per gram of soil. The following results were obtained:

	1st Application (18/11/2024)	2nd Application (11/03/2025)	3rd Application (06/06/2025)
T1 - Control	1.83x10^6	1.48 x10^6	2.50x10^3
T2 - Formulation C 2.5 kg/ha	1.83x10^6	1.50 x10^6	4.00x10^3
T3 - Formulation A 4 L/ha	1.83x10^6	1.53 x10^6	4.50x10^3
T4 - Formulation C 2.5 kg/ha + Formulation A 4 L/ha	1.83x10^6	1.50 x10^6	3.67x10^3
T5-Cepacet	1.83 x10^6	1.88 x10^6	3.33 x10^3

In the first application (11/18/2024), all treatments had the same initial density (1.83×10^6 CFU), indicating homogeneous conditions.

After the second application (11/03/2025), T5-Cepacet showed the largest increase (1.88×10^6 CFU), while the other treatments remained relatively stable ($1.48–1.53\times10^6$ CFU). In the third application (06/06/2025), all populations decreased drastically, with values in the range of 2.5×10^3 to 4.5×10^3 CFU, with T3-Formulation A 4 L/ha maintaining the highest density (4.5×10^3 CFU) and T1-Control the lowest (2.5×10^3 CFU). This suggests that, although the study formulations and T5-CEPACET may temporarily favor bacterial growth, by the third application the populations decrease significantly, possibly due to environmental factors or resource depletion.

3.2.9 SOIL FUNGUS ANALYSIS BY QPCR

Through this analysis we can know the Ct value of each sample with which to estimate which treatment has the largest amount of fungi. To do this, a DNA extraction is carried out with the use of a commercial Tiaris brand extraction kit. Once the DNA is obtained, it is used together with primers designed for the detection of bacteria and fungi in a BioRad "CFX Duet" thermal cycler. Ct values are inversely proportional to the amount of genetic material present, which indicates that lower Ct values imply a greater amount of genetic material, and with it a greater number of bacteria and/or fungi. The following Ct values are obtained:

	1st Application (18/11/2024)	2nd Application (11/03/2025)	3rd Application (06/06/2025)
T1 - Control	29.97	N/A	31.01
T2 - Formulation C 2.5 kg/ha	29.97	N/A	33.29
T3 - Formulation A 4 L/ha	29.97	N/A	31.34
T4 - Formulation C 2.5 kg/ha + Formulation A 4 L/ha	29.97	N/A	30.7
T5-CEPACET	29.97	N/A	29.1

The data from qPCR (Cq) cycles for soil fungi show that in the first application (18/11/2024) all treatments had identical values (29.97), indicating homogeneous initial conditions. In the second application, the concentration of DNA is so low that it does not exceed the detection threshold. In the third application (06/06/2025), T5-CEPACET had the lowest Cq (29.1), suggesting the highest fungal abundance, while T2-Formulation C 2.5 kg/ha had the highest Cq (33.29), indicating the lowest abundance. Treatments combined with Formulation A showed intermediate values (30.7–31.34), suggesting very mild effects on the fungal population.

Annex I. CLIMATE DATA

Datos obtenidos de Edatool:

Fecha	CE	Temperatura media ambiente	Hum Relativa (%)	Tensiometro superficial 15cm	Tensiometro profundiada 30cm
19/11/2024	1,67	15,33	70,12	10,20	16,79
20/11/2024	1,71	11,53	73,88	10,08	15,66
21/11/2024	1,72	11,96	72,99	10,98	14,57
22/11/2024	1,74	6,77	74,55	4,04	6,24
23/11/2024	1,94	7,98	75,14	5,21	7,09
24/11/2024	1,85	12,37	74,64	6,28	8,11
25/11/2024	1,76	12,47	73,32	4,69	6,59
26/11/2024	1,83	7,30	77,46	5,05	6,96
27/11/2024	1,96	6,84	76,65	4,19	7,58
28/11/2024	1,57	10,34	77,93	3,21	4,32
29/11/2024	1,77	21,19	60,71	0,59	2,91
30/11/2024	2,05	10,66	76,51	2,76	4,29
01/12/2024	2,02	9,40	79,43	2,63	3,98
02/12/2024	2,00	10.26	81,21	2,75	4,27
03/12/2024	1,94	8,56	81,89	2,76	5,22
04/12/2024	1,73	7,52	81,56	-0,05	1,55
05/12/2024	1,84	8,77	80,75	0,77	2,33
06/12/2024	1,69	12,75	81,18	0,02	1,87
07/12/2024	1,71	9,21	80,57	0,33	2,05
08/12/2024	1,59	4,24	81,96	-0,78	0,57
09/12/2024	1,60	3,48	84,33	-0,64	0,91
10/12/2024	1,69	4,05	83,65	-0,04	1,87
11/12/2024	1,74	3,25	83,74	0,01	1,93
12/12/2024	1,84	4,47	81,10	0,57	2,43
13/12/2024	1,86	2,62	83,75	0,93	2,73
14/12/2024	1,90	2,94	84,46	1,03	3,09
15/12/2024	1,83	6,29	83,45	1,03	2,89
16/12/2024	1,87	4,03	82,41	1,07	3,00
17/12/2024	1,95	4,21	81,09	1,27	3,31
18/12/2024	1,90	11,94	71,12	1,31	2,95
19/12/2024	1,75	9,60	76,49	0,37	2,79
20/12/2024	1,72	5,76	81,69	-0,41	1,21
21/12/2024	1,76	6,63	81,27	0,04	1,65
22/12/2024	1,78	5,83	79,52	0,22	1,97
23/12/2024	1,65	6,10	81,99	-0,59	0,97
24/12/2024	1,71	7,99	84,55	-0,02	1,72
25/12/2024	1,68	10,07	84,99	0,13	1,99
26/12/2024	1,71	7,49	85,82	0,50	2,28
27/12/2024	1,75	7,62	82,58	0,84	2,60

28/12/2024	1,84	5,35	81,55	1,14	2,90
29/12/2024	1,85	4,07	84,18	1,32	3,02
30/12/2024	1,89	2,62	84,50	1,54	3,09
31/12/2024	1,95	1,10	84,65	1,80	3,65
01/01/2025	2,01	0,97	86,69	1,96	3,56
02/01/2025	2,09	3,07	87,21	2,16	3,66
03/01/2025	1,93	7,62	84,84	1,12	2,61
04/01/2025	1,78	10,79	79,92	-0,22	1,20
05/01/2025	1,82	10,53	74,31	0,38	1,98
06/01/2025	1,78	7,44	76,98	0,31	2,38
07/01/2025	1,87	6,25	79,51	0,08	2,08
08/01/2025	1,80	11,75	74,40	0,38	2,09
09/01/2025	1,76	11,95	72,10	0,78	2,48
10/01/2025	1,75	13,06	76,14	1,13	2,52
11/01/2025	1,61	10,69	80,28	-0,07	1,57
12/01/2025	1,66	5,60	77,37	-0,12	1,84
13/01/2025	1,80	1,77	83,09	0,30	2,09
14/01/2025	2,59	2,32	76,46	6,09	6,99
15/01/2025	2,63	2,76	72,18	8,76	7,26
16/01/2025	2,59	4,2	75,97	6,15	7,53
17/01/2025	2,63	3,46	77,30	8,00	7,78
18/01/2025	2,62	4,65	73,54	8,25	7,97
19/01/2025	2,6	5,86	67,04	7,61	8,05
20/01/2025	2,44	4,44	79,51	7,95	8,46
21/01/2025	2,4	5,59	83,20	8,20	8,58
22/01/2025	2,29	7,84	84,62	8,21	8,58
23/01/2025	2,11	8,05	84,42	3,62	5,11
24/01/2025	2,14	10,89	78,42	4,34	5,77
25/01/2025	2,1	8,64	77,04	3,91	5,70
26/01/2025	2,21	9,39	70,35	4,12	5,59
27/01/2025	2,03	10,59	72,21	4,14	5,85
28/01/2025	2,17	5,56	73,54	4,03	5,53
29/01/2025	2,24	6,78	72,43	4,61	6,11
30/01/2025	2,18	3,74	80,43	3,92	5,61
31/01/2025	2,21	4,21	76,19	4,05	5,91
01/02/2025	2,21	5,42	77,21	4,15	5,87
02/02/2025	2,27	4,76	79,01	4,43	6,20
03/02/2025	2,28	4,94	81,52	4,82	6,61
04/02/2025	2,3	6,15	78,96	5,17	6,99
05/02/2025	2,36	5,9	76,14	5,80	7,25
06/02/2025	2,32	5,83	76,74	5,88	7,42
07/02/2025	2,36	2,57	81,06	5,70	7,12
08/02/2025	2,35	3,33	79,06	4,44	5,50
09/02/2025	2,28	7,88	77,10	4,45	6,09
10/02/2025	2,23	7,04	81,62	4,74	6,48
11/02/2025	2,13	8,73	81,72	4,99	6,70

12/02/2025	2,04	7,06	82,89	3,88	5,37
13/02/2025	2,14	7,15	83,17	4,16	5,85
14/02/2025	2,07	10,96	78,34	4,25	6,16
15/02/2025	2,13	10,38	74,67	4,71	6,45
16/02/2025	2,07	11,61	69,70	5,14	6,75
17/02/2025	2,06	10,56	71,46	5,76	7,25
18/02/2025	2,07	9,79	75,63	6,67	7,58
19/02/2025	2,02	11,72	75,63	7,38	7,94
20/02/2025	2,02	11,88	73,78	8,53	8,56
21/02/2025	2	9,76	81,24	9,79	8,91
22/02/2025	1,88	8,91	76,35	3,77	5,58
23/02/2025	2,03	8,86	74,94	4,63	6,43
24/02/2025	2,04	11,39	63,33	5,30	6,71
25/02/2025	2,06	7,61	73,29	6,23	7,80
26/02/2025	2,2	6,83	70,75	6,72	7,72
27/02/2025	2,22	6,98	69,37	7,51	8,25
28/02/2025	2,27	6,09	76,70	8,09	8,51
01/03/2025	2,35	4,09	75,97	9,12	9,09
02/03/2025	2,39	3,76	76,73	10,41	9,49
03/03/2025	2,19	6,95	81,35	11,31	9,56
04/03/2025	2,04	9,65	79,89	11,36	9,58
05/03/2025	2	10,14	73,51	11,91	10,08
06/03/2025	1,96	9,22	77,18	12,96	10,72
07/03/2025	1,93	10,05	79,49	13,28	10,64
08/03/2025	1,87	9,76	78,65	11,11	9,00
09/03/2025	1,89	7,5	76,54	3,91	5,72
10/03/2025	1,98	7,91	75,20	4,46	6,26
11/03/2025	1,94	7,71	80,81	4,51	6,18
12/03/2025	1,96	7,31	80,96	3,63	5,29
13/03/2025	2,05	4,44	81,44	3,42	4,93
14/03/2025	2,25	2,46	80,68	4,32	6,03
15/03/2025	2,35	2,23	80,68	4,93	6,63
16/03/2025	2,34	2,82	77,58	5,09	6,99
17/03/2025	2,32	4,6	73,77	6,05	7,03
18/03/2025	2,15	6,26	79,13	6,11	7,55
19/03/2025	1,97	10,21	79,95	6,42	7,44
20/03/2025	1,85	11,46	79,70	7,37	8,14
21/03/2025	1,76	11,43	73,18	3,74	5,23
22/03/2025	1,87	7,29	75,86	3,55	5,05
23/03/2025	1,91	5,95	78,55	3,66	5,15
24/03/2025	1,94	6,03	83,68	3,17	4,32
25/03/2025	1,99	7,47	85,06	3,70	4,94
26/03/2025	2,07	6,68	83,65	3,96	5,99
27/03/2025	2,15	6,01	85,97	4,30	6,36
28/03/2025	2,18	7,47	80,50	4,50	6,39
29/03/2025	2,19	6,37	79,99	4,73	6,80

30/03/2025	2,21	7,66	72,08	5,15	6,81
31/03/2025	2,18	10,63	67,15	34,30	7,18
01/04/2025	2,09	14,4	65,92	8,18	7,54
02/04/2025	2,07	9,72	74,24	0,40	8,68
03/04/2025	2,03	8,8	83,19	-1,47	4,62
04/04/2025	2,05	12,03	77,79	-1,18	5,85
05/04/2025	2	11,92	73,95	0,44	6,65
06/04/2025	2,01	12,48	72,92	0,48	7,25
07/04/2025	2,03	13,2	69,45	0,45	7,99
08/04/2025	2,01	15,83	61,32	0,41	8,98
09/04/2025	1,97	16,51	64,99	0,40	10,85
10/04/2025	1,96	13,42	69,16	0,41	12,80
11/04/2025	1,93	12,2	74,84	0,41	14,48
12/04/2025	1,95	12,51	75,48	-0,30	14,65
13/04/2025	2,04	10,88	82,06	-4,62	8,83
14/04/2025	2,11	11,83	77,23	-4,31	9,30
15/04/2025	2,11	7,57	75,84	0,22	9,49
16/04/2025	2,19	5,92	76,28	0,79	5,75
17/04/2025	2,19	9,2	71,43	0,33	6,47
18/04/2025	2,06	13,32	68,40	0,09	6,45
19/04/2025	1,99	8,11	75,87	-1,80	4,72
20/04/2025	2,09	8,16	76,25	-0,56	5,52
21/04/2025	2,07	11,4	75,86	-0,80	6,46
22/04/2025	2,01	9,23	77,48	-0,88	5,14
23/04/2025	2,11	10,5	74,28	0,32	6,44
24/04/2025	2,07	13,01	74,44	0,38	7,25
25/04/2025	2,02	15,28	70,97	0,34	7,85
26/04/2025	2	10,29	78,84	-1,24	5,70
27/04/2025	2,09	10,04	80,82	0,02	6,95
28/04/2025	2,08	13,46	74,40	0,03	7,46
29/04/2025	2	15,31	65,95	0,41	9,45
30/04/2025	1,97	14,8	65,09	0,45	12,09
01/05/2025	1,96	14,89	67,93	0,48	15,28
02/05/2025	1,91	13,44	73,25	-1,89	11,25
03/05/2025	1,93	15,85	71,42	-3,73	6,88
04/05/2025	1,96	13,42	74,39	0,00	8,48
05/05/2025	1,99	9,59	80,28	-0,46	7,74
06/05/2025	2,1	6,51	80,69	0,77	10,99
07/05/2025	2,09	9,77	74,49	0,36	12,54
08/05/2025	2,03	10,98	72,87	0,45	15,46
09/05/2025	1,98	9,82	79,02	-0,39	14,17
10/05/2025	1,9	11,2	80,88	-3,67	4,81
11/05/2025	1,94	10,58	75,04	-3,17	5,33
12/05/2025	1,93	11,03	74,39	-1,22	5,49
13/05/2025	1,9	13,24	74,21	-0,70	5,37
14/05/2025	1,9	11,58	80,88	0,00	5,35

