Report from visit to Reynosa, Tamaulipas

On May 2, 2024, we visited the field of Engineer Juan Zapata, where the SmartFertiFix product trials are located. The field has a production area of 14 hectares of the Novasem 722 hybrid. The phenological stage of the crop was R3.

For the evaluation of the SmartFertiFix products, the 14 hectares were divided into 3 plots corresponding to the 3 treatments: SmartFertiFix S (Soil), SmartFertiFix F (Foliar), and a control.

At first glance, the plots with the SmartFertiFix treatments appeared to be in better condition than the control plot, as the plants were taller and had a better plant color.

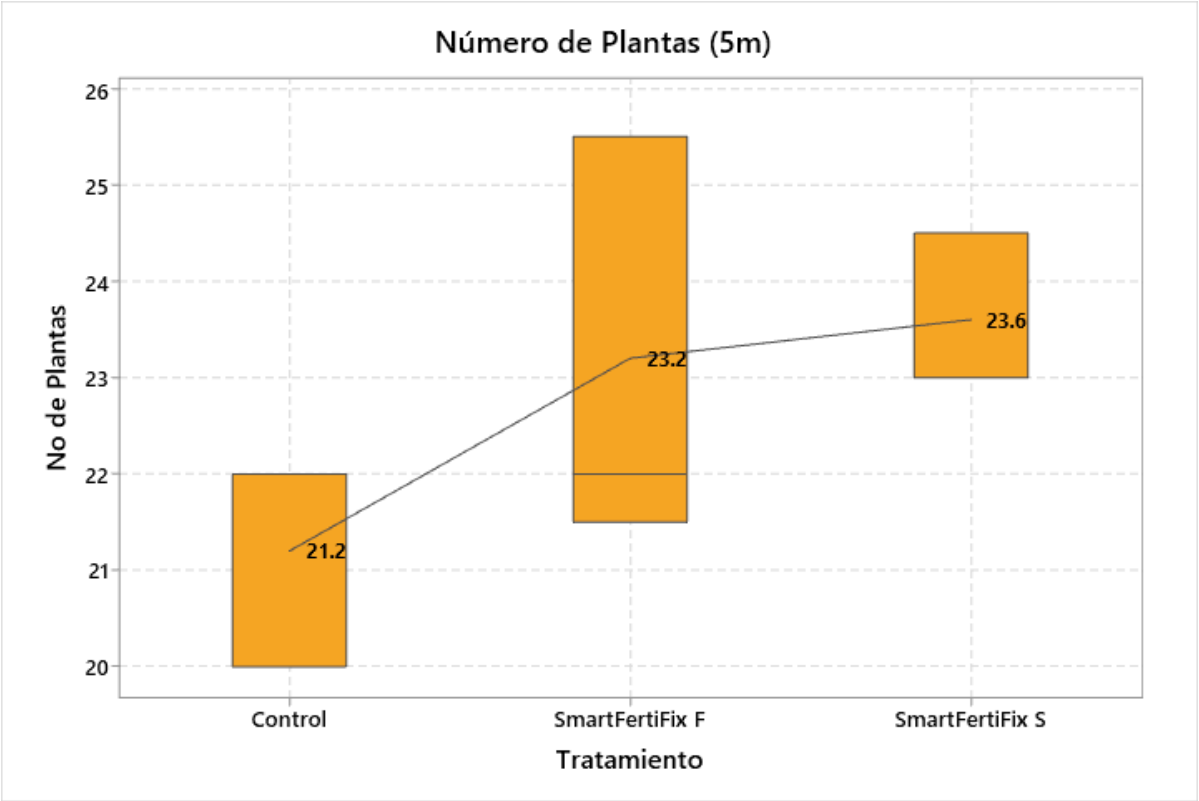
Example FertiFix plots:

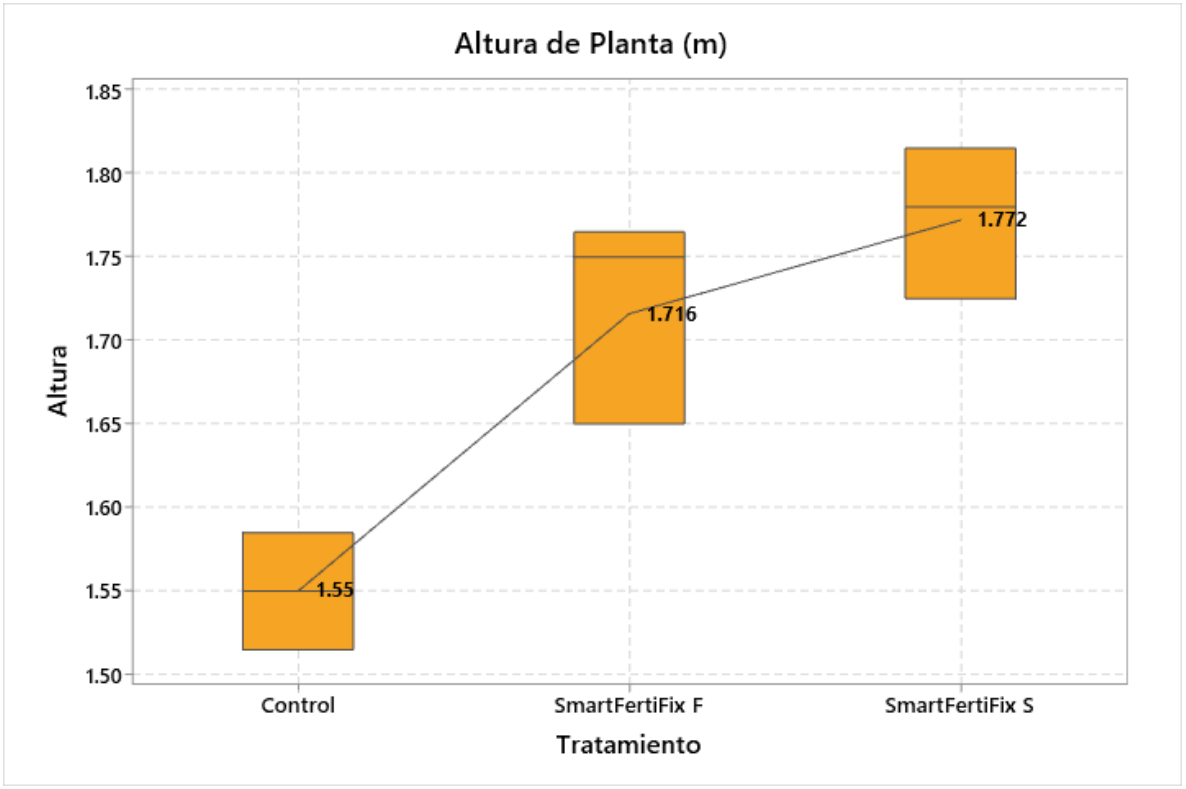

1/128in
0.05mm

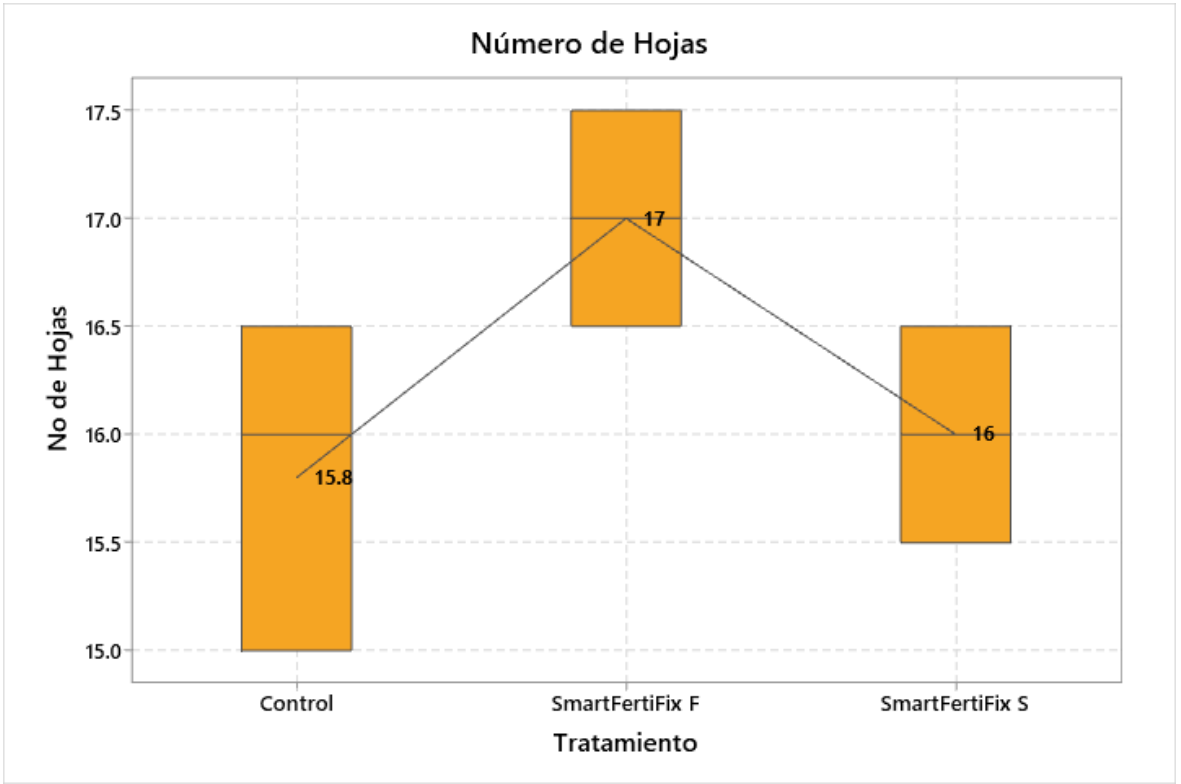
Example control plot:

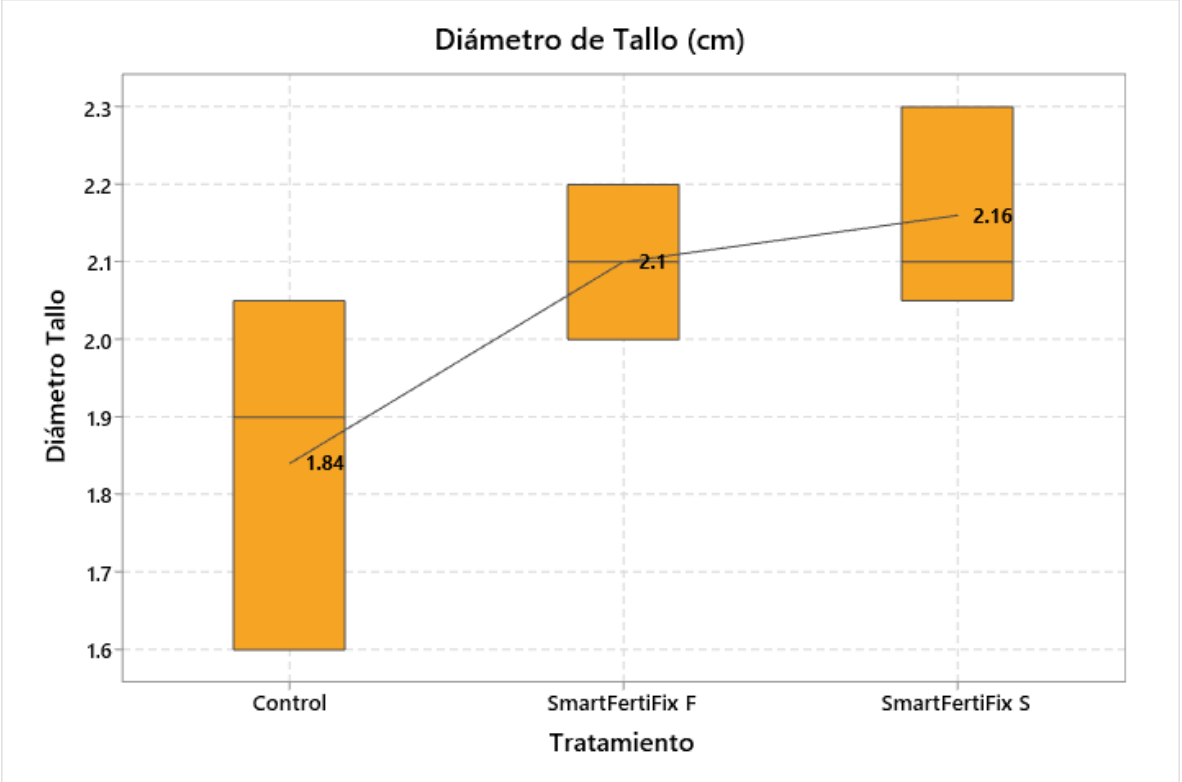
To evaluate the effect of the treatments, the following response variables were considered: Number of plants (in 5 linear meters), Plant height (in meters), Number of leaves, Stem diameter (in centimeters), Leaf width (in centimeters), and Leaf length (in centimeters).

