

**Protergium®  
in numbers**

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Field Trials  
Protergium®

# Protergium® Portfolio Solutions

## Seed & Foliar Treatments

### Crop Care



Biofertilizers



Biostimulants



Bionematicides



Bioinsecticides



Biofungicides

### Platforms



#### Microbiological

Microbial Consortia, as agents of biological control / growth stimulants.



#### Biotechnological

**Phyto-vaccines:**  
Elicitor Protein that induces the immune response of plants.

#### ARNi:

Biofungicides & bioinsecticides

### Biological inputs

Disruptive innovation for stimulation & crop protection



Biostimulants



# Crops: Wheat

## Application: Seed treatment

5 Field trials. **Biotreatment:** TH10+Gi9 - *Trichoderma harzianum* TH10 + *Bacillus velezensis* Gi9

**Doses:** 150, 300 & 600 mL/100 kg

**Location:** San Pedro, Gualeguaychu, Tandil, Chivilcoy

Effect of the application of TH10+Gi9 on performance, considering all the tests carried out (5 field trials).

Treatments	Active / Company	kg, ha-1 media α: 0,05	
Absolute control	-	3661,8	A
Chemical control - Commercial product	Dificonazole + Metalaxil	3798,8	AB
Biological control - Commercial product	<i>T. harzianum</i>	3833,8	AB
TH10 + T2 150	<i>T. harzianum</i> TH10 + <i>Bacillus velezensis</i> T2	3962,1	B
TH10 + T2 300	<i>T. harzianum</i> TH10 + <i>Bacillus velezensis</i> T2	3985,4	B
TH10 + T2 600	<i>T. harzianum</i> TH10 + <i>Bacillus velezensis</i> T2	4070,0	B



9%  
344 kg/ha

+9%

9% better performance than  
the Absolutee control



Biotimulants



# Crops: Tomato

## Application: Drench treatment

**Biotreatment:** TH10+T2 - *Trichoderma harzianum* + *Bacillus velezensis*

**Doses:** 2, 3 & 5 Liter/ha. -

Doses per application: 1, 1.5 & 2.5 L/ha. -

**Time of application:** 7 and 21 after transplant

**Location:** Corrientes

Effect of the application of TH10+T2 on performance

Treatments	Active / Company	Fruit weight (g)	g/plant	kg/ha	
Absolute control	-	156,8	3870,7	85154	
Chemical control - Commercial product	Micronutrient	161,1	4266,9	93871	
Biological control - Commercial product	<i>T. harzianum</i>	176,1	4387,2	96519	
TH10 + T2 2L	<i>T. harzianum</i> TH10 + <i>Bacillus velezensis</i> T2	184,3	5015,2	110335	<span style="color: green;">↑ 29%</span>
TH10 + T2 3L	<i>T. harzianum</i> TH10 + <i>Bacillus velezensis</i> T2	187,3	5070,6	111554	<span style="color: green;">↑ 31%</span>
TH10 + T2 5L	<i>T. harzianum</i> TH10 + <i>Bacillus velezensis</i> T2	195,9	5160,9	113539	<span style="color: green;">↑ 33%</span>



30% better performance than  
the Absolutee control



Biostimulants



# Crops: Potato

## Application: Seed treatment

**Biotreatment:** TH10+T2 - *Trichoderma harzianum* + *Bacillus velezensis*. **Doses:** 2, 3 & 5 Liter/ha.

**Location:** Córdoba

Effect of the application of TH10+TH2 on performance.

Treatments	Active / Company	kg, ha-1 media α: 0,05	
Chemical control	Fludioxonil	37741	BC
Biological control 5 L/ha - Commercial product	<i>T. harzianum</i>	26537	A
Biological control 5 L/ha - Commercial product	<i>Azospirillum brasiliense</i>	36574	BC
TH10 + T2 2L	<i>T. harzianum</i> TH10 + <i>Bacillus velezensis</i> T2	34611	ABC
TH10 + T2 3L	<i>T. harzianum</i> TH10 + <i>Bacillus velezensis</i> T2	35666	ABC
TH10 + T2 5L	<i>T. harzianum</i> TH10 + <i>Bacillus velezensis</i> T2	40111	C



6%  
2370 kg/ha



## Application: Foliar treatment

**Control of brown spot** (*Septoria glycines*) in soy - 5  
Field trials **Biotreatment:** *Bacillus velezensis* T2 and  
Biolelicitor EPP6 - **Time of application:** R1 and R3  
**Season:** 2021

Effect of the application of Protergium T2 and Protergium EPP6 on performance and control of Septoria, considering all the tests carried out (5 field trials).