15/05/2025	1,88	10,65	86,41	1,04	5,61
16/05/2025	1,92	12,51	78,45	0,86	6,87
17/05/2025	1,93	13,83	72,57	0,21	7,86
18/05/2025	1,86	18,3	70,05	0,45	9,41
19/05/2025	1,85	13,96	73,60	0,50	11,35
20/05/2025	1,93	12,45	76,25	0,53	10,59
21/05/2025	1,95	12,68	76,64	0,52	16,58
22/05/2025	1,97	11,4	77,92	0,54	20,13
23/05/2025	1,97	11,93	74,18	0,53	22,84
24/05/2025	1,94	13,76	67,78	0,50	25,27
25/05/2025	1,89	15,77	65,78	0,50	28,77
26/05/2025	1,86	14,18	74,60	0,52	32,29
27/05/2025	1,88	15,74	68,15	0,47	33,97
28/05/2025	1,86	18,01	64,18	0,46	36,23
29/05/2025	1,85	21,23	61,71	0,45	37,81
30/05/2025	1,84	20,93	61,87	0,43	40,70
31/05/2025	1,86	21,48	67,58	0,43	41,74
01/06/2025	1,85	15,74	79,18	0,50	44,09
02/06/2025	1,91	12,76	84,85	0,12	45,71
03/06/2025	1,47	15,33	82,48	46,21	22,46
04/06/2025	1,48	16,21	81,41	52,17	34,07
05/06/2025	1,49	16,78	76,00	52,56	40,17
06/06/2025	1,46	18,32	74,41	53,07	42,91
07/06/2025	1,44	17,02	76,35	38,21	44,73
08/06/2025	1,43	16,81	75,43	31,54	46,46
09/06/2025	1,44	19,67	74,96	21,28	47,53
10/06/2025	1,40	25,07	70,69	25,29	47,89
11/06/2025	1,40	19,89	70,25	31,84	49,87
12/06/2025	1,38	19,81	74,32	34,69	50,48
13/06/2025	1,36	22,00	72,85	35,40	50,78
14/06/2025	1,35	17,90	76,57	38,36	52,48
15/06/2025	1,35	15,81	79,95	40,87	53,68
16/06/2025	1,35	19,55	77,25	41,84	54,00
17/06/2025	1,33	22,91	73,70	42,54	54,28
18/06/2025	1,35	25,58	65,92	43,35	53,92
19/06/2025	1,35	25,25	67,99	44,29	53,90
20/06/2025	1,36	25,62	64,84	45,38	54,03
21/06/2025	1,33	25,09	63,91	46,32	53,90
22/06/2025	1,32	24,16	70,11	46,96	54,34
23/06/2025	1,32	23,42	73,64	47,69	54,42
24/06/2025	1,32	24,14	70,37	48,02	54,30
25/06/2025	1,33	20,50	73,21	49,04	54,66
26/06/2025	1,33	19,26	71,89	50,24	55,50
27/06/2025	1,33	22,04	67,25	50,41	55,55
28/06/2025	1,32	23,88	65,67	50,53	55,52
29/06/2025	1,30	25,96	63,09	50,47	55,24

30/06/2025	1,28	27,57	52,72	50,61	54,91
01/07/2025	1,27	25,95	59,64	51,01	54,73
02/07/2025	1,28	20,54	74,42	52,38	43,19
03/07/2025	1,30	20,06	73,85	53,24	-2,39
04/07/2025	1,29	23,28	71,06	53,14	-2,67
05/07/2025	1,27	23,64	66,41	52,84	-2,68
06/07/2025	1,28	20,08	66,23	41,60	-2,65
07/07/2025	1,29	18,79	70,38	-2,05	-2,66
08/07/2025	1,31	17,82	68,10	-2,68	-2,65
09/07/2025	1,31	19,70	64,67	-2,67	-2,68
10/07/2025	1,28	23,96	62,45	-2,68	-2,73
11/07/2025	1,27	22,87	66,18	-2,66	-2,73
12/07/2025	1,24	22,35	73,33	-5,53	-3,75
13/07/2025	1,25	21,13	75,29	-5,16	-3,51
14/07/2025	1,29	20,07	76,35	-3,92	-2,82
15/07/2025	1,29	19,77	73,88	-2,87	-2,22
16/07/2025	1,27	22,97	65,86	-2,99	-2,61
17/07/2025	1,25	23,85	66,45	-3,30	-3,24
18/07/2025	1,23	20,83	71,62	-2,54	-2,65
19/07/2025	1,24	21,34	68,69	-2,21	-2,51
20/07/2025	1,25	20,72	62,19	-1,74	-2,19
21/07/2025	1,24	17,79	67,10	-0,78	-1,20
22/07/2025	1,24	17,20	71,46	-0,04	-0,49

Datos obtenidos de la estación climática más cercana al ensayo:

FECHA	Temp Media (ºC)	Temp Max (ºC)	Temp Mínima (ºC)	Humedad Media (%)	Humedad Max (%)	Humedad Min (%)	Precipitación (mm)
18/11/2024	10,76	16,49	7,28	85,4	96,1	62,52	0
19/11/2024	10,53	17,4	4,86	84,2	98,6	60,25	0,2
20/11/2024	10,54	12,92	8,97	75,57	83,6	63,75	0
21/11/2024	11,75	13,81	7,36	72,93	94,5	60,5	8,8
22/11/2024	5,94	10,76	0,67	77,2	93,8	58,93	0,2
23/11/2024	6,87	13,23	0,67	81,6	96,2	64,14	0
24/11/2024	12,48	15,7	9,03	73,41	87,5	58,27	0
25/11/2024	11,93	17,67	4,58	75,18	94,9	47,71	13
26/11/2024	7,32	11,29	4,11	82,1	92,4	70,58	0
27/11/2024	6,62	13,35	1,65	82,5	96,7	59,48	0,2
28/11/2024	5,79	13,83	0,12	90	98,1	66,79	0
29/11/2024	7,98	18,28	0,57	87,1	98,7	53,95	0,2
30/11/2024	10,65	18,34	2,67	84,7	98,5	61,03	0,2

01/12/2024	9,61	14,19	5,6	89,6	97,7	76,25	0
02/12/2024	9,83	14,65	6,77	88,5	97,6	69,7	1,4
03/12/2024	8,04	10,48	6,29	90,9	96,8	75,51	8,4
04/12/2024	7,12	12,01	2,87	87,7	96,6	66,91	2,8
05/12/2024	8,79	13,99	2,95	84	97,8	68,04	2,4
06/12/2024	11,89	14,78	10,57	88,6	95,5	81,9	0,8
07/12/2024	8,19	12,49	2,93	83,5	93	63,53	6,8
08/12/2024	3,75	5,45	2,29	87,95	94,4	79,42	34,2
09/12/2024	3,3	6,12	0,47	91,9	97,1	85,1	21,4
10/12/2024	3,41	4,66	2,04	89,8	96,4	83	2,6
11/12/2024	2,68	4,7	1,59	88,9	97	77,3	0
12/12/2024	3,61	8,65	-1,69	85,1	97,2	72,9	0
13/12/2024	2,27	5,76	-0,61	88,2	97,9	70,9	0,8
14/12/2024	2,7	9,91	-2,71	91,2	98,8	67,46	0,4
15/12/2024	5,39	8,94	3,77	91,3	96,2	77	0,8
16/12/2024	3,35	10,11	-0,02	92,3	98,5	69,36	0,2
17/12/2024	3,81	11,15	-1,65	82,6	98,5	51,37	0,2
18/12/2024	10,86	15,75	4,15	64,26	78,67	52,59	0
19/12/2024	8,81	12,68	4,19	81	91	68,47	3,6
20/12/2024	5,18	7,54	3,62	90,5	96,9	80,5	2,4
21/12/2024	5,68	10,34	2,79	86	98,3	71,46	0
22/12/2024	5,69	11,94	1	85,9	94,8	67,43	7,4
23/12/2024	5,64	6,59	5,07	86,9	95,3	75,65	10
24/12/2024	7,3	10,16	4,94	95,5	97,8	88,5	0,6
25/12/2024	7,4	8,15	4,55	69,3	97,75	90,8	0,4
26/12/2024	6,7	7,81	4,35	97,2	98,7	94,7	0,2
27/12/2024	7,27	13,35	2,53	88,5	98,9	61,68	0
28/12/2024	5,53	12,62	1,24	87,6	98,3	60,57	0
29/12/2024	3,63	4,8	1,65	96,8	98,2	92,7	0
30/12/2024	1,98	6,62	-0,59	93,2	98,5	72,64	0,2
31/12/2024	0,88	7,07	-1,5	94,1	98,6	70,39	0
01/01/2025	0,19	4,9	-1,42	94,4	98,6	76,46	0
02/01/2025	2,67	7,32	-1,75	86,8	97,7	71,73	0
03/01/2025	6,82	8,68	3,87	86,8	92,6	75,79	11,1
04/01/2025	9,75	12,61	8,38	76,63	90,7	62,86	0
05/01/2025	9,87	13,82	6,1	71,88	88,2	55,36	0
06/01/2025	7,1	11,59	-0,1	80,5	96,3	65,44	2,4
07/01/2025	5,81	10,57	-0,61	82,5	96,5	73,1	0
08/01/2025	11,01	12,75	9,55	70,63	80,4	59,89	0
09/01/2025	11,03	16,14	6,49	74,23	95,5	51,63	0
10/01/2025	12,47	15,48	8,22	75,9	92,8	60,89	0
11/01/2025	10,07	12,68	7,46	85,7	95,6	65,63	11,57
12/01/2025	4,92	8,41	-1,89	78,43	95,2	50,7	0,5
13/01/2025	0,02	6,01	-3,89	82,8	93,8	56,24	0
14/01/2025	0,83	8,81	-4,58	82,7	96,1	57,58	0
15/01/2025	0,88	10,67	-3,79	83,5	97,5	48,38	0

16/01/2025	4,08	8,46	-1,2	85,2	96,4	70,06	0
17/01/2025	-0,66	5,59	-3,78	95,6	98,2	88,6	0
18/01/2025	1,41	10,27	-5,33	83,6	97,6	53,06	0
19/01/2025	2,81	10,81	-4,23	76,97	96,6	44,67	0,8
20/01/2025	4,48	9,28	2,32	88,8	97	71,81	0
21/01/2025	5,3	7,89	2,75	92,9	97,8	82,4	0,3
22/01/2025	7,41	14,17	4,46	96	98,8	68,26	4,61
23/01/2025	8,17	11,77	5,37	89,1	98	70,16	2,52
24/01/2025	10,48	14,29	7,08	79,53	94,5	67,31	0
25/01/2025	8,63	12,63	1,69	79,73	95,5	53,32	2,95
26/01/2025	9,95	15,92	1,69	65,99	95,9	54,16	0
27/01/2025	10,5	15,46	4,68	72,76	91,9	48,04	5,9
28/01/2025	5,97	9,16	3,95	72,63	86,9	65,3	0
29/01/2025	7,34	12,67	5,13	68,99	76,17	54,61	0
30/01/2025	4,31	6,02	2,16	85,8	93,4	70,36	17,68
31/01/2025	3,37	9,94	-0,61	78,58	93,2	48,05	0
01/02/2025	5,2	10,05	0,72	86,3	95,5	68,4	1
02/02/2025	3,49	7,48	-1,79	89,3	98,3	74,54	0
03/02/2025	3,91	8,97	-0,53	91,6	97,8	76,19	0
04/02/2025	4,36	13,11	-0,73	86,3	98,5	54,08	0
05/02/2025	3,65	11,97	-2,52	85,8	98	59,4	0
06/02/2025	4,83	12,13	1,06	82,7	97,4	49,06	0
07/02/2025	2,09	5,61	-0,06	91,9	97,3	83,1	7,26
08/02/2025	2,65	8,26	-2,81	84,4	98,4	59,01	0
09/02/2025	8,1	11,78	4,31	78,87	89,8	66,72	0
10/02/2025	7,06	11,3	4,48	87,4	97,3	69,95	0
11/02/2025	8,69	14	4,8	84,6	98,1	58,59	0
12/02/2025	7,52	10,66	5,37	88,3	98	73,74	9,64
13/02/2025	6,2	10,32	-0,02	92,4	98,7	72,99	1
14/02/2025	9,48	16,86	3,97	82,4	98,7	51,69	0
15/02/2025	7,67	16,4	0,57	85,7	98,4	55,01	0
16/02/2025	10,46	18,43	4,31	73,5	98,2	37,04	0
17/02/2025	10,09	16,71	4,68	76,57	93,9	46,9	0
18/02/2025	8,4	15,83	2,87	84	97,7	59,54	0
19/02/2025	10,39	16,41	5,94	82,6	97,4	58,12	0
20/02/2025	10,67	16,46	5,84	79,5	94	59,81	0
21/02/2025	9,93	13,03	6,28	86,8	98,3	67,27	0
22/02/2025	8,84	13,81	4,15	77,34	93,9	53,93	0
23/02/2025	6,98	15,33	0,41	81,4	98,2	52,17	0
24/02/2025	11,01	15,84	4,74	60,73	87,3	39,67	0
25/02/2025	7,68	12,92	1,37	77,79	93,6	55,43	3,21
26/02/2025	5,83	13,63	-0,16	74,54	96,3	37,43	0
27/02/2025	5,47	11,12	0,31	79,36	95,4	53,05	0
28/02/2025	5,66	11,53	1,27	83,1	97	63,72	0
01/03/2025	4,47	7,23	2,85	75,45	88,3	58,14	0
02/03/2025	3,8	8,41	-1,73	79,11	91,5	61,67	0