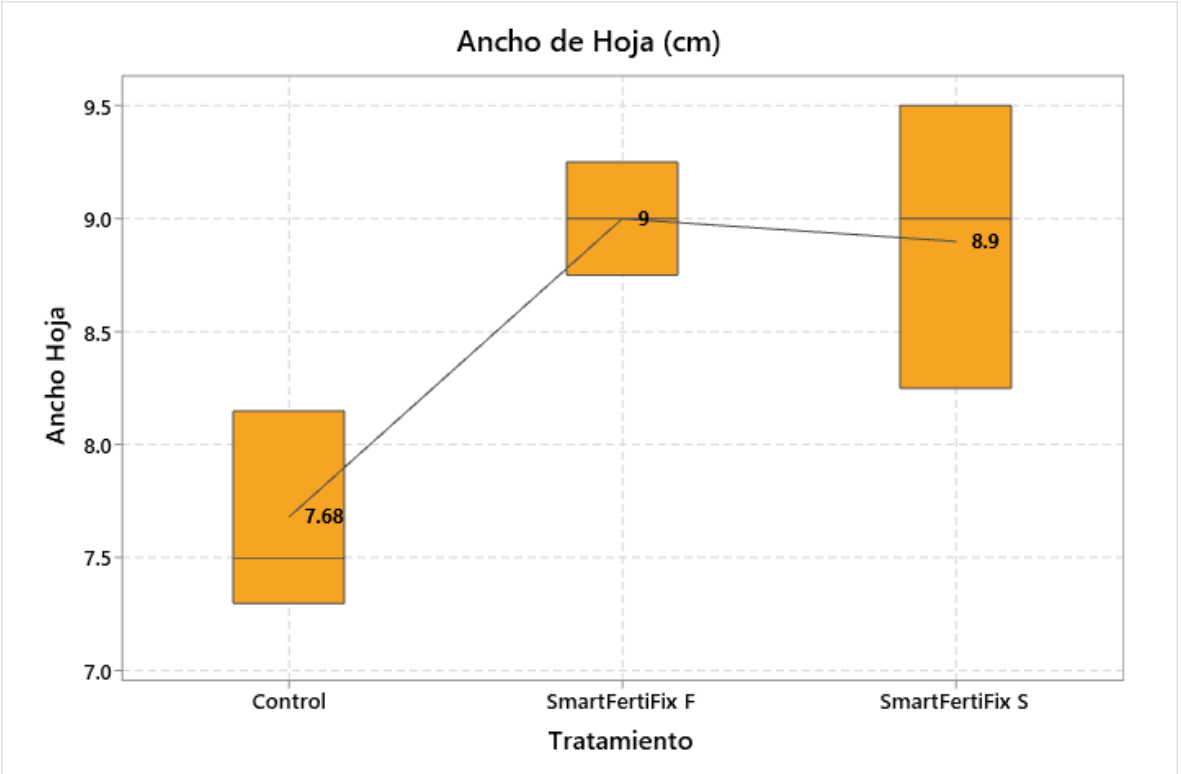
After collecting the data, a descriptive statistical analysis was performed using Minitab 19 software. The results of the data obtained and analyzed are as follows:




Altura de Planta (m)
Altura
1.85
1.80
1.75
1.70
1.65
1.60
1.55
1.50
1.772
1.716
1.55
Control
SmartFertiFix F
SmartFertiFix S
Tratamiento


Número de Hojas
No de Hojas
17.5
17.0
16.5
16.0
15.5
15.0
17
16
15.8
Control
SmartFertiFix F
SmartFertiFix S
Tratamiento


Diámetro de Tallo (cm)
Diámetro Tallo
2.3
2.2
2.1
2.0
1.9
1.8
1.7
1.6
1.84
2.1
2.16
Control
SmartFertiFix F
SmartFertiFix S
Tratamiento


Ancho de Hoja (cm)
Ancho Hoja
9.5
9.0
8.5
8.0
7.5
7.0
7.68
9
8.9
Control
SmartFertiFix F
SmartFertiFix S
Tratamiento

Conclusion:

The box plots show a difference between the treatments and the control, as the response variable values in the control were generally lower than those obtained in the SmartFertiFix treatments.

It can be argued that the SmartFertiFix treatments have an effect on the response variables Plant height, Number of leaves, Stem diameter, Leaf width, Leaf length, and Number of plants.

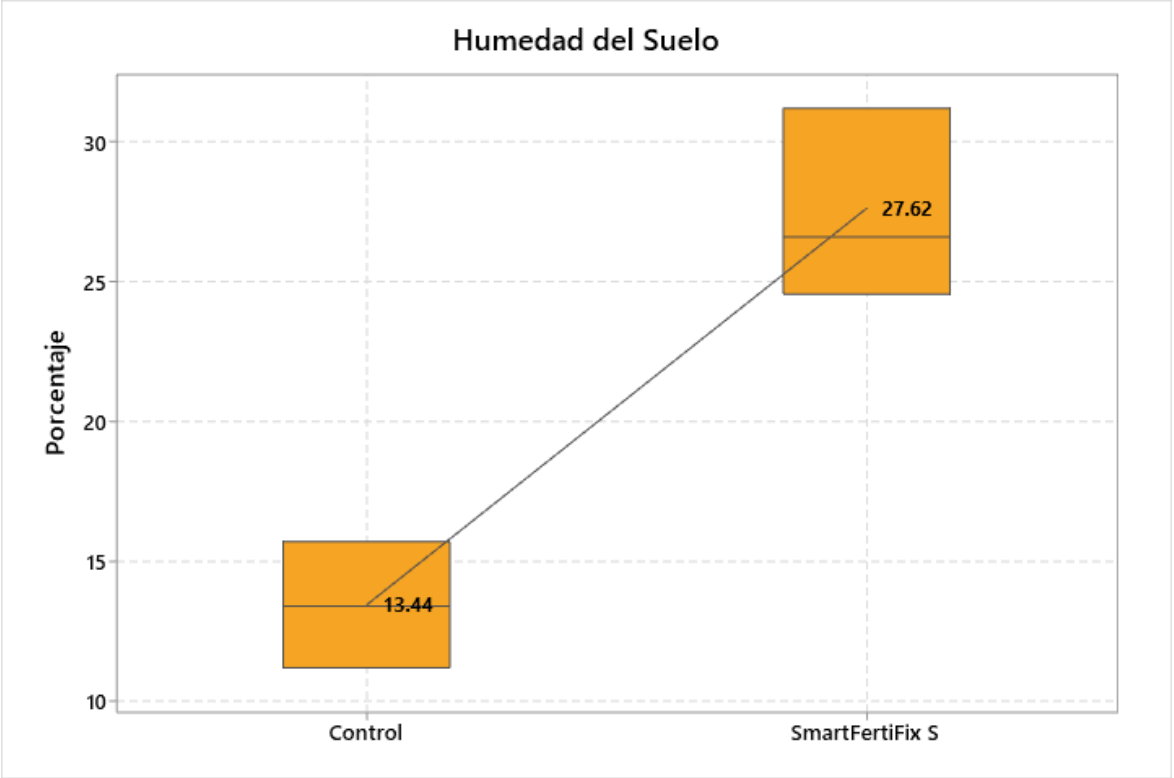
The response variables selected for this experiment are desirable characteristics for farmers because they improve the plant's photosynthetic capacity (Leaf length, Leaf width, and Number of leaves) or indicate optimal development and resistance to abiotic factors (Number of plants, Plant height, and Stem width).