Treatments	Active / Company	% Control	kg/ha
Absolute control	-	-	2924
Chemical control - Commercial product	Azoxistrobina + Cyproconazole	31,3	3281
Protergium T2 R1	<i>Bacillus velezensis</i> T2	21,4	3034
Protergium EPP6 R1	Protein extract P6	25	3166
Protergium T2 R3	<i>Bacillus velezensis</i> T2	25,4	3157
Protergium EPP6 R3	Protein extract P6	31,4	3132



7%  
200 kg



# Crops: Wheat



Biofungicides



## Application: Foliar treatment

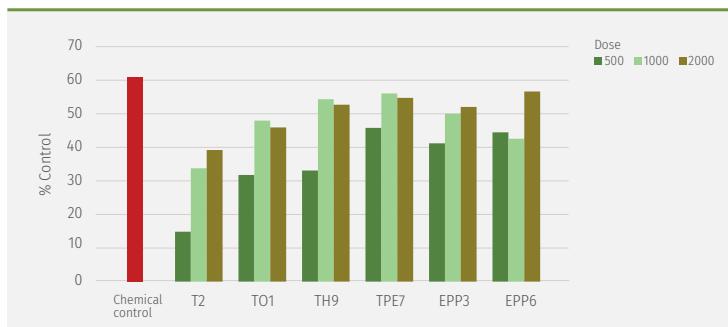
**Control of yellow leaf spot** (*Drechslera tritici-repentis*) and **Leaf rust** (*Puccinia triticina*) in wheat - 5 Field trials.

**Time of application:** 1º: Z33-34 - 2º: Z39. **Season:** 2021

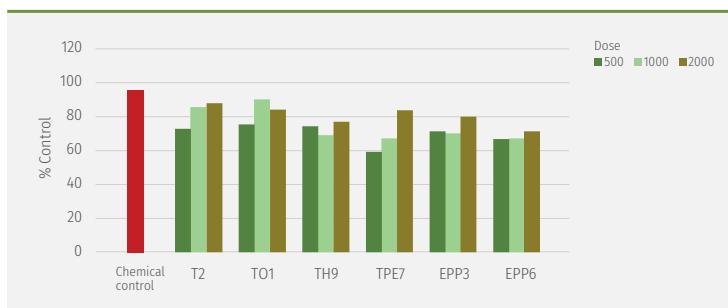
**Chemical control:** Azoxystrobin + Cyproconazole

Location: Azul - Province Buenos Aires

### Control of yellow leaf spot



### Control of leaf rust



\*T2: *Bacillus velezensis*; T01: *B. siamensis*; TH9: *Trichoderma atroviride*; TPE7: *T. koningiopsis*; EPP3: Fitovacuna P3; EPP6: Fitovacuna P6

# Crops: Wheat



## Application: Foliar treatment

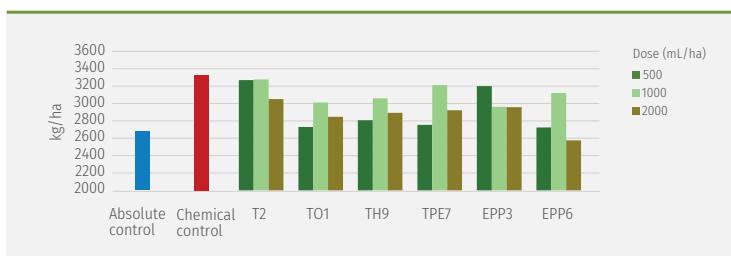
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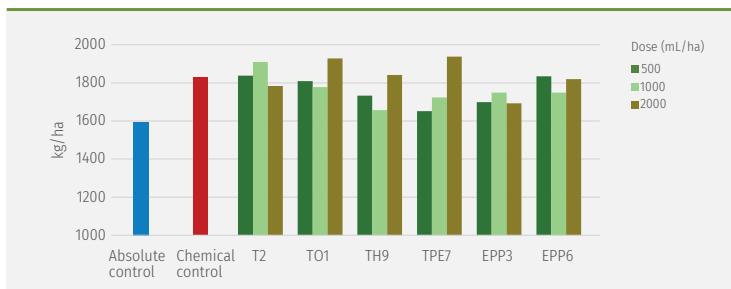
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### Yield



### Yield



\*T2: *Bacillus velezensis*; T01: *B. siamensis*; TH9: *Trichoderma atroviride*; TPE7: *T. koningiopsis*; EPP3: Fitovacuna P3; EPP6: Fitovacuna P6