03/03/2025	7,78	10,48	5,94	83,2	92,7	71,24	1,7
04/03/2025	10,43	14,59	7,99	76,98	89,4	57,37	0
05/03/2025	10,99	14,74	7,36	67,96	83,3	56,18	0
06/03/2025	10,27	13,91	7,57	75,15	88,8	57,05	2,5
07/03/2025	10,91	14,45	7,91	77,37	88,2	62,51	0,3
08/03/2025	10,42	13,5	6,27	77,05	91,6	64,28	28,1
09/03/2025	7,59	13,77	2,61	78,16	97,1	46,42	1
10/03/2025	7,79	14,5	1,2	76,11	95,8	46,69	0
11/03/2025	8,43	13,06	6,35	85,7	93,5	67,18	3,99
12/03/2025	7,37	13,43	3,81	84,1	97	54	1,5
13/03/2025	4,93	9,37	1,98	84,5	97	59,13	1,6
14/03/2025	2,52	7,63	-0,47	84,9	96,5	63,14	0,2
15/03/2025	2,41	7,22	-1,87	84,8	97,5	56,3	0,2
16/03/2025	2,26	9,32	-1,59	81,7	96,8	43,07	0
17/03/2025	3,82	12,29	-3,74	75,13	96,1	43,16	0
18/03/2025	7,3	11,31	5,31	78,4	86,7	66,52	0
19/03/2025	11	15,45	6,93	77,11	91,1	61,38	0
20/03/2025	12,43	13,82	10,95	77,05	90,5	67,32	1,17
21/03/2025	11,69	15,34	7,16	66,07	93,8	45,2	16,38
22/03/2025	7,55	11,98	5,37	78,32	90,8	66,51	11,12
23/03/2025	6,12	10,3	2,61	83,3	96,1	59,47	1,31
24/03/2025	6,29	9,17	2,93	92,6	97,2	83,1	21,51
25/03/2025	8,12	10,64	5,86	87,6	97,7	74,9	0,4
26/03/2025	7,36	9,36	6,02	85,8	95,4	71,93	0,7
27/03/2025	6,63	9,1	4,52	91	97,5	82	0
28/03/2025	7,8	12,74	3,64	81	94,8	59,2	0
29/03/2025	6,96	10,82	3,44	80,2	97,3	60,76	1,3
30/03/2025	6,71	13,99	0,82	74,05	95,4	42,57	0
31/03/2025	9,39	19,88	-1,24	73,5	95,9	41,3	0
4/1/2025	12,41	25,69	1,71	71,21	98,1	32,74	0
4/2/2025	9,63	15,27	3,91	81,9	96,3	58,87	7,23
4/3/2025	9,78	12,06	7,97	84,9	93	73,99	6,27
4/4/2025	12,89	18,03	9,9	72,4	83	58,33	0,1
4/5/2025	12,09	17,07	8,05	75,83	90	55,76	0
4/6/2025	11,47	18,34	5,66	79,44	97,1	54,67	0
4/7/2025	11,29	21,14	3,01	77,55	98,2	39,8	0
4/8/2025	13,38	25,12	2,44	70,13	97	29,73	0
4/9/2025	14,44	24,68	6,41	71,85	96,8	39,46	0
4/10/2025	12,7	19,96	5,01	77,95	92,5	58,13	2,1
4/11/2025	12,58	15,86	9,76	73,98	85,9	56,91	0
4/12/2025	12,71	20,04	8,03	79,98	94,8	55,83	3,02
4/13/2025	11,18	14,62	9,11	90,3	97,2	78,56	3,44
4/14/2025	11,73	17,62	5,61	75,5	97,5	44,67	0
4/15/2025	7,21	10,96	2,3	82,1	96,3	66,66	8,42
4/16/2025	5,1	11,69	-0,91	82,4	98,1	55,22	1,3
4/17/2025	8,43	16,99	-1,32	74,93	97,9	43,12	0

4/18/2025	12,11	20,8	6,67	73,8	90,9	42,91	5,2
4/19/2025	8	13,07	5,23	81,1	94,7	54,74	10,2
4/20/2025	8,6	13,41	4,66	81,6	93,4	57,52	0
4/21/2025	11,31	18,13	6,59	81,3	97	50,18	6,03
4/22/2025	9,12	13,85	3,16	80,1	94,6	53,33	5,13
4/23/2025	9,91	19,36	1	80,2	97,4	55,81	0
4/24/2025	12,09	21,08	4,68	81,1	97,7	50,65	0
4/25/2025	13,84	27,72	5,69	79,43	98,3	28,63	9,85
4/26/2025	10,61	14,89	8,29	85,9	96,5	68,69	0,3
4/27/2025	9,96	14,89	5,55	87,1	96,8	67,86	0,6
4/28/2025	12,35	21,41	2,77	76,43	98,3	49,81	0
4/29/2025	15,86	19,95	11,14	59,84	76,06	46,82	0
4/30/2025	15,3	19,55	10,16	61,97	78,9	45,62	0,2
5/1/2025	15,82	20,84	10,61	64,4	91,1	49,2	0,2
5/2/2025	13,63	18,04	9,23	77,53	94,9	56,78	10,6
5/3/2025	15,15	23,02	7,73	76,89	98,1	42,57	1,1
5/4/2025	12,87	19,21	7,57	85,1	97,8	53,66	4,4
5/5/2025	9,61	13,56	4,9	85,2	96,5	59,48	0,8
5/6/2025	6,86	10,48	4,07	85,2	95	71,37	0
5/7/2025	9,43	16,58	2,42	76,92	97,6	45,19	0
5/8/2025	10,59	17,76	4,07	77,02	97,1	48,52	0
5/9/2025	10	14,64	7,32	90	97,2	71,72	19,16
5/10/2025	10,71	17,31	5,63	86,9	98,4	60,63	3,78
5/11/2025	10,4	15,25	5,64	78,06	97	54,75	4,2
5/12/2025	10,82	17,83	4,07	79,85	98,2	50,28	4,47
5/13/2025	12,92	19,38	8,09	79,62	96,4	45,74	0,7
5/14/2025	11,52	19,18	7,57	91,4	98	64,24	10,4
5/15/2025	11,23	13,93	9,51	90,5	96,5	83,1	1,1
5/16/2025	12,13	18,67	5,68	78,25	98	52,58	0
5/17/2025	13,29	23,05	5,35	77,12	98,2	33,24	0
5/18/2025	16,98	26,55	7	74,58	98,1	42,85	0
5/19/2025	13,25	18,11	8,8	82,5	96	54,27	4,72
5/20/2025	11,91	19,18	5,62	81,3	98	53,6	0
5/21/2025	11,65	20,85	4,23	84,9	98,2	56,23	1,69
5/22/2025	11,09	16,23	6,02	81,2	96	55,83	1,2
5/23/2025	11,31	18,73	6,27	78,23	97	51,85	0,1
5/24/2025	12,77	22,47	2,77	71,75	98,1	28,92	0
5/25/2025	14,41	22,38	5,58	74,81	96,8	45,28	0
5/26/2025	14,29	19,67	9,67	81,5	95,5	61,03	0,1
5/27/2025	14,84	25,01	5,29	71,08	97,3	34,39	0
5/28/2025	16,55	26,1	6,2	70,8	95	34,26	0
5/29/2025	19,8	33,21	7,44	65,34	97,8	20,54	0
5/30/2025	18,65	29,9	11,69	76,16	94,3	36,56	2,1
5/31/2025	19,93	31,29	10,57	76,38	97,4	34,12	0
6/1/2025	15,67	21,6	12,44	88	97,1	70,16	2,4
6/2/2025	13,17	15,01	12,19	92,8	97,2	85,4	5,04

6/3/2025	13,76	17,82	11,48	92,7	98,2	79,96	5,4
6/4/2025	14,66	22,26	10,08	83,4	98,2	56,05	0
6/5/2025	16,84	26,34	8,62	72,23	96,5	41,02	0
6/6/2025	17,73	26,52	9,58	75,58	97,2	40,12	0
6/7/2025	16,34	22,57	11,06	76,56	90,9	54,47	0
6/8/2025	16,17	22,62	11,85	74,69	92,5	50,96	0
6/9/2025	19,02	30,26	9,03	74,25	97,6	30,67	0
6/10/2025	22,83	33,85	13,17	64,77	96,1	32,11	0
6/11/2025	19,68	26,53	13,33	73,29	94	43,72	9,07
6/12/2025	19,16	26,76	11,55	75,35	97,6	42,98	0,2
6/13/2025	20,54	30,86	10,73	73,33	96,2	38,24	0
6/14/2025	17,24	23,74	13,89	79,79	91,3	61,37	0
6/15/2025	15,43	19,68	13,1	81,2	93,4	65,63	0
6/16/2025	19,16	27,19	13,75	74,88	95,6	52,36	0
6/17/2025	21,37	31	14,07	70,66	96,8	40,75	0
6/18/2025	22,35	33,84	10,7	65,64	96,6	30,92	0
6/19/2025	21,61	34,38	15,52	75,22	95,4	34,59	0
6/20/2025	23,89	34,45	12,54	60,7	96,9	24,06	0
6/21/2025	23,73	36	15,52	64,73	92,5	27,03	4,22
6/22/2025	22,27	33,57	15,78	73,54	94,1	38,67	1,3
6/23/2025	21,38	30,78	13,57	77,59	97,6	47,39	0
6/24/2025	23,39	34,87	16,82	70,98	96,1	25,68	3
6/25/2025	20,42	29,18	13,6	72,91	97,6	31,35	0
6/26/2025	19,12	26,77	12,79	74,11	95,7	46,43	0
6/27/2025	22,03	32,5	11,2	65,51	97,5	31,86	0
6/28/2025	23,98	34,26	13,6	65,73	96,5	31,95	0
6/29/2025	25,89	36,5	14,31	57,2	97,4	20,74	0
6/30/2025	26,72	37,35	15,28	47,42	80,8	18,6	0
7/1/2025	25,19	37,37	14,81	63,31	93	22,77	0,2
7/2/2025	19,75	24,24	16,58	81,7	96,5	64,41	0
7/3/2025	19,13	27,01	15,19	75,01	89	51,97	0
7/4/2025	22,24	32,5	14,69	73,31	95,6	39,17	0
7/5/2025	22,53	30,75	13,74	62,98	91,1	40,08	0
7/6/2025	19,55	27,01	12,83	67,75	96,1	41,97	0
7/7/2025	17,51	22,78	13	77,15	95,7	50,22	0,4
7/8/2025	16,99	24,63	10,37	68,73	96,1	39,4	0
7/9/2025	19,59	31,03	8,64	67,23	97,1	31,89	0
7/10/2025	22,72	34,03	11,63	63,02	96,3	32,01	0
7/11/2025	21,19	33,45	14,22	73,47	96,3	37,92	42,4
7/12/2025	19,13	26,37	14,35	83	97,5	51,23	0
7/13/2025	20,03	29,42	15,25	81,5	96,4	45,89	1,9
7/14/2025	19,59	26,16	16,65	77,95	90,3	55,69	0
7/15/2025	19,12	25,51	12,6	73,57	95,5	50,54	0
7/16/2025	22,22	34,74	10,9	65,99	97,6	27,1	0
7/17/2025	22,65	34,72	14,06	71,71	96,8	35,02	0
7/18/2025	19,96	26,09	15,7	74,38	88,8	52,72	0

7/19/2025	20,49	28,11	13,65	68,31	93,7	37,57	0
7/20/2025	19,45	27,69	12,44	59,19	81,7	32,03	0
7/21/2025	17,22	26,13	10	69,15	94,8	38,52	0
7/22/2025	20,18	31,04	10,61	63,38	95	28,06	0
7/23/2025	16,81	23,11	12,85	75,48	89,3	45,89	0
7/24/2025	15,44	22,42	10,81	78,77	95,6	49,47	1,31
7/25/2025	15,97	23,53	10,33	76,26	96,8	45,41	0
7/26/2025	16,82	25,02	9,64	75,46	96,5	47,38	0
7/27/2025	18,64	25,54	11,63	69,89	93,2	47,34	0
7/28/2025	16,67	20,86	13,17	77,98	90,1	59,79	0
7/29/2025	16,26	20,79	12,6	77,55	94,2	53,9	0
7/30/2025	17,42	25,41	11,14	77,92	95,7	52,85	0

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 WHEAT (MONOCULTIVE SOIL).

YEAR 2024

SI24BT003IGS

20/02/2024

PROTOCOL:	**SI24BT003IGS**
OBJETIVE:	**EVALUATION OF THE BIOSTIMULANT EFFECT OF PRODUCTS BASED ON MICROORGANISMS ON WHEAT (MONOCULTIVE SOIL)**
DRAFT PROTOCOL:	20.02.2024
EPPO/GUIDES:	PP1/181(5), PP1/135(4), PP1/152(4), TS 17724:2022

Crop	Wheat
Localization	Open field (farmer plot)
Number of trials	1

1. EXPERIMENTAL DESIGN

Experimental design	Completely randomized blocks
Repetitions	4
Plot size	20 m^2
Type of application	FORMULATION C (DIRECT TO SEED) FORMULATION A (FOLIAR)
Special Requirements	DORIAN SOFTWARE + MONOCULTIVE SOIL

2. LIST OF TREATMENTS AND APPLICATIONS

TESIS	TREATMENT	DOSE	APPLICATIONS
T1	Water	-	1A: At Sowing 2A: At Tillering stage 3A: At Flag-leaf stage
T2	FORMULATION C	2,5 kg/ha	1A: At Sowing
T3	FORMULATION A	4 L/ha	1A: At Tillering stage 2A: At Flag-leaf stage
T4	FORMULATION C (At sowing) FORMULATION A (Plant development)	2,5 kg/ha 4 L/ha	1A: At Sowing (Formulation C) 2A: At Tillering stage (Formulation A) 3A: At Flag-leaf stage (Formulation A)
T5	CEPACET	2 L/ha	1A: At Sowing 2A: At Tillering stage 3A: At Flag-leaf stage

3 APPLICATIONS

A: AT SOWING
B: AT TILLERING STAGE
C: AT FLAG-LEAF STAGE

3. EVALUATIONS

4 EVALUATIONS

E1: Vigor (1 week after tillering stage application)

E2 Vigor (1 week after flag-leaf stage application)

E3: on harvest

- Total yield and total moisture
- % protein and % gluten
- “hectoliter weight” and “1000 seed weight”.

1Kg Soil Sampling:

- Before 1A. 1 sample whole trial (mixed plots)
- 1 week after tillering application. 1 sample per treatment (mixed plots)
- 1 week after flag-leaf application. 1 sample per treatment (mixed plots)

PLANT NITROGEN ANALYSIS: 500 g plant / treatment. 1 week after flag-leaf application.