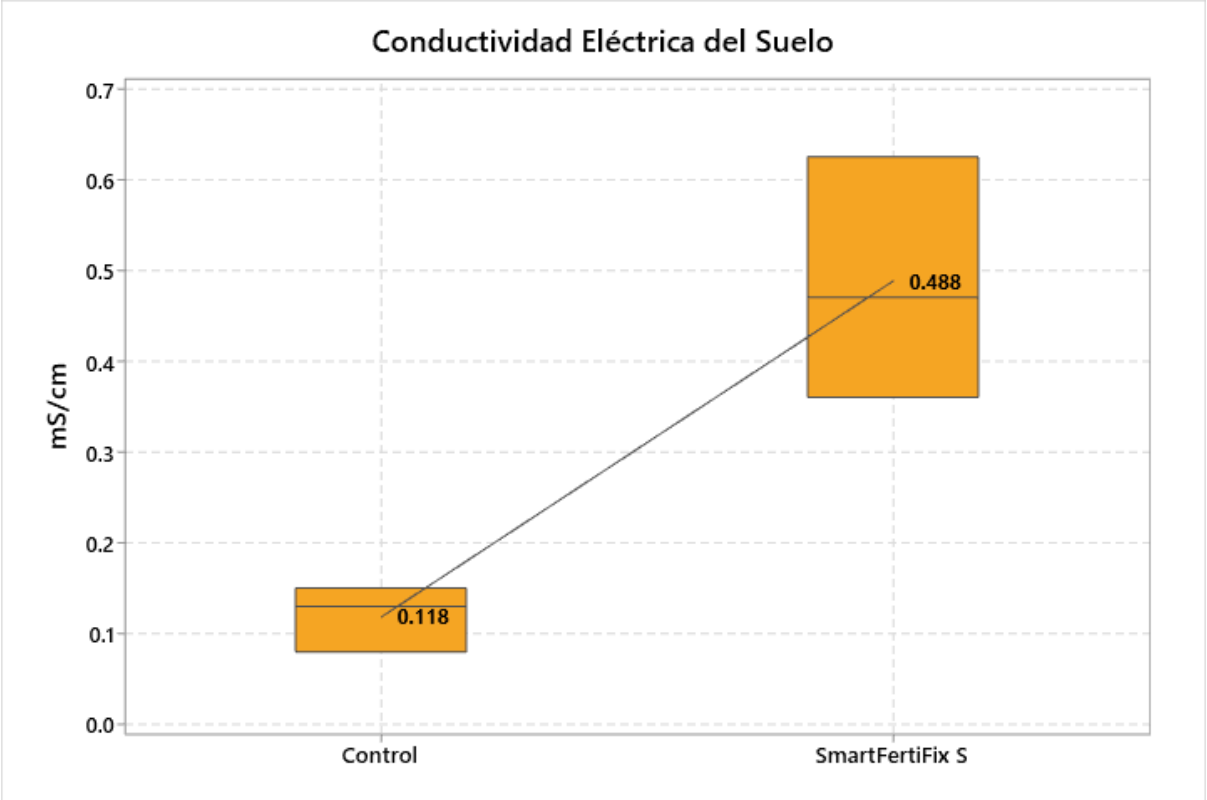
Generally, these characteristics translate into higher and better quality production, but it is necessary to follow up on this test to determine if the SmartFertiFix products affect the most important response variable, which is yield.