# Crop: Potato



Biofungicides



## Application: Foliar treatment

### Control of Phytophthora infestans in Potato

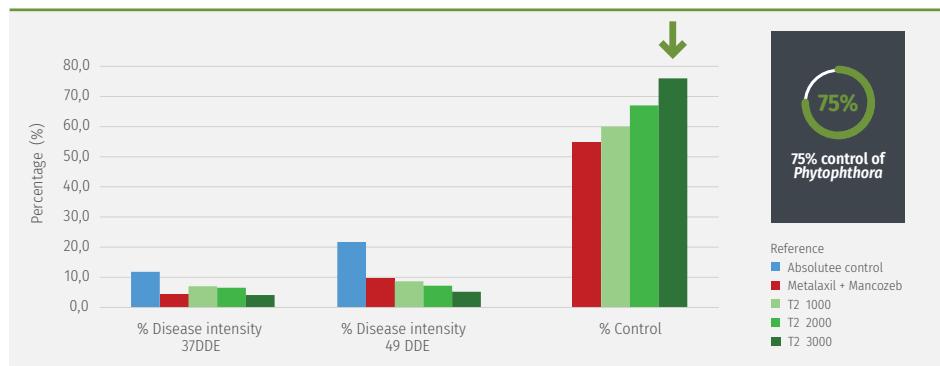
**Biotreatment:** *Bacillus velezensis* T2

**Location:** Tucumán (Northern Argentina). **Chemical control:**

Metalaxil + Mancozeb) - commercial product

**Doses:** 1, 2 & 3 L/ha. **Application:** A: 30 days post emergence; B: 7 DAA; C: 7 DAB; D: 7 DAC

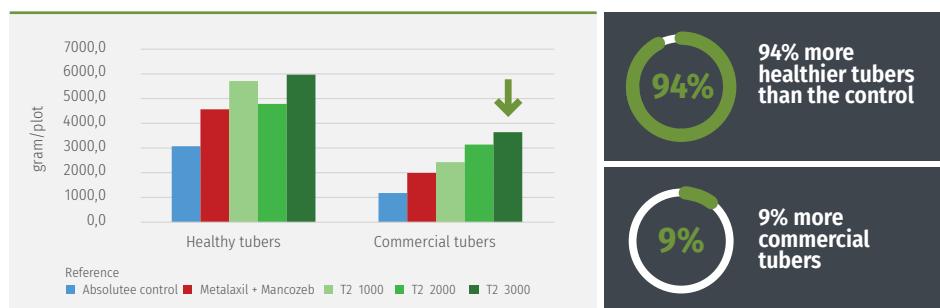
### Control of *Phytophthora infestans*



75%  
control of  
*Phytophthora*

Reference:  
■ Absolutee control  
■ Metalaxil + Mancozeb  
■ T2 1000  
■ T2 2000  
■ T2 3000

## Yield



94%  
more  
healthier  
tubers  
than the control



9%  
more  
commercial  
tubers



Biofungicides



# Crop: Tomato

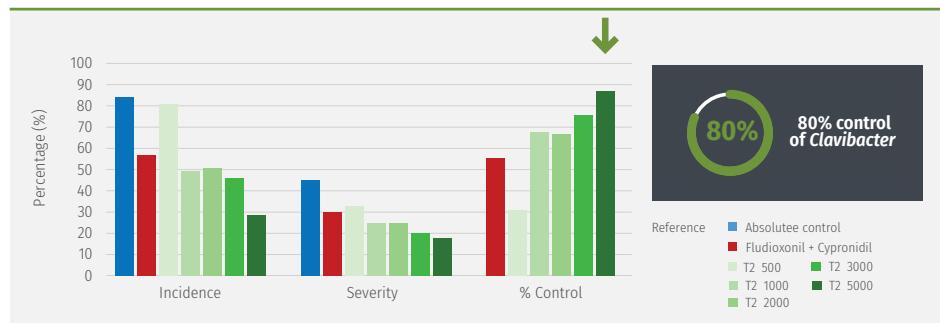
## Application: Foliar treatment

**Control of *Botrytis cinerea* and *Clavibacter michiganensis***  
in tomato - Field trial: Greenhouse test - El Peligro - La Plata Bs. As. - **Chemical control:** Fludioxonil+cypronidil - commercial product - **Biotreatment:** *Bacillus velezensis* T2  
**Doses:** 0,5; 1; 2; 3; 5 L/ha. **Application:** start of flowering -  
**Time of application:** 0, 7 and 14 days (after start of FW)