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

SISTEMAS DE CONTROL DE PRODUCCION

EVALUATION OF THE BIOSTIMULANT EFFECT OF PRODUCTS BASED ON MICROORGANISMS ON WHEAT (MONOCULTIVE SOIL)

Trial ID:SI24BT003IGS-GR01 Official Trial ID:SI24BT003IGS-GR01
Protocol ID:SI24BT003IGS Location:Salobreña (Granada) Trial Year:2024
Study Director:José Antonio Rojas González Sponsor Contact:Symbiagro S.r.l Conducted Under GEP:Yes
Investigator:Luis Eduardo Torres Guzmán

General Trial Information

Study Director: José Antonio Rojas González **Title:** Ingeniero Agrónomo
Investigator: Luis Eduardo Torres Guzmán **Title:** Ingeniero Técnico Agrícola

Discipline: BS biostimulant
Status: F one-year/final
Status Date: 15/Jan/2026
Last Changed By: Ana Orrico Marin
ARM Trial Created On: 14/Jan/2026
Meets All Objectives: Y
Reliability: GOOD good quality
Initiation Date: 18/Nov/2024
Completion Date: 30/Jul/2025
Protocol Revision Date: 14/Jan/2026

Trial Location
City: Condado de Treviño **Country:** ESP Spain
State/Prov.: Burgos BU
Postal Code: 09215 **Climate Zone:** EPOMED EPPO Mediterranean

Latitude of LL Corner °: 42,716482 N
Longitude of LL Corner °: -2,72857 W ESPBU 43,1985807 - 41,4507842
-2,517397 - -4,3353272
Time Zone: Europe/Madrid

Regulations

Test Facility: Sistemas de Control de Producción S.L.
GEP Accreditation Number: EOR 50/03
GEP Accreditation Link: http://www.gepcertibase.eu/documents/2813_Resolucion_de_renovacion_EOR_SICOP(F).pdf
Certificate Expiration: 1/Feb/2028
Conducted Under GLP: No **Official Trial ID:** SI24BT003IGS-GR01
Conducted Under GEP: Yes **Official Protocol ID:** SI24BT003IGS
Conducted Under GEP

No.	Destroyed?
1.	NOTREQ

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

Objectives:

EVALUATION OF THE BIOSTIMULANT EFFECT OF PRODUCTS BASED ON MICROORGANISMS ON WHEAT (MONOCULTIVE SOIL)

Contacts

Role: STYDIR study director
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Role: INVEST investigator
Investigator: Luis Eduardo Torres Guzmán **Title:** Ingeniero Técnico Agrícola
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City: Salobreña (Granada) **Postal Code:** 18600
Role: SPONSR sponsor
Sponsor: Symbiagro S.r.l
Organization: IGS **Org. Type:** Company
Address 1: Via dell'Artigianato, 1/A, 25030 Roncadelle BS, Italia
Country: ITA Italy
City: Bresicia

SISTEMAS DE CONTROL DE PRODUCCION

Crop Description

Crop 1: C TRZAW Triticum aestivum Winter wheat **BBCH Scale:** BCER
Entry Date: 14/Jan/2026 **Stage Scale:** BBCH
Variety: Filon
Planting Date: 18/Nov/2024 **Planting Rate:** 240 kg/ha
Planting Method: SEEDED seeded
Row Spacing: 14 cm **Planting Equipment:** FE field equipment
Harvest Date: 30/Jul/2025

Site and Design

Treated Plot Width: 2 m **Site Type:** FIELD field
Treated Plot Length: 10 m **Experimental Unit:** 1 PLOT plot
Treated Plot Area: 20,0 m2 **Tillage Type:** CONTIL conventional-till
Replications: 4 **Treatments:** 5 **Plots:** 20 **Study Design:** RACOBL Randomized Complete Block (RCB)
Distance between Blocks: 0 m
Distance between 'Plot' Experimental Units: 0 m

No.	Previous Crop
1.	TRZAW

Soil Description

Texture: CL clay loam
Fert. Level: G good
Soil Drainage: G good

Weather Conditions

Name: Est. Condado de Treviño **Code:** BU102 **Distance:** 5 km

No.	Date	Moisture Total	Unit	Precip	Unit	Type	Type Description	Min Temp	Max Temp	Avg Temp	Temp Unit	Min % Relative Humidity	Max % Relative Humidity
1.	18/Nov/2024	0	mm	0	mm			7,28	16,49	10,76	C	62,5	96,1
2.	19/Nov/2024	0,2	mm	0,2	mm	RAIN	rain	4,86	17,4	10,53	C	60,3	98,6
3.	20/Nov/2024	0	mm	0	mm			8,97	12,92	10,54	C	63,8	83,6
4.	21/Nov/2024	8,8	mm	8,8	mm	RAIN	rain	7,36	13,81	11,75	C	60,5	94,5
5.	22/Nov/2024	0,2	mm	0,2	mm	RAIN	rain	0,67	10,76	5,94	C	58,9	93,8
6.	23/Nov/2024	0	mm	0	mm			0,67	13,23	6,87	C	64,1	96,2
7.	24/Nov/2024	0	mm	0	mm			9,03	15,7	12,48	C	58,3	87,5
8.	25/Nov/2024	13	mm	13	mm	RAIN	rain	4,58	17,67	11,93	C	47,7	94,9
9.	26/Nov/2024	0	mm	0	mm			4,11	11,29	7,32	C	70,6	92,4
10.	27/Nov/2024	0,2	mm	0,2	mm	RAIN	rain	1,65	13,35	6,62	C	59,5	96,7
11.	28/Nov/2024	0	mm	0	mm			0,12	13,83	5,79	C	66,8	98,1
12.	29/Nov/2024	0,2	mm	0,2	mm	RAIN	rain	0,57	18,28	7,98	C	54	98,7
13.	30/Nov/2024	0,2	mm	0,2	mm	RAIN	rain	2,67	18,34	10,65	C	61	98,5
14.	1/Dec/2024	0	mm	0	mm			5,6	14,19	9,61	C	76,3	97,7
15.	2/Dec/2024	1,4	mm	1,4	mm	RAIN	rain	6,77	14,65	9,83	C	69,7	97,6
16.	3/Dec/2024	8,4	mm	8,4	mm	RAIN	rain	6,29	10,48	8,04	C	75,5	96,8
17.	4/Dec/2024	2,8	mm	2,8	mm	RAIN	rain	2,87	12,01	7,12	C	66,9	96,6
18.	5/Dec/2024	2,4	mm	2,4	mm	RAIN	rain	2,95	13,99	8,79	C	68	97,8
19.	6/Dec/2024	0,8	mm	0,8	mm	RAIN	rain	10,57	14,78	11,89	C	81,9	95,5
20.	7/Dec/2024	6,8	mm	6,8	mm	RAIN	rain	2,93	12,49	8,19	C	63,5	93
21.	8/Dec/2024	34,2	mm	34,2	mm	RAIN	rain	2,29	5,45	3,75	C	79,4	94,4
22.	9/Dec/2024	21,4	mm	21,4	mm	RAIN	rain	0,47	6,12	3,3	C	85,1	97,1
23.	10/Dec/2024	2,6	mm	2,6	mm	RAIN	rain	2,04	4,66	3,41	C	83	96,4
24.	11/Dec/2024	0	mm	0	mm			1,59	4,7	2,68	C	77,3	97
25.	12/Dec/2024	0	mm	0	mm			-1,69	8,65	3,61	C	72,9	97,2
26.	13/Dec/2024	0,8	mm	0,8	mm	RAIN	rain	-0,61	5,76	2,27	C	70,9	97,9

SISTEMAS DE CONTROL DE PRODUCCION

No.	Date	Moisture Total	Unit	Precip	Unit	Type	Type Description	Min Temp	Max Temp	Avg Temp	Temp Unit	Min % Relative Humidity	Max % Relative Humidity
27.	14/Dec/2024	0,4	mm	0,4	mm	RAIN	rain	-2,71	9,91	2,7	C	67,5	98,8
28.	15/Dec/2024	0,8	mm	0,8	mm	RAIN	rain	3,77	8,94	5,39	C	77	96,2
29.	16/Dec/2024	0,2	mm	0,2	mm	RAIN	rain	-0,02	10,11	3,35	C	69,4	98,5
30.	17/Dec/2024	0,2	mm	0,2	mm	RAIN	rain	-1,65	11,15	3,81	C	51,4	98,5
31.	18/Dec/2024	0	mm	0	mm			4,15	15,75	10,86	C	52,6	78,7
32.	19/Dec/2024	3,6	mm	3,6	mm	RAIN	rain	4,19	12,68	8,81	C	68,5	91
33.	20/Dec/2024	2,4	mm	2,4	mm	RAIN	rain	3,62	7,54	5,18	C	80,5	96,9
34.	21/Dec/2024	0	mm	0	mm			2,79	10,34	5,68	C	71,5	98,3
35.	22/Dec/2024	7,4	mm	7,4	mm	RAIN	rain	1	11,94	5,69	C	67,4	94,8
36.	23/Dec/2024	10	mm	10	mm	RAIN	rain	5,07	6,59	5,64	C	75,7	95,3
37.	24/Dec/2024	0,6	mm	0,6	mm	RAIN	rain	4,94	10,16	7,3	C	88,5	97,8
38.	25/Dec/2024	0,4	mm	0,4	mm	RAIN	rain	4,55	8,15		C	90,8	97,8
39.	26/Dec/2024	0,2	mm	0,2	mm	RAIN	rain	4,35	7,81	6,7	C	94,7	98,7
40.	27/Dec/2024	0	mm	0	mm			2,53	13,35	7,27	C	61,7	98,9
41.	28/Dec/2024	0	mm	0	mm			1,24	12,62	5,53	C	60,6	98,3
42.	29/Dec/2024	0	mm	0	mm			1,65	4,8	3,63	C	92,7	98,2
43.	30/Dec/2024	0,2	mm	0,2	mm	RAIN	rain	-0,59	6,62	1,98	C	72,6	98,5
44.	31/Dec/2024	0	mm	0	mm			-1,5	7,07	0,88	C	70,4	98,6
45.	1/Jan/2025	0	mm	0	mm			-1,42	4,9	0,19	C	76,5	98,6
46.	2/Jan/2025	0	mm	0	mm			-1,75	7,32	2,67	C	71,7	97,7
47.	3/Jan/2025	11,1	mm	11,1	mm	RAIN	rain	3,87	8,68	6,82	C	75,8	92,6
48.	4/Jan/2025	0	mm	0	mm			8,38	12,61	9,75	C	62,9	90,7
49.	5/Jan/2025	0	mm	0	mm			6,1	13,82	9,87	C	55,4	88,2
50.	6/Jan/2025	2,4	mm	2,4	mm	RAIN	rain	-0,1	11,59	7,1	C	65,4	96,3
51.	7/Jan/2025	0	mm	0	mm			-0,61	10,57	5,81	C	73,1	96,5
52.	8/Jan/2025	0	mm	0	mm			9,55	12,75	11,01	C	59,9	80,4
53.	9/Jan/2025	0	mm	0	mm			6,49	16,14	11,03	C	51,6	95,5
54.	10/Jan/2025	0	mm	0	mm			8,22	15,48	12,47	C	60,9	92,8
55.	11/Jan/2025	11,57	mm	11,57	mm	RAIN	rain	7,46	12,68	10,07	C	65,6	95,6
56.	12/Jan/2025	0,5	mm	0,5	mm	RAIN	rain	-1,89	8,41	4,92	C	50,7	95,2
57.	13/Jan/2025	0	mm	0	mm			-3,89	6,01	0,02	C	56,2	93,8
58.	14/Jan/2025	0	mm	0	mm			-4,58	8,81	0,83	C	57,6	96,1
59.	15/Jan/2025	0	mm	0	mm			-3,79	10,67	0,88	C	48,4	97,5
60.	16/Jan/2025	0	mm	0	mm			-1,2	8,46	4,08	C	70,1	96,4
61.	17/Jan/2025	0	mm	0	mm			-3,78	5,59	-0,66	C	88,6	98,2
62.	18/Jan/2025	0	mm	0	mm			-5,33	10,27	1,41	C	53,1	97,6
63.	19/Jan/2025	0,8	mm	0,8	mm	RAIN	rain	-4,23	10,81	2,81	C	44,7	96,6
64.	20/Jan/2025	0	mm	0	mm			2,32	9,28	4,48	C	71,8	97
65.	21/Jan/2025	0,3	mm	0,3	mm	RAIN	rain	2,75	7,89	5,3	C	82,4	97,8
66.	22/Jan/2025	4,61	mm	4,61	mm	RAIN	rain	4,46	14,17	7,41	C	68,3	98,8
67.	23/Jan/2025	2,52	mm	2,52	mm	RAIN	rain	5,37	11,77	8,17	C	70,2	98
68.	24/Jan/2025	0	mm	0	mm			7,08	14,29	10,48	C	67,3	94,5
69.	25/Jan/2025	2,95	mm	2,95	mm	RAIN	rain	1,69	12,63	8,63	C	53,3	95,5
70.	26/Jan/2025	0	mm	0	mm			1,69	15,92	9,95	C	54,2	95,9
71.	27/Jan/2025	5,9	mm	5,9	mm	RAIN	rain	4,68	15,46	10,5	C	48	91,9
72.	28/Jan/2025	0	mm	0	mm			3,95	9,16	5,97	C	65,3	86,9

SISTEMAS DE CONTROL DE PRODUCCION

No.	Date	Moisture Total	Unit	Precip	Unit	Type	Type Description	Min Temp	Max Temp	Avg Temp	Temp Unit	Min % Relative Humidity	Max % Relative Humidity
73.	29/Jan/2025	0	mm	0	mm			5,13	12,67	7,34	C	54,6	76,2
74.	30/Jan/2025	17,68	mm	17,68	mm	RAIN	rain	2,16	6,02	4,31	C	70,4	93,4
75.	31/Jan/2025	0	mm	0	mm			-0,61	9,94	3,37	C	48,1	93,2
76.	1/Feb/2025	1	mm	1	mm	RAIN	rain	0,72	10,05	5,2	C	68,4	95,5
77.	2/Feb/2025	0	mm	0	mm			-1,79	7,48	3,49	C	74,5	98,3
78.	3/Feb/2025	0	mm	0	mm			-0,53	8,97	3,91	C	76,2	97,8
79.	4/Feb/2025	0	mm	0	mm			-0,73	13,11	4,36	C	54,1	98,5
80.	5/Feb/2025	0	mm	0	mm			-2,52	11,97	3,65	C	59,4	98
81.	6/Feb/2025	0	mm	0	mm			1,06	12,13	4,83	C	49,1	97,4
82.	7/Feb/2025	7,26	mm	7,26	mm	RAIN	rain	-0,06	5,61	2,09	C	83,1	97,3
83.	8/Feb/2025	0	mm	0	mm			-2,81	8,26	2,65	C	59	98,4
84.	9/Feb/2025	0	mm	0	mm			4,31	11,78	8,1	C	66,7	89,8
85.	10/Feb/2025	0	mm	0	mm			4,48	11,3	7,06	C	70	97,3
86.	11/Feb/2025	0	mm	0	mm			4,8	14	8,69	C	58,6	98,1
87.	12/Feb/2025	9,64	mm	9,64	mm	RAIN	rain	5,37	10,66	7,52	C	73,7	98
88.	13/Feb/2025	1	mm	1	mm	RAIN	rain	-0,02	10,32	6,2	C	73	98,7
89.	14/Feb/2025	0	mm	0	mm			3,97	16,86	9,48	C	51,7	98,7
90.	15/Feb/2025	0	mm	0	mm			0,57	16,4	7,67	C	55	98,4
91.	16/Feb/2025	0	mm	0	mm			4,31	18,43	10,46	C	37	98,2
92.	17/Feb/2025	0	mm	0	mm			4,68	16,71	10,09	C	46,9	93,9
93.	18/Feb/2025	0	mm	0	mm			2,87	15,83	8,4	C	59,5	97,7
94.	19/Feb/2025	0	mm	0	mm			5,94	16,41	10,39	C	58,1	97,4
95.	20/Feb/2025	0	mm	0	mm			5,84	16,46	10,67	C	59,8	94
96.	21/Feb/2025	0	mm	0	mm			6,28	13,03	9,93	C	67,3	98,3
97.	22/Feb/2025	0	mm	0	mm			4,15	13,81	8,84	C	53,9	93,9
98.	23/Feb/2025	0	mm	0	mm			0,41	15,33	6,98	C	52,2	98,2
99.	24/Feb/2025	0	mm	0	mm			4,74	15,84	11,01	C	39,7	87,3
100.	25/Feb/2025	3,21	mm	3,21	mm	RAIN	rain	1,37	12,92	7,68	C	55,4	93,6
101.	26/Feb/2025	0	mm	0	mm			-0,16	13,63	5,83	C	37,4	96,3
102.	27/Feb/2025	0	mm	0	mm			0,31	11,12	5,47	C	53,1	95,4
103.	28/Feb/2025	0	mm	0	mm			1,27	11,53	5,66	C	63,7	97
104.	1/Mar/2025	0	mm	0	mm			2,85	7,23	4,47	C	58,1	88,3
105.	2/Mar/2025	0	mm	0	mm			-1,73	8,41	3,8	C	61,7	91,5
106.	3/Mar/2025	1,7	mm	1,7	mm	RAIN	rain	5,94	10,48	7,78	C	71,2	92,7
107.	4/Mar/2025	0	mm	0	mm			7,99	14,59	10,43	C	57,4	89,4
108.	5/Mar/2025	0	mm	0	mm			7,36	14,74	10,99	C	56,2	83,3
109.	6/Mar/2025	2,5	mm	2,5	mm	RAIN	rain	7,57	13,91	10,27	C	57,1	88,8
110.	7/Mar/2025	0,3	mm	0,3	mm	RAIN	rain	7,91	14,45	10,91	C	62,5	88,2
111.	8/Mar/2025	28,1	mm	28,1	mm	RAIN	rain	6,27	13,5	10,42	C	64,3	91,6
112.	9/Mar/2025	1	mm	1	mm	RAIN	rain	2,61	13,77	7,59	C	46,4	97,1
113.	10/Mar/2025	0	mm	0	mm			1,2	14,5	7,79	C	46,7	95,8
114.	11/Mar/2025	3,99	mm	3,99	mm	RAIN	rain	6,35	13,06	8,43	C	67,2	93,5
115.	12/Mar/2025	1,5	mm	1,5	mm	RAIN	rain	3,81	13,43	7,37	C	54	97
116.	13/Mar/2025	1,6	mm	1,6	mm	RAIN	rain	1,98	9,37	4,93	C	59,1	97
117.	14/Mar/2025	0,2	mm	0,2	mm	RAIN	rain	-0,47	7,63	2,52	C	63,1	96,5
118.	15/Mar/2025	0,2	mm	0,2	mm	RAIN	rain	-1,87	7,22	2,41	C	56,3	97,5