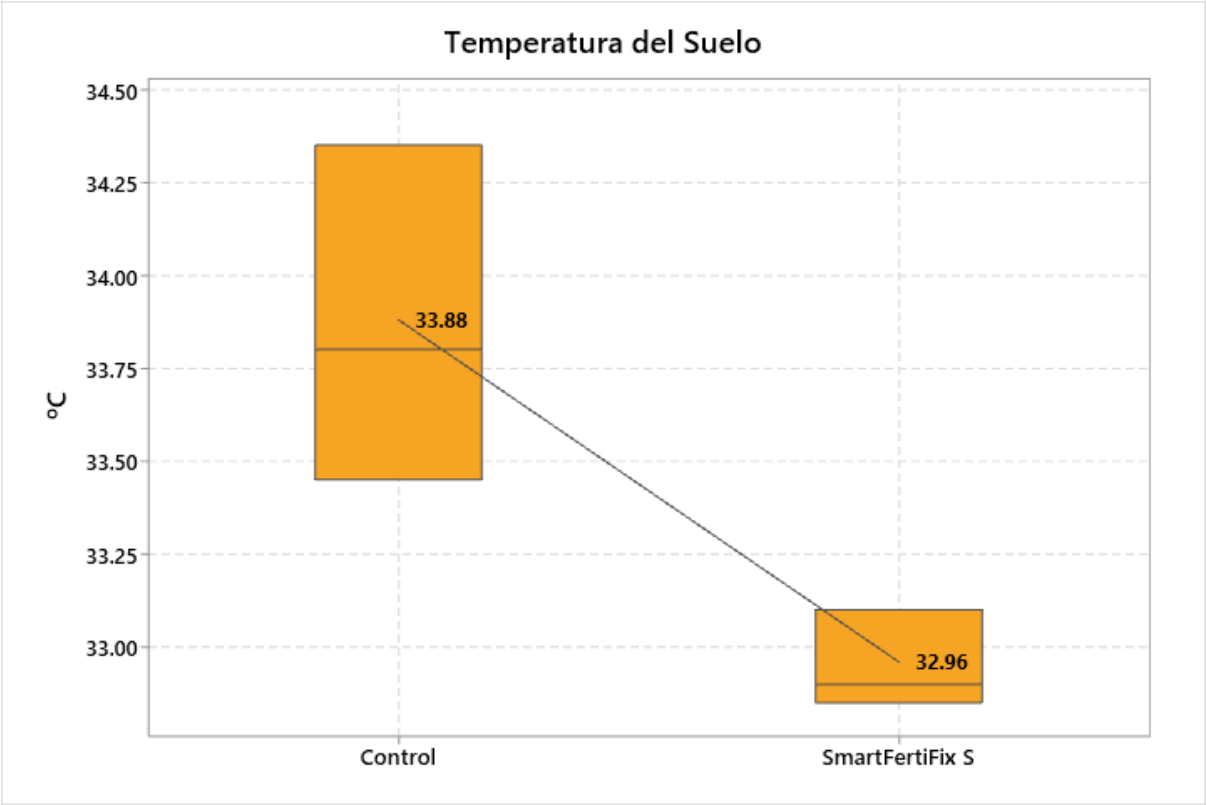
Additionally, for future occasions, it is necessary to take at least 30 data points for each variable for a more in-depth statistical analysis.

Addendum.

Information on soil quality after the application of SmartFertiFix S treatment compared to the control (no application).







The results of this evaluation indicate the properties of SmartFertiFix as a soil improver.

Improving soil moisture is important due to the drought issues in our country. Available soil moisture is vital for the proper development of any agricultural crop.

Electrical conductivity indicates the available salts in the soil. For corn cultivation, it is suggested to maintain soil electrical conductivity between 0.5 and 3. This range allows corn to have sufficient nutrients without experiencing stress from nutrient deficiencies or salt toxicity. The SmartFertiFix S treatment maintains an average electrical conductivity close to 0.5, while the control shows very poor electrical conductivity.

Maintaining a moderate soil temperature is also important for corn development. Although the soil temperature differs by only one degree between the control and the SmartFertiFix treatment, the ideal temperature for corn development in its V and R stages is up to 30°C. Lowering the temperature by one degree can have a significantly positive impact on crop development.

After conducting an ANOVA analysis with a completely randomized single-factor design, it was determined that the SmartFertiFix S treatment showed a significant difference for the response variables Moisture, Electrical Conductivity, and Temperature.