### Control of *Botrytis cinerea*



### Control of *Clavibacter michiganensis*





# Crop: Vine



Biofungicides



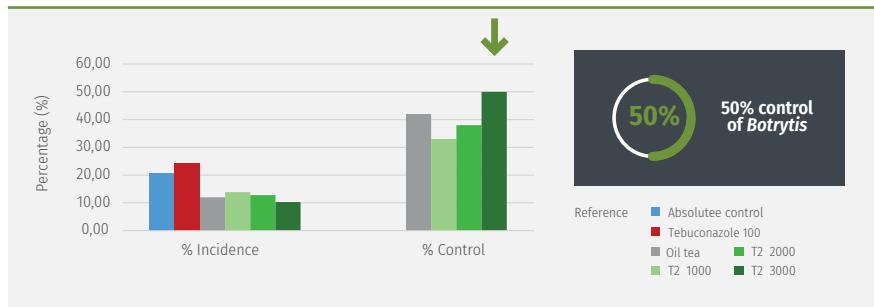
## Application: Foliar treatment

Field trial. **Control de Botrytis cinerea** in vine

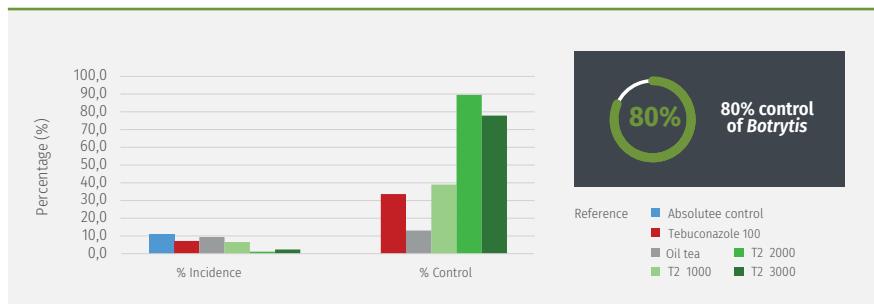
**Chemical control:** Tebuconazole 100 & Tea Oil - Commercial products - **Bio solution:** *Bacillus velezensis* T2

**Doses:** 1, 2 & 3 L/ha. **Application:** A: flowering; B: cluster closure; C: color development in berries; D: 14 days before harvest - **Evaluation:** 0 DAA 1°; 0 DDA 2°; 0 DDA 3°; 0 DDA 4°; 15 DDA 4° - **Evaluation:** number of clusters infected with *Botrytis* (% Incidence)

### Trial I | Province of San Juan



### Trial II | Province of Mendoza





Bionematicides



# Crops: Tomato

Biocontrol of ***Meloidogyne incognita*** - Field trial - Location: Corrientes - **Chemical control:** Avermectina

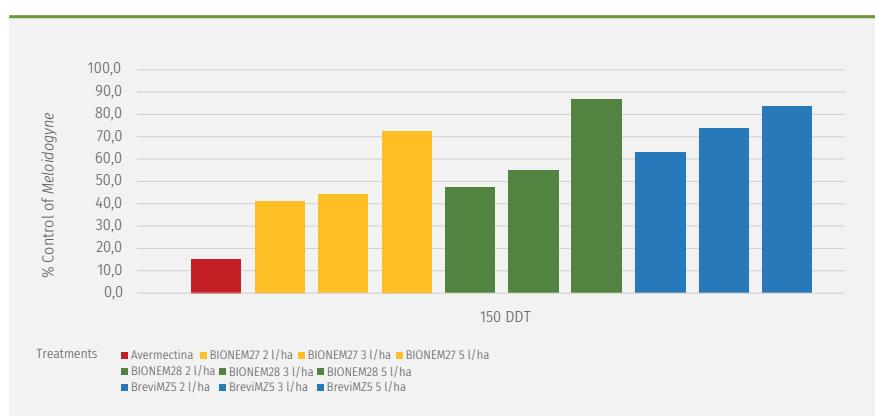
**Bionematicides** - BreviMz5: *Brevibacillus laterosporus* MZ5

Bionem 27: Protein P27

Bionem 28: Protein 28

**Doses:** 2; 3 and 5 L/ha. **Time of application:** 0, 15, 30, 45 and 60 days (after transplantation). **Evaluation:** 60, 90 and 150 days after application start

## Evaluation of the reduction in the number of galls per gram of roots



At the third evaluation (150 DAT), all treatments, in all doses, showed better control of the nematode than chemical control.



# Crops: Tomato



Bioinsecticides



Biocontrol of *Tuta Absoluta* - Field trial - **Location:** La Plata - **Chemical control:** Emamectin benzoate