SISTEMAS DE CONTROL DE PRODUCCION

No.	Date	Moisture Total	Unit	Precip	Unit	Type	Type Description	Min Temp	Max Temp	Avg Temp	Temp Unit	Min % Relative Humidity	Max % Relative Humidity
119.	16/Mar/2025	0	mm	0	mm			-1,59	9,32	2,26	C	43,1	96,8
120.	17/Mar/2025	0	mm	0	mm			-3,74	12,29	3,82	C	43,2	96,1
121.	18/Mar/2025	0	mm	0	mm			5,31	11,31	7,3	C	66,5	86,7
122.	19/Mar/2025	0	mm	0	mm			6,93	15,45	11	C	61,4	91,1
123.	20/Mar/2025	1,17	mm	1,17	mm	RAIN	rain	10,95	13,82	12,43	C	67,3	90,5
124.	21/Mar/2025	16,38	mm	16,38	mm	RAIN	rain	7,16	15,34	11,69	C	45,2	93,8
125.	22/Mar/2025	11,12	mm	11,12	mm	RAIN	rain	5,37	11,98	7,55	C	66,5	90,8
126.	23/Mar/2025	1,31	mm	1,31	mm	RAIN	rain	2,61	10,3	6,12	C	59,5	96,1
127.	24/Mar/2025	21,51	mm	21,51	mm	RAIN	rain	2,93	9,17	6,29	C	83,1	97,2
128.	25/Mar/2025	0,4	mm	0,4	mm	RAIN	rain	5,86	10,64	8,12	C	74,9	97,7
129.	26/Mar/2025	0,7	mm	0,7	mm	RAIN	rain	6,02	9,36	7,36	C	71,9	95,4
130.	27/Mar/2025	0	mm	0	mm			4,52	9,1	6,63	C	82	97,5
131.	28/Mar/2025	0	mm	0	mm			3,64	12,74	7,8	C	59,2	94,8
132.	29/Mar/2025	1,3	mm	1,3	mm	RAIN	rain	3,44	10,82	6,96	C	60,8	97,3
133.	30/Mar/2025	0	mm	0	mm			0,82	13,99	6,71	C	42,6	95,4
134.	31/Mar/2025	0	mm	0	mm			-1,24	19,88	9,39	C	41,3	95,9
135.	4/Jan/2025	0	mm	0	mm			1,71	25,69	12,41	C	32,7	98,1
136.	4/Feb/2025	7,23	mm	7,23	mm	RAIN	rain	3,91	15,27	9,63	C	58,9	96,3
137.	4/Mar/2025	6,27	mm	6,27	mm	RAIN	rain	7,97	12,06	9,78	C	74	93
138.	4/Apr/2025	0,1	mm	0,1	mm	RAIN	rain	9,9	18,03	12,89	C	58,3	83
139.	4/May/2025	0	mm	0	mm			8,05	17,07	12,09	C	55,8	90
140.	4/Jun/2025	0	mm	0	mm			5,66	18,34	11,47	C	54,7	97,1
141.	4/Jul/2025	0	mm	0	mm			3,01	21,14	11,29	C	39,8	98,2
142.	4/Aug/2025	0	mm	0	mm			2,44	25,12	13,38	C	29,7	97
143.	4/Sep/2025	0	mm	0	mm			6,41	24,68	14,44	C	39,5	96,8
144.	4/Oct/2025	2,1	mm	2,1	mm	RAIN	rain	5,01	19,96	12,7	C	58,1	92,5
145.	4/Nov/2025	0	mm	0	mm			9,76	15,86	12,58	C	56,9	85,9
146.	4/Dec/2025	3,02	mm	3,02	mm	RAIN	rain	8,03	20,04	12,71	C	55,8	94,8
147.		3,44	mm	3,44	mm	RAIN	rain	9,11	14,62	11,18	C	78,6	97,2
148.		0	mm	0	mm			5,61	17,62	11,73	C	44,7	97,5
149.		8,42	mm	8,42	mm	RAIN	rain	2,3	10,96	7,21	C	66,7	96,3
150.		1,3	mm	1,3	mm	RAIN	rain	-0,91	11,69	5,1	C	55,2	98,1
151.		0	mm	0	mm			-1,32	16,99	8,43	C	43,1	97,9
152.		5,2	mm	5,2	mm	RAIN	rain	6,67	20,8	12,11	C	42,9	90,9
153.		10,2	mm	10,2	mm	RAIN	rain	5,23	13,07	8	C	54,7	94,7
154.		0	mm	0	mm			4,66	13,41	8,6	C	57,5	93,4
155.		6,03	mm	6,03	mm	RAIN	rain	6,59	18,13	11,31	C	50,2	97
156.		5,13	mm	5,13	mm	RAIN	rain	3,16	13,85	9,12	C	53,3	94,6
157.		0	mm	0	mm			1	19,36	9,91	C	55,8	97,4
158.		0	mm	0	mm			4,68	21,08	12,09	C	50,7	97,7
159.		9,85	mm	9,85	mm	RAIN	rain	5,69	27,72	13,84	C	28,6	98,3
160.		0,3	mm	0,3	mm	RAIN	rain	8,29	14,89	10,61	C	68,7	96,5
161.		0,6	mm	0,6	mm	RAIN	rain	5,55	14,89	9,96	C	67,9	96,8
162.		0	mm	0	mm			2,77	21,41	12,35	C	49,8	98,3
163.		0	mm	0	mm			11,14	19,95	15,86	C	46,8	76,1
164.		0,2	mm	0,2	mm	RAIN	rain	10,16	19,55	15,3	C	45,6	78,9

SISTEMAS DE CONTROL DE PRODUCCION

No.	Date	Moisture Total	Unit	Precip	Unit	Type	Type Description	Min Temp	Max Temp	Avg Temp	Temp Unit	Min % Relative Humidity	Max % Relative Humidity
165.	5/Jan/2025	0,2	mm	0,2	mm	RAIN	rain	10,61	20,84	15,82	C	49,2	91,1
166.	5/Feb/2025	10,6	mm	10,6	mm	RAIN	rain	9,23	18,04	13,63	C	56,8	94,9
167.	5/Mar/2025	1,1	mm	1,1	mm	RAIN	rain	7,73	23,02	15,15	C	42,6	98,1
168.	5/Apr/2025	4,4	mm	4,4	mm	RAIN	rain	7,57	19,21	12,87	C	53,7	97,8
169.	5/May/2025	0,8	mm	0,8	mm	RAIN	rain	4,9	13,56	9,61	C	59,5	96,5
170.	5/Jun/2025	0	mm	0	mm			4,07	10,48	6,86	C	71,4	95
171.	5/Jul/2025	0	mm	0	mm			2,42	16,58	9,43	C	45,2	97,6
172.	5/Aug/2025	0	mm	0	mm			4,07	17,76	10,59	C	48,5	97,1
173.	5/Sep/2025	19,16	mm	19,16	mm	RAIN	rain	7,32	14,64	10	C	71,7	97,2
174.	5/Oct/2025	3,78	mm	3,78	mm	RAIN	rain	5,63	17,31	10,71	C	60,6	98,4
175.	5/Nov/2025	4,2	mm	4,2	mm	RAIN	rain	5,64	15,25	10,4	C	54,8	97
176.	5/Dec/2025	4,47	mm	4,47	mm	RAIN	rain	4,07	17,83	10,82	C	50,3	98,2
177.		0,7	mm	0,7	mm	RAIN	rain	8,09	19,38	12,92	C	45,7	96,4
178.		10,4	mm	10,4	mm	RAIN	rain	7,57	19,18	11,52	C	64,2	98
179.		1,1	mm	1,1	mm	RAIN	rain	9,51	13,93	11,23	C	83,1	96,5
180.		0	mm	0	mm			5,68	18,67	12,13	C	52,6	98
181.		0	mm	0	mm			5,35	23,05	13,29	C	33,2	98,2
182.		0	mm	0	mm			7	26,55	16,98	C	42,9	98,1
183.		4,72	mm	4,72	mm	RAIN	rain	8,8	18,11	13,25	C	54,3	96
184.		0	mm	0	mm			5,62	19,18	11,91	C	53,6	98
185.		1,69	mm	1,69	mm	RAIN	rain	4,23	20,85	11,65	C	56,2	98,2
186.		1,2	mm	1,2	mm	RAIN	rain	6,02	16,23	11,09	C	55,8	96
187.		0,1	mm	0,1	mm	RAIN	rain	6,27	18,73	11,31	C	51,9	97
188.		0	mm	0	mm			2,77	22,47	12,77	C	28,9	98,1
189.		0	mm	0	mm			5,58	22,38	14,41	C	45,3	96,8
190.		0,1	mm	0,1	mm	RAIN	rain	9,67	19,67	14,29	C	61	95,5
191.		0	mm	0	mm			5,29	25,01	14,84	C	34,4	97,3
192.		0	mm	0	mm			6,2	26,1	16,55	C	34,3	95
193.		0	mm	0	mm			7,44	33,21	19,8	C	20,5	97,8
194.		2,1	mm	2,1	mm	RAIN	rain	11,69	29,9	18,65	C	36,6	94,3
195.		0	mm	0	mm			10,57	31,29	19,93	C	34,1	97,4
196.	6/Jan/2025	2,4	mm	2,4	mm	RAIN	rain	12,44	21,6	15,67	C	70,2	97,1
197.	6/Feb/2025	5,04	mm	5,04	mm	RAIN	rain	12,19	15,01	13,17	C	85,4	97,2
198.	6/Mar/2025	5,4	mm	5,4	mm	RAIN	rain	11,48	17,82	13,76	C	80	98,2
199.	6/Apr/2025	0	mm	0	mm			10,08	22,26	14,66	C	56,1	98,2
200.	6/May/2025	0	mm	0	mm			8,62	26,34	16,84	C	41	96,5
201.	6/Jun/2025	0	mm	0	mm			9,58	26,52	17,73	C	40,1	97,2
202.	6/Jul/2025	0	mm	0	mm			11,06	22,57	16,34	C	54,5	90,9
203.	6/Aug/2025	0	mm	0	mm			11,85	22,62	16,17	C	51	92,5
204.	6/Sep/2025	0	mm	0	mm			9,03	30,26	19,02	C	30,7	97,6
205.	6/Oct/2025	0	mm	0	mm			13,17	33,85	22,83	C	32,1	96,1
206.	6/Nov/2025	9,07	mm	9,07	mm	RAIN	rain	13,33	26,53	19,68	C	43,7	94
207.	6/Dec/2025	0,2	mm	0,2	mm	RAIN	rain	11,55	26,76	19,16	C	43	97,6
208.		0	mm	0	mm			10,73	30,86	20,54	C	38,2	96,2
209.		0	mm	0	mm			13,89	23,74	17,24	C	61,4	91,3
210.		0	mm	0	mm			13,1	19,68	15,43	C	65,6	93,4

SISTEMAS DE CONTROL DE PRODUCCION

No.	Date	Moisture Total	Unit	Precip	Unit	Type	Type Description	Min Temp	Max Temp	Avg Temp	Temp Unit	Min % Relative Humidity	Max % Relati Humidi
211.		0	mm	0	mm			13,75	27,19	19,16	C	52,4	95,6
212.		0	mm	0	mm			14,07	31	21,37	C	40,8	96,8
213.		0	mm	0	mm			10,7	33,84	22,35	C	30,9	96,6
214.		0	mm	0	mm			15,52	34,38	21,61	C	34,6	95,4
215.		0	mm	0	mm			12,54	34,45	23,89	C	24,1	96,9
216.		4,22	mm	4,22	mm	RAIN	rain	15,52	36	23,73	C	27	92,5
217.		1,3	mm	1,3	mm	RAIN	rain	15,78	33,57	22,27	C	38,7	94,1
218.		0	mm	0	mm			13,57	30,78	21,38	C	47,4	97,6
219.		3	mm	3	mm	RAIN	rain	16,82	34,87	23,39	C	25,7	96,1
220.		0	mm	0	mm			13,6	29,18	20,42	C	31,4	97,6
221.		0	mm	0	mm			12,79	26,77	19,12	C	46,4	95,7
222.		0	mm	0	mm			11,2	32,5	22,03	C	31,9	97,5
223.		0	mm	0	mm			13,6	34,26	23,98	C	32	96,5
224.		0	mm	0	mm			14,31	36,5	25,89	C	20,7	97,4
225.		0	mm	0	mm			15,28	37,35	26,72	C	18,6	80,8
226.	7/Jan/2025	0,2	mm	0,2	mm	RAIN	rain	14,81	37,37	25,19	C	22,8	93
227.	7/Feb/2025	0	mm	0	mm			16,58	24,24	19,75	C	64,4	96,5
228.	7/Mar/2025	0	mm	0	mm			15,19	27,01	19,13	C	52	89
229.	7/Apr/2025	0	mm	0	mm			14,69	32,5	22,24	C	39,2	95,6
230.	7/May/2025	0	mm	0	mm			13,74	30,75	22,53	C	40,1	91,1
231.	7/Jun/2025	0	mm	0	mm			12,83	27,01	19,55	C	42	96,1
232.	7/Jul/2025	0,4	mm	0,4	mm	RAIN	rain	13	22,78	17,51	C	50,2	95,7
233.	7/Aug/2025	0	mm	0	mm			10,37	24,63	16,99	C	39,4	96,1
234.	7/Sep/2025	0	mm	0	mm			8,64	31,03	19,59	C	31,9	97,1
235.	7/Oct/2025	0	mm	0	mm			11,63	34,03	22,72	C	32	96,3
236.	7/Nov/2025	42,4	mm	42,4	mm	RAIN	rain	14,22	33,45	21,19	C	37,9	96,3
237.	7/Dec/2025	0	mm	0	mm			14,35	26,37	19,13	C	51,2	97,5
238.		1,9	mm	1,9	mm	RAIN	rain	15,25	29,42	20,03	C	45,9	96,4
239.		0	mm	0	mm			16,65	26,16	19,59	C	55,7	90,3
240.		0	mm	0	mm			12,6	25,51	19,12	C	50,5	95,5
241.		0	mm	0	mm			10,9	34,74	22,22	C	27,1	97,6
242.		0	mm	0	mm			14,06	34,72	22,65	C	35	96,8
243.		0	mm	0	mm			15,7	26,09	19,96	C	52,7	88,8
244.		0	mm	0	mm			13,65	28,11	20,49	C	37,6	93,7
245.		0	mm	0	mm			12,44	27,69	19,45	C	32	81,7
246.		0	mm	0	mm			10	26,13	17,22	C	38,5	94,8
247.		0	mm	0	mm			10,61	31,04	20,18	C	28,1	95
248.		0	mm	0	mm			12,85	23,11	16,81	C	45,9	89,3
249.		1,31	mm	1,31	mm	RAIN	rain	10,81	22,42	15,44	C	49,5	95,6
250.		0	mm	0	mm			10,33	23,53	15,97	C	45,4	96,8
251.		0	mm	0	mm			9,64	25,02	16,82	C	47,4	96,5
252.		0	mm	0	mm			11,63	25,54	18,64	C	47,3	93,2
253.		0	mm	0	mm			13,17	20,86	16,67	C	59,8	90,1
254.		0	mm	0	mm			12,6	20,79	16,26	C	53,9	94,2
255.		0	mm	0	mm			11,14	25,41	17,42	C	52,9	95,7

SISTEMAS DE CONTROL DE PRODUCCION

No.	Date	Avg % Relative Humidity
1.	18/Nov/2024	85,4
2.	19/Nov/2024	84,2
3.	20/Nov/2024	75,6
4.	21/Nov/2024	72,9
5.	22/Nov/2024	77,2
6.	23/Nov/2024	81,6
7.	24/Nov/2024	73,4
8.	25/Nov/2024	75,2
9.	26/Nov/2024	82,1
10.	27/Nov/2024	82,5
11.	28/Nov/2024	90
12.	29/Nov/2024	87,1
13.	30/Nov/2024	84,7
14.	1/Dec/2024	89,6
15.	2/Dec/2024	88,5
16.	3/Dec/2024	90,9
17.	4/Dec/2024	87,7
18.	5/Dec/2024	84
19.	6/Dec/2024	88,6
20.	7/Dec/2024	83,5
21.	8/Dec/2024	88
22.	9/Dec/2024	91,9
23.	10/Dec/2024	89,8
24.	11/Dec/2024	88,9
25.	12/Dec/2024	85,1
26.	13/Dec/2024	88,2
27.	14/Dec/2024	91,2
28.	15/Dec/2024	91,3
29.	16/Dec/2024	92,3
30.	17/Dec/2024	82,6
31.	18/Dec/2024	64,3
32.	19/Dec/2024	81
33.	20/Dec/2024	90,5
34.	21/Dec/2024	86
35.	22/Dec/2024	85,9
36.	23/Dec/2024	86,9
37.	24/Dec/2024	95,5
38.	25/Dec/2024	95,6
39.	26/Dec/2024	97,2
40.	27/Dec/2024	88,5
41.	28/Dec/2024	87,6
42.	29/Dec/2024	96,8
43.	30/Dec/2024	93,2
44.	31/Dec/2024	94,1
45.	1/Jan/2025	94,4
46.	2/Jan/2025	86,8

SISTEMAS DE CONTROL DE PRODUCCION

No.	Date	Avg % Relative Humidity
47.	3/Jan/2025	86,8
48.	4/Jan/2025	76,6
49.	5/Jan/2025	71,9
50.	6/Jan/2025	80,5
51.	7/Jan/2025	82,5
52.	8/Jan/2025	70,6
53.	9/Jan/2025	74,2
54.	10/Jan/2025	75,9
55.	11/Jan/2025	85,7
56.	12/Jan/2025	78,4
57.	13/Jan/2025	82,8
58.	14/Jan/2025	82,7
59.	15/Jan/2025	83,5
60.	16/Jan/2025	85,2
61.	17/Jan/2025	95,6
62.	18/Jan/2025	83,6
63.	19/Jan/2025	77
64.	20/Jan/2025	88,8
65.	21/Jan/2025	92,9
66.	22/Jan/2025	96
67.	23/Jan/2025	89,1
68.	24/Jan/2025	79,5
69.	25/Jan/2025	79,7
70.	26/Jan/2025	66
71.	27/Jan/2025	72,8
72.	28/Jan/2025	72,6
73.	29/Jan/2025	69
74.	30/Jan/2025	85,8
75.	31/Jan/2025	78,6
76.	1/Feb/2025	86,3
77.	2/Feb/2025	89,3
78.	3/Feb/2025	91,6
79.	4/Feb/2025	86,3
80.	5/Feb/2025	85,8
81.	6/Feb/2025	82,7
82.	7/Feb/2025	91,9
83.	8/Feb/2025	84,4
84.	9/Feb/2025	78,9
85.	10/Feb/2025	87,4
86.	11/Feb/2025	84,6
87.	12/Feb/2025	88,3
88.	13/Feb/2025	92,4
89.	14/Feb/2025	82,4
90.	15/Feb/2025	85,7
91.	16/Feb/2025	73,5
92.	17/Feb/2025	76,6

SISTEMAS DE CONTROL DE PRODUCCION

No.	Date	Avg % Relative Humidity
93.	18/Feb/2025	84
94.	19/Feb/2025	82,6
95.	20/Feb/2025	79,5
96.	21/Feb/2025	86,8
97.	22/Feb/2025	77,3
98.	23/Feb/2025	81,4
99.	24/Feb/2025	60,7
100.	25/Feb/2025	77,8
101.	26/Feb/2025	74,5
102.	27/Feb/2025	79,4
103.	28/Feb/2025	83,1
104.	1/Mar/2025	75,5
105.	2/Mar/2025	79,1
106.	3/Mar/2025	83,2
107.	4/Mar/2025	77
108.	5/Mar/2025	68
109.	6/Mar/2025	75,2
110.	7/Mar/2025	77,4
111.	8/Mar/2025	77,1
112.	9/Mar/2025	78,2
113.	10/Mar/2025	76,1
114.	11/Mar/2025	85,7
115.	12/Mar/2025	84,1
116.	13/Mar/2025	84,5
117.	14/Mar/2025	84,9
118.	15/Mar/2025	84,8
119.	16/Mar/2025	81,7
120.	17/Mar/2025	75,1
121.	18/Mar/2025	78,4
122.	19/Mar/2025	77,1
123.	20/Mar/2025	77,1
124.	21/Mar/2025	66,1
125.	22/Mar/2025	78,3
126.	23/Mar/2025	83,3
127.	24/Mar/2025	92,6
128.	25/Mar/2025	87,6
129.	26/Mar/2025	85,8
130.	27/Mar/2025	91
131.	28/Mar/2025	81
132.	29/Mar/2025	80,2
133.	30/Mar/2025	74,1
134.	31/Mar/2025	73,5
135.	4/Jan/2025	71,2
136.	4/Feb/2025	81,9
137.	4/Mar/2025	84,9
138.	4/Apr/2025	72,4

SISTEMAS DE CONTROL DE PRODUCCION

No.	Date	Avg % Relative Humidity
139.	4/May/2025	75,8
140.	4/Jun/2025	79,4
141.	4/Jul/2025	77,6
142.	4/Aug/2025	70,1
143.	4/Sep/2025	71,9
144.	4/Oct/2025	78
145.	4/Nov/2025	74
146.	4/Dec/2025	80
147.		90,3
148.		75,5
149.		82,1
150.		82,4
151.		74,9
152.		73,8
153.		81,1
154.		81,6
155.		81,3
156.		80,1
157.		80,2
158.		81,1
159.		79,4
160.		85,9
161.		87,1
162.		76,4
163.		59,8
164.		62
165.	5/Jan/2025	64,4
166.	5/Feb/2025	77,5
167.	5/Mar/2025	76,9
168.	5/Apr/2025	85,1
169.	5/May/2025	85,2
170.	5/Jun/2025	85,2
171.	5/Jul/2025	76,9
172.	5/Aug/2025	77
173.	5/Sep/2025	90
174.	5/Oct/2025	86,9
175.	5/Nov/2025	78,1
176.	5/Dec/2025	79,9
177.		79,6
178.		91,4
179.		90,5
180.		78,3
181.		77,1
182.		74,6
183.		82,5
184.		81,3

SISTEMAS DE CONTROL DE PRODUCCION

No.	Date	Avg % Relative Humidity
185.		84,9
186.		81,2
187.		78,2
188.		71,8
189.		74,8
190.		81,5
191.		71,1
192.		70,8
193.		65,3
194.		76,2
195.		76,4
196.	6/Jan/2025	88
197.	6/Feb/2025	92,8
198.	6/Mar/2025	92,7
199.	6/Apr/2025	83,4
200.	6/May/2025	72,2
201.	6/Jun/2025	75,6
202.	6/Jul/2025	76,6
203.	6/Aug/2025	74,7
204.	6/Sep/2025	74,3
205.	6/Oct/2025	64,8
206.	6/Nov/2025	73,3
207.	6/Dec/2025	75,4
208.		73,3
209.		79,8
210.		81,2
211.		74,9
212.		70,7
213.		65,6
214.		75,2
215.		60,7
216.		64,7
217.		73,5
218.		77,6
219.		71
220.		72,9
221.		74,1
222.		65,5
223.		65,7
224.		57,2
225.		47,4
226.	7/Jan/2025	63,3
227.	7/Feb/2025	81,7
228.	7/Mar/2025	75
229.	7/Apr/2025	73,3
230.	7/May/2025	63

SISTEMAS DE CONTROL DE PRODUCCION

No.	Date	Avg % Relative Humidity
231.	7/Jun/2025	67,8
232.	7/Jul/2025	77,2
233.	7/Aug/2025	68,7
234.	7/Sep/2025	67,2
235.	7/Oct/2025	63
236.	7/Nov/2025	73,5
237.	7/Dec/2025	83
238.		81,5
239.		78
240.		73,6
241.		66
242.		71,7
243.		74,4
244.		68,3
245.		59,2
246.		69,2
247.		63,4
248.		75,5
249.		78,8
250.		76,3
251.		75,5
252.		69,9
253.		78
254.		77,6
255.		77,9

	Application Description		
	A	**B**	**C**
Date	18/Nov/2024	5/Mar/2025	27/May/2025
Start Time	8:20	11:05	8:15
Stop Time	10:25	12:30	9:45
Interval to Prev. Appl.		107 DAYS	83 DAYS
Method	SEEAPO	SPRAY	SPRAY
Timing	ACCRST	ACCRST	ACCRST
Placement	SEED	FOLIAR	FOLIAR
Mixed/Prepared By	Luis Eduardo Torres	Luis Eduardo Torres	Luis Eduardo Torres
Applied By	Luis Eduardo Torres	Luis Eduardo Torres	Luis Eduardo Torres
Entry Date	14/Jan/2026	15/Jan/2026	15/Jan/2026
Air Temperature Start, Stop	12,3; 13,1 C	15,7; 16 C	12,8; 13,1 C
% Relative Humidity Start, Stop	65; 64	42; 42	60; 59
Wet Leaves (Y/N)	N; no	N; no	N; no
% Cloud Cover	100	60	20
Problems with Application?	N; -	N; -	N; -

SISTEMAS DE CONTROL DE PRODUCCION

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale	TRZAW; BCER	TRZAW; BCER	TRZAW; BCER
Stage Scale Used	BBCH	BBCH	BBCH
Stage Majority, Percent	00; -	22; -	37; -
Growth Condition	DR; dry	AG; actively growing/normal	AG; actively growing/normal
Diameter Average		0,5 cm	0,5 cm
Height Average	0 cm	14 cm	55 cm
Total Canopy Height		14 cm	55 cm
Treated Canopy Height		14 cm	55 cm
Total Leaf Wall Area		20000 m2/ha	78571 m2/ha
Total LWA Formula		2*0.14*10000/0.14	2*.55*10000/0.14
Treated Tree Row Volume		50 m3/ha	196 m3/ha
Treated TRV Formula		(0.14*0.005*10000)/0.14	(.55*0.005*10000)/0.14
Treated TRV per Plot		0,1 m3/plot	0,39 m3/plot
Total Tree Row Volume (m3/ha)		50,0	196,43
Coverage		100 %	100 %

Application Equipment

	A	B	C
Equipment Name	Manual	Maruyama	Maruyama
Operation Pressure		5 BAR	5 BAR
Nozzle Type		FLAFAN	FLAFAN
Nozzle Spacing		0,5 m	0,5 m
Band Width		2,0 m	2,0 m
% Coverage		100	100
Carrier		WATER	WATER
Application Amount	2,5 kg/ha	400 L/ha	400 L/ha
Minimum Mix/Treatment	20 g	3,2 L	3,2 L
Mix Overage		0,0 mL	0,0 mL
Mix Size	20,0 g	3,2 L	3,2 L
Tank Mix (Y/N)	N; no	N; no	N; no

Notes

No.	Context	Date	Time	By	Notes
1.	STATUS	14/Jan/2026	11:33	Ana Orrico Marin	Automatically added by ARM: Trial Status updated to 'S' during trial creation by (XUNMAA).
2.	STATUS	14/Jan/2026	11:37	Ana Orrico Marin	Automatically added by ARM: Trial Status updated to 'E' when Initiation Date was entered by (XUNMAA).
3.	STATUS	15/Jan/2026	13:55	Ana Orrico Marin	Automatically added by ARM: Status changed to: F: changed by (XUNMAA).

SISTEMAS DE CONTROL DE PRODUCCION

SE Definitions

	1.	2.	3.	4.	5.
SE Name	X001	O002	CI101	Y006	CYQ201
SE Description	% General phyto on plants (all symptoms)	% vigour of plants (compared to check = 100%)	WEIGHT_G_1000_SEEDS	Grain Hectolitre wt kg/Hl	PLANT YIELD KG/HA
Part Assessed	PLANT; -	PLANT; -	SEED; -	GRAIN; -	PLANT; -
Assessment Type	PHYGEN	VIGOR	WEIGHT	HLW	YIELD
Assessment Unit	%	%CHANG	G	kg/HL	KG
Assessment Min/Max/Interval	0; 100; -				
Sample Size	1 PLOT	1 PLOT	- SEED	1 PLOT	1 PLOT
Collection Basis	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Reporting Basis	1 PLOT	1 PLOT	1000 SEED	1 HL	1 HA
Calculation	NC	NC	IN	IN	IN

Rep	Blk										
4	4	401	4	402	1	403	3	404	5	405	2
3	3	301	3	302	5	303	2	304	4	305	1
2	2	201	2	202	4	203	1	204	3	205	5
1	1	101	1	102	3	103	5	104	2	105	4

Trt No.	Type	Treatment Name	Description	Rate	Rate Unit	Appl Code	Appl Description	Appl Timing
1	CHK	Untreated check	sprayed with water			ABC		
2	BIOSTIM	FORMULATION C		2,5	kg/ha	A	At sowing	ACCRST
3	BIOSTIM	FORMULATION A		4	l/ha	BC	At tillering and flag-leaf stage	ACCRST
4	BIOSTIM BIOSTIM	FORMULATION C FORMULATION A		2,5 4	kg/ha l/ha	A BC	At sowing At tillering and flag-leaf stage	ACCRST ACCRST
5	BIOSTIM	CEPACET		2	l/ha	ABC	At sowing, tillering and flag-leaf stage	ACCRST

Additional Treatment Information

Type

CHK = Check or Untreated

BIOSTIM = Biostimulant

Rate Unit

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

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

Appl Timing

ACCRST = according crop stage

Replications: 4, Untreated treatments: 1, Conduct under GLP/GEP: Yes (GEP with no protection), Design: Randomised Complete Block (RCB), Treatment units: Treated 'Plot' experimental unit size, Dry Form. Unit: %, Treated 'Plot' experimental unit size Width: 2 meters, Treated 'Plot' experimental unit size Length: 10 meters, Application amount: 200 L/ha, Mix size: 1.6 L, Format definitions: G-All7.def, G-All7.frm

SISTEMAS DE CONTROL DE PRODUCCION

EVALUATION OF THE BIOSTIMULANT EFFECT OF PRODUCTS BASED ON MICROORGANISMS ON WHEAT (MONOCULTIVE SOIL)

Trial ID:SI24BT003IGS-GR01 Official Trial ID:SI24BT003IGS-GR01
Protocol ID:SI24BT003IGS Location:Salobreña (Granada) Trial Year:2024
Study Director:José Antonio Rojas González Sponsor Contact:Symbiagro S.r.l Conducted Under GEP:Yes
Investigator:Luis Eduardo Torres Guzmán

Assessed By		Luis Eduardo To>	Luis Eduardo To>	Luis Eduardo To>	Luis Eduardo To>	Luis Eduardo To>
Assessment Date		20/Dec/2024	13/May/2025	4/Jun/2025	20/Dec/2024	13/May/2025
SE Group No.		1	2	3	5	4
SE Name		X001	X001	X001	O002	O002
SE Description		% General phyto>	% General phyto>	% General phyto>	% vigour of pla>	% vigour of pla>
Part Assessed		PLANT; C	PLANT; C	PLANT; C	PLANT; C	PLANT; C
Assessment Type		PHYGEN	PHYGEN	PHYGEN	VIGOR	VIGOR
Assessment Unit		%	%	%	%	%
Assessment Min/Max/Interval		0; 100; -	0; 100; -	0; 100; -	0; 100; -	0; 100; -
Sample Size		1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Collection Basis		1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Reporting Basis		1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Calculation		NC	NC	NC	NC	
Number of Subsamples		1	1	1	1	1
Crop Type, Code		C; TRZAW	C; TRZAW	C; TRZAW	C; TRZAW	C; TRZAW
BBCH Scale		BCER	BCER	BCER	BCER	BCER
Crop Scientific Name		Triticum aestiv>	Triticum aestiv>	Triticum aestiv>	Triticum aestiv>	Triticum aestiv>
Crop Name		Winter wheat	Winter wheat	Winter wheat	Winter wheat	Winter wheat
Crop Variety		Filon	Filon	Filon	Filon	Filon
Crop Stage Scale		BBCH	BBCH	BBCH	BBCH	BBCH
Crop Stage Majority/Min/Max		12; -; -	23; -; -	37; -; -	12; -; -	23; -; -
Crop Diameter Average		0,3 cm	0,5 cm	3 cm	0,3 cm	0,5 cm
Crop Height Average		5 cm	20 cm	90 cm	5 cm	20 cm
Days After First/Last Appl.		32; 32	176; 69	198; 8	32; 32	176; 69
Treatment Appl. Interval		32 DA-A	176 DA-A	198 DA-A		
Planting Interval		32 DP-1	176 DP-1	198 DP-1	32 DP-1	176 DP-1
Description		Phytotoxicity	Phytotoxicity	Phytotoxicity	Vigor	Vigor
ARM Action Codes						
Number of Decimals		2	2	2	2	2
Data Entry Date		14/Jan/2026	14/Jan/2026	14/Jan/2026	15/Jan/2026	15/Jan/2026
Trt No.	Treatment Name	Rate Rate Unit	1*	2*	3*	4*	5*
1	Untreated check		0,00na	0,00na	0,00na	100,00na	100,00na
2	FORMULATION C	2,5kg/ha	0,00na	0,00na	0,00na	100,00na	100,00na
3	FORMULATION A	4l/ha	0,00na	0,00na	0,00na	100,00na	100,00na
4	FORMULATION C FORMULATION A	2,5kg/ha 4l/ha	0,00na	0,00na	0,00na	100,00na	100,00na
5	CEPACET	2l/ha	0,00na	0,00na	0,00na	100,00na	100,00na
LSD P=.15			.	.	.	.	.
Standard Deviation			0,000	0,000	0,000	0,000	0,000
CV			0,0	0,0	0,0	0,0	0,0
Grand Mean			0,000	0,000	0,000	100,000	100,000
Bartlett's X2^			.	.	.	.	.
P(Bartlett's X2)			.	.	.	.	.
Rank X2			.	.	.	.	.
P(Rank X2)			.	.	.	.	.
Shapiro-Wilk^			.	.	.	.	.
P(Shapiro-Wilk)^			.	.	.	.	.
Skewness^			.	.	.	.	.
P(Skewness)^			.	.	.	.	.
Kurtosis^			.	.	.	.	.
P(Kurtosis)^			.	.	.	.	.
Replicate F			NaN	NaN	NaN	NaN	NaN
Replicate Prob(F)			NaN	NaN	NaN	NaN	NaN
Treatment F			NaN	NaN	NaN	NaN	NaN
Treatment Prob(F)			NaN	NaN	NaN	NaN	NaN

Means followed by same letter or symbol do not significantly differ (P=.15, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
* Adjusted means
Could not calculate LSD (% mean diff) or mean separation letters for columns 1,2,3,4,5,6,8,10,12 because error variance is 0.
Mean separation letters are 'na' (not applicable) when error variance is 0
^Calculated from residual.

SISTEMAS DE CONTROL DE PRODUCCION

Assessed By			Luis Eduardo To>	Luis Eduardo To>	Luis Eduardo To>	Luis Eduardo To>	Luis Eduardo To>
Assessment Date			4/Jun/2025	30/Jul/2025	30/Jul/2025	30/Jul/2025	30/Jul/2025
SE Group No.			6	7	7	8	8
SE Name			O002	CI101	CI101	Y006	Y006
SE Description			% vigour of pla>	WEIGHT_G_1000_S>	WEIGHT_G_1000_S>	Grain Hectolitr>	Grain Hectolitr>
Part Assessed			PLANT; C	SEED; C	SEED; C	GRAIN; C	GRAIN; C
Assessment Type			VIGOR	WEIGHT	WEIGHT	HLW	HLW
Assessment Unit			%	G	%DIF	kg/HL	%DIF
Assessment Min/Max/Interval			0; 100; -				
Sample Size			1 PLOT	1000 SEED	1000 SEED	1 hL	1 hL
Collection Basis			1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Reporting Basis			1 PLOT	1000 SEED	1000 SEED	1 HL	1 HL
Calculation				IN	IN	IN	IN
Number of Subsamples			1	1	1	1	1
Crop Type, Code			C; TRZAW	C; TRZAW	C; TRZAW	C; TRZAW	C; TRZAW
BBCH Scale			BCER	BCER	BCER	BCER	BCER
Crop Scientific Name			Triticum aestiv>	Triticum aestiv>	Triticum aestiv>	Triticum aestiv>	Triticum aestiv>
Crop Name			Winter wheat	Winter wheat	Winter wheat	Winter wheat	Winter wheat
Crop Variety			Filon	Filon	Filon	Filon	Filon
Crop Stage Scale			BBCH	BBCH	BBCH	BBCH	BBCH
Crop Stage Majority/Min/Max			37; -; -	99; -; -	99; -; -	99; -; -	99; -; -
Crop Diameter Average			3 cm	10 cm	10 cm	10 cm	10 cm
Crop Height Average			90 cm	100 cm	100 cm	100 cm	100 cm
Days After First/Last Appl.			198; 8	254; 64	254; 64	254; 64	254; 64
Treatment Appl. Interval							
Planting Interval			198 DP-1	254 DP-1	254 DP-1	254 DP-1	254 DP-1
Description			Vigor	Weight 1000 gra>	Dif (%) Weight >	Weight hectolit>	Dif (%) Weight >
ARM Action Codes					@TUPOCR		@TUPOCR
Number of Decimals			2	2	2	2	2
Data Entry Date			15/Jan/2026	15/Jan/2026		15/Jan/2026	
Trt No.	Treatment Name	Rate RateUnit	6*	7*	8	9*	10
1	Untreated check		100,00na	42,70a	100,00	58,35ab	100,00
2	FORMULATION C	2,5kg/ha	100,00na	41,53a	97,25	58,08ab	99,53
3	FORMULATION A	4l/ha	100,00na	40,83a	95,61	56,13b	96,19
4	FORMULATION C FORMULATION A	2,5kg/ha 4l/ha	100,00na	41,10a	96,25	59,28a	101,59
5	CEPACET	2l/ha	100,00na	39,28a	91,98	58,43ab	100,13
LSD P=.15			.	2,295	.	1,653	.
Standard Deviation			0,000	2,111	.	1,520	.
CV			0,0	5,14	.	2,62	.
Grand Mean			100,000	41,085	.	58,050	.
Bartlett's X2^			.	1,003	.	2,644	.
P(Bartlett's X2)			.	0,909	.	0,619	.
Rank X2			.	.	.	.	.
P(Rank X2)			.	.	.	.	.
Shapiro-Wilk^			.	0,9401	.	0,9673	.
P(Shapiro-Wilk)^			.	0,2406	.	0,697	.
Skewness^			.	-0,2719	.	-0,4382	.
P(Skewness)^			.	0,6016	.	0,4028	.
Kurtosis^			.	-0,5293	.	-0,0237	.
P(Kurtosis)^			.	0,6	.	0,9812	.
Replicate F			NaN	0,946		0,300	
Replicate Prob(F)			NaN	0,4492		0,8245	
Treatment F			NaN	1,379		2,354	
Treatment Prob(F)			NaN	0,2986		0,1126	

Means followed by same letter or symbol do not significantly differ (P=.15, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
* Adjusted means
Could not calculate LSD (% mean diff) or mean separation letters for columns 1,2,3,4,5,6,8,10,12 because error variance is 0.

Mean separation letters are 'na' (not applicable) when error variance is 0
^Calculated from residual.

SISTEMAS DE CONTROL DE PRODUCCION

Assessed By			Luis Eduardo To>	Luis Eduardo To>
Assessment Date			30/Jul/2025	30/Jul/2025
SE Group No.			9	10
SE Name			CYQ201	CYQ201
SE Description			YIELD KG/HA	YIELD KG/HA
Part Assessed			SEED; C	SEED; C
Assessment Type			YIELD	YIELD
Assessment Unit			kg/ha	%DIF
Assessment Min/Max/Interval				
Sample Size			1 PLOT	1 PLOT
Collection Basis			1 PLOT	1 PLOT
Reporting Basis			1 HA	1 HA
Calculation			IN	IN
Number of Subsamples			1	1
Crop Type, Code			C; TRZAW	C; TRZAW
BBCH Scale			BCER	BCER
Crop Scientific Name			Triticum aestiv>	Triticum aestiv>
Crop Name			Winter wheat	Winter wheat
Crop Variety			Filon	Filon
Crop Stage Scale			BBCH	BBCH
Crop Stage Majority/Min/Max			99; -; -	99; -; -
Crop Diameter Average			10 cm	10 cm
Crop Height Average			100 cm	100 cm
Days After First/Last Appl.			254; 64	254; 64
Treatment Appl. Interval				
Planting Interval			254 DP-1	254 DP-1
Description			Yield (kg/ha)	Dif (%) Yield (>
ARM Action Codes				@TUPOCR
Number of Decimals			2	2
Data Entry Date			15/Jan/2026	
Trt No.	Treatment Name	Rate	Rate Unit	11*	12
1	Untreated check			5792,50a	100,00
2	FORMULATION C	2,5	kg/ha	5562,50a	96,03
3	FORMULATION A	4	l/ha	5960,00a	102,89
4	FORMULATION C	2,5	kg/ha	6080,00a	104,96
	FORMULATION A	4	l/ha		
5	CEPACET	2	l/ha	5752,50a	99,31
LSD P=.15				610,801	.
Standard Deviation				561,656	.
CV				9,63	.
Grand Mean				5829,501	.
Bartlett's X2^				7,114	.
P(Bartlett's X2)				0,13	.
Rank X2				.	.
P(Rank X2)				.	.
Shapiro-Wilk^				0,956	.
P(Shapiro-Wilk)^				0,4666	.
Skewness^				0,0475	.
P(Skewness)^				0,9271	.
Kurtosis^				-0,7387	.
P(Kurtosis)^				0,4658	.
Replicate F				1,054	
Replicate Prob(F)				0,4046	
Treatment F				0,502	
Treatment Prob(F)				0,7351	

Means followed by same letter or symbol do not significantly differ (P=.15, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
* Adjusted means
Could not calculate LSD (% mean diff) or mean separation letters for columns 1,2,3,4,5,6,8,10,12 because error variance is 0.
Mean separation letters are 'na' (not applicable) when error variance is 0
^Calculated from residual.

SISTEMAS DE CONTROL DE PRODUCCION

EVALUATION OF THE BIOSTIMULANT EFFECT OF PRODUCTS BASED ON MICROORGANISMS ON WHEAT (MONOCULTIVE SOIL)

Trial ID:SI24BT003IGS-GR01 Official Trial ID:SI24BT003IGS-GR01
Protocol ID:SI24BT003IGS Location:Salobreña (Granada) Trial Year:2024
Study Director:José Antonio Rojas González Sponsor Contact:Symbiagro S.r.l Conducted Under GEP:Yes
Investigator:Luis Eduardo Torres Guzmán

ARM Action Codes
@TUPOCR = &100*@AvgRep([7])/@AvgRep([TUC7])
@TUPOCR = &100*@AvgRep([9])/@AvgRep([TUC9])
@TUPOCR = &100*@AvgRep([11])/@AvgRep([TUC11])

SISTEMAS DE CONTROL DE PRODUCCION

EVALUATION OF THE BIOSTIMULANT EFFECT OF PRODUCTS BASED ON MICROORGANISMS ON WHEAT (MONOCULTIVE SOIL)

Trial ID:SI24BT003IGS-GR01 Official Trial ID:SI24BT003IGS-GR01
Protocol ID:SI24BT003IGS Location:Salobreña (Granada) Trial Year:2024
Study Director:José Antonio Rojas González Sponsor Contact:Symbiagro S.r.l Conducted Under GEP:Yes
Investigator:Luis Eduardo Torres Guzmán

Assessed By				Luis Eduardo To>	Luis Eduardo To>	Luis Eduardo To>	Luis Eduardo To>	Luis Eduardo To>
Assessment Date				20/Dec/2024	13/May/2025	4/Jun/2025	20/Dec/2024	13/May/2025
SE Group No.				1	2	3	5	
SE Name				X001	X001	X001	O002	O00
SE Description				% General phyto>	% General phyto>	% General phyto>	% vigour of pla>	% vigour of pla>
Part Assessed				PLANT; C	PLANT; C	PLANT; C	PLANT; C	PLANT; C
Assessment Type				PHYGEN	PHYGEN	PHYGEN	VIGOR	VIGOR
Assessment Unit				%	%	%	%	%
Assessment Min/Max/Interval				0; 100; -	0; 100; -	0; 100; -	0; 100; -	0; 100;
Sample Size				1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Collection Basis				1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Reporting Basis				1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Calculation				NC	NC	NC	NC	
Number of Subsamples				1	1	1	1	
Crop Type, Code				C; TRZAW	C; TRZAW	C; TRZAW	C; TRZAW	C; TRZAW
BBCH Scale				BCER	BCER	BCER	BCER	BCER
Crop Scientific Name				Triticum aestiv>	Triticum aestiv>	Triticum aestiv>	Triticum aestiv>	Triticum aestiv>
Crop Name				Winter wheat	Winter wheat	Winter wheat	Winter wheat	Winter whea
Crop Variety				Filon	Filon	Filon	Filon	Filo
Crop Stage Scale				BBCH	BBCH	BBCH	BBCH	BBCH
Crop Stage Majority/Min/Max				12; -; -	23; -; -	37; -; -	12; -; -	23; -;
Crop Diameter Average				0,3 cm	0,5 cm	3 cm	0,3 cm	0,5 cm
Crop Height Average				5 cm	20 cm	90 cm	5 cm	20 cm
Days After First/Last Appl.				32; 32	176; 69	198; 8	32; 32	176; 6
Treatment Appl. Interval				32 DA-A	176 DA-A	198 DA-A		
Planting Interval				32 DP-1	176 DP-1	198 DP-1	32 DP-1	176 DP-
Description				Phytotoxicity	Phytotoxicity	Phytotoxicity	Vigor	Vigo
ARM Action Codes								
Number of Decimals				2	2	2	2	
Data Entry Date				14/Jan/2026	14/Jan/2026	14/Jan/2026	15/Jan/2026	15/Jan/202
Trt No.	Treatment Name	Rate	Rate Unit	Plot	1	2	3	4	5
1	Untreated check			101	0,00	0,00	0,00	100,00	100,0
				203	0,00	0,00	0,00	100,00	100,0
				305	0,00	0,00	0,00	100,00	100,0
				402	0,00	0,00	0,00	100,00	100,0
				Mean =	0,00	0,00	0,00	100,00	100,0
2	FORMULATION C	2,5	kg/ha	104	0,00	0,00	0,00	100,00	100,0
				201	0,00	0,00	0,00	100,00	100,0
				303	0,00	0,00	0,00	100,00	100,0
				405	0,00	0,00	0,00	100,00	100,0
				Mean =	0,00	0,00	0,00	100,00	100,0
3	FORMULATION A	4	l/ha	102	0,00	0,00	0,00	100,00	100,0
				204	0,00	0,00	0,00	100,00	100,0
				301	0,00	0,00	0,00	100,00	100,0
				403	0,00	0,00	0,00	100,00	100,0
				Mean =	0,00	0,00	0,00	100,00	100,0
4	FORMULATION C	2,5	kg/ha	105	0,00	0,00	0,00	100,00	100,0
	FORMULATION A	4	l/ha	202	0,00	0,00	0,00	100,00	100,0
				304	0,00	0,00	0,00	100,00	100,0
				401	0,00	0,00	0,00	100,00	100,0
				Mean =	0,00	0,00	0,00	100,00	100,0
5	CEPACET	2	l/ha	103	0,00	0,00	0,00	100,00	100,0
				205	0,00	0,00	0,00	100,00	100,0
				302	0,00	0,00	0,00	100,00	100,0
				404	0,00	0,00	0,00	100,00	100,0
				Mean =	0,00	0,00	0,00	100,00	100,0

SISTEMAS DE CONTROL DE PRODUCCION

Assessed By			Luis Eduardo To>	Luis Eduardo To>	Luis Eduardo To>	Luis Eduardo To>
Assessment Date			4/Jun/2025	30/Jul/2025	30/Jul/2025	30/Jul/2025
SE Group No.			6	7	7	8
SE Name			O002	CI101	CI101	Y006
SE Description			% vigour of pla>	WEIGHT_G_1000_S>	WEIGHT_G_1000_S>	Grain Hectolitr>
Part Assessed			PLANT; C	SEED; C	SEED; C	GRAIN; C
Assessment Type			VIGOR	WEIGHT	WEIGHT	HLW
Assessment Unit			%	G	%DIF	kg/HL
Assessment Min/Max/Interval			0; 100; -			
Sample Size			1 PLOT	1000 SEED	1000 SEED	1 hL
Collection Basis			1 PLOT	1 PLOT	1 PLOT	1 PLOT
Reporting Basis			1 PLOT	1000 SEED	1000 SEED	1 HL
Calculation				IN	IN	IN
Number of Subsamples			1	1	1	1
Crop Type, Code			C; TRZAW	C; TRZAW	C; TRZAW	C; TRZAW
BBCH Scale			BCER	BCER	BCER	BCER
Crop Scientific Name			Triticum aestiv>	Triticum aestiv>	Triticum aestiv>	Triticum aestiv>
Crop Name			Winter wheat	Winter wheat	Winter wheat	Winter wheat
Crop Variety			Filon	Filon	Filon	Filon
Crop Stage Scale			BBCH	BBCH	BBCH	BBCH
Crop Stage Majority/Min/Max			37; -; -	99; -; -	99; -; -	99; -; -
Crop Diameter Average			3 cm	10 cm	10 cm	10 cm
Crop Height Average			90 cm	100 cm	100 cm	100 cm
Days After First/Last Appl.			198; 8	254; 64	254; 64	254; 64
Treatment Appl. Interval						
Planting Interval			198 DP-1	254 DP-1	254 DP-1	254 DP-1
Description			Vigor	Weight 1000 gra>	Dif (%) Weight >	Weight hectolit>
ARM Action Codes					@TUPOCR	
Number of Decimals			2	2	2	2
Data Entry Date			15/Jan/2026	15/Jan/2026		15/Jan/2026
Trt No.	Treatment Name	Rate	Rate Unit	Plot	6	7	8	9
1	Untreated check			101	100,00	40,10	100,00	58,40
				203	100,00	41,30	100,00	56,70
				305	100,00	45,20	100,00	59,40
				402	100,00	44,20	100,00	58,90
				Mean =	100,00	42,70	100,00	58,35
2	FORMULATION C	2,5	kg/ha	104	100,00	43,00	97,25	60,10
				201	100,00	40,50	97,25	57,90
				303	100,00	39,80	97,25	58,60
				405	100,00	42,80	97,25	55,70
				Mean =	100,00	41,53	97,25	58,08
3	FORMULATION A	4	l/ha	102	100,00	37,40	95,61	57,10
				204	100,00	39,70	95,61	55,90
				301	100,00	44,90	95,61	54,70
				403	100,00	41,30	95,61	56,80
				Mean =	100,00	40,83	95,61	56,13
4	FORMULATION C	2,5	kg/ha	105	100,00	41,40	96,25	59,30
	FORMULATION A	4	l/ha	202	100,00	40,80	96,25	58,50
				304	100,00	42,50	96,25	58,10
				401	100,00	39,70	96,25	61,20
				Mean =	100,00	41,10	96,25	59,28
5	CEPACET	2	l/ha	103	100,00	40,30	91,98	56,80
				205	100,00	38,50	91,98	59,90
				302	100,00	37,50	91,98	57,60
				404	100,00	40,80	91,98	59,40
				Mean =	100,00	39,28	91,98	58,43

SISTEMAS DE CONTROL DE PRODUCCION

Assessed By					Luis Eduardo To>	Luis Eduardo To>	Luis Eduardo To>
Assessment Date					30/Jul/2025	30/Jul/2025	30/Jul/2025
SE Group No.					8	9	10
SE Name					Y006	CYQ201	CYQ201
SE Description					Grain Hectolitr>	YIELD KG/HA	YIELD KG/HA
Part Assessed					GRAIN; C	SEED; C	SEED; C
Assessment Type					HLW	YIELD	YIELD
Assessment Unit					%DIF	kg/ha	%DIF
Assessment Min/Max/Interval							
Sample Size					1 hL	1 PLOT	1 PLOT
Collection Basis					1 PLOT	1 PLOT	1 PLOT
Reporting Basis					1 HL	1 HA	1 HA
Calculation					IN	IN	IN
Number of Subsamples					1	1	1
Crop Type, Code					C; TRZAW	C; TRZAW	C; TRZAW
BBCH Scale					BCER	BCER	BCER
Crop Scientific Name					Triticum aestiv>	Triticum aestiv>	Triticum aestiv>
Crop Name					Winter wheat	Winter wheat	Winter wheat
Crop Variety					Filon	Filon	Filon
Crop Stage Scale					BBCH	BBCH	BBCH
Crop Stage Majority/Min/Max					99; -; -	99; -; -	99; -; -
Crop Diameter Average					10 cm	10 cm	10 cm
Crop Height Average					100 cm	100 cm	100 cm
Days After First/Last Appl.					254; 64	254; 64	254; 64
Treatment Appl. Interval							
Planting Interval					254 DP-1	254 DP-1	254 DP-1
Description					Dif (%) Weight >	Yield (kg/ha)	Dif (%) Yield (>
ARM Action Codes					@TUPOCR		@TUPOCR
Number of Decimals					2	2	2
Data Entry Date						15/Jan/2026	
Trt No.	Treatment Name	Rate	Rate Unit	Plot	10	11	12
1	Untreated check			101	100,00	5420,00	100,00
				203	100,00	5630,00	100,00
				305	100,00	6840,00	100,00
				402	100,00	5280,00	100,00
				Mean =	100,00	5792,50	100,00
2	FORMULATION C	2,5	kg/ha	104	99,53	5480,00	96,03
				201	99,53	5390,00	96,03
				303	99,53	5190,00	96,03
				405	99,53	6190,00	96,03
				Mean =	99,53	5562,50	96,03
3	FORMULATION A	4	l/ha	102	96,19	6340,00	102,89
				204	96,19	5490,00	102,89
				301	96,19	6840,00	102,89
				403	96,19	5170,00	102,89
				Mean =	96,19	5960,00	102,89
4	FORMULATION C	2,5	kg/ha	105	101,59	6210,00	104,96
	FORMULATION A	4	l/ha	202	101,59	5810,00	104,96
				304	101,59	6370,00	104,96
				401	101,59	5930,00	104,96
				Mean =	101,59	6080,00	104,96
5	CEPACET	2	l/ha	103	100,13	5910,00	99,31
				205	100,13	5260,00	99,31
				302	100,13	5470,00	99,31
				404	100,13	6370,00	99,31
				Mean =	100,13	5752,50	99,31

SISTEMAS DE CONTROL DE PRODUCCION

EVALUATION OF THE BIOSTIMULANT EFFECT OF PRODUCTS BASED ON MICROORGANISMS ON WHEAT (MONOCULTIVE SOIL)

Trial ID:SI24BT003IGS-GR01 Official Trial ID:SI24BT003IGS-GR01
Protocol ID:SI24BT003IGS Location:Salobreña (Granada) Trial Year:2024
Study Director:José Antonio Rojas González Sponsor Contact:Symbiagro S.r.l Conducted Under GEP:Yes
Investigator:Luis Eduardo Torres Guzmán

ARM Action Codes
@TUPOCR = &100*@AvgRep([7])/@AvgRep([TUC7])
@TUPOCR = &100*@AvgRep([9])/@AvgRep([TUC9])
@TUPOCR = &100*@AvgRep([11])/@AvgRep([TUC11])

Trial Map Treatment Description

Trt	Code	Description
1	CHK	Untreated check
2		FORMULATION C 2.5 kg/ha
3		FORMULATION A 4 L/ha
4		FORMULATION C 2.5 kg/ha;FORMULATION A 4 L/ha
5		CEPACET 2 L/ha

Trt No.	Type	Treatment Name	Description	Rate	RateUnit	Appl Code	Appl Description	Appl Timing	Rep 1	2	3	4
1	CHK	Untreated check	sprayed with water			ABC			101	203	305	402
3	BIOSTIM	FORMULATION A		4	l/ha	BC	At tillering and flag-leaf stage	ACCRST	102	204	301	403
5	BIOSTIM	CEPACET		2	l/ha	ABC	At sowing, tillering and flag-leaf stage	ACCRST	103	205	302	404
2	BIOSTIM	FORMULATION C		2,5	kg/ha	A	At sowing	ACCRST	104	201	303	405
4	BIOSTIM	FORMULATION C		2,5	kg/ha	A	At sowing	ACCRST	105	202	304	401
	BIOSTIM	FORMULATION A		4	l/ha	BC	At tillering and flag-leaf stage	ACCRST				

Sort Order: Replicate 1

Trial Comments

SISTEMAS DE CONTROL DE PRODUCCION

Trt No.	Type	Treatment Name	Description	Rate	Rate Unit	Appl Code	Appl Description	Appl Timing	Notes
1	CHK	Untreated check	sprayed with water			ABC			
3	BIOSTIM	FORMULATION A		4l/ha		BC	At tillering and flag-leaf stage	ACCRST	
5	BIOSTIM	CEPACET		2l/ha		ABC	At sowing, tillering and flag-leaf stage	ACCRST	
2	BIOSTIM	FORMULATION C		2,5kg/ha		A	At sowing	ACCRST	
4	BIOSTIM	FORMULATION C		2,5kg/ha		A	At sowing	ACCRST	
	BIOSTIM	FORMULATION A		4l/ha		BC	At tillering and flag-leaf stage	ACCRST	

Annex IV. ACREDITACIÓN EOR

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.

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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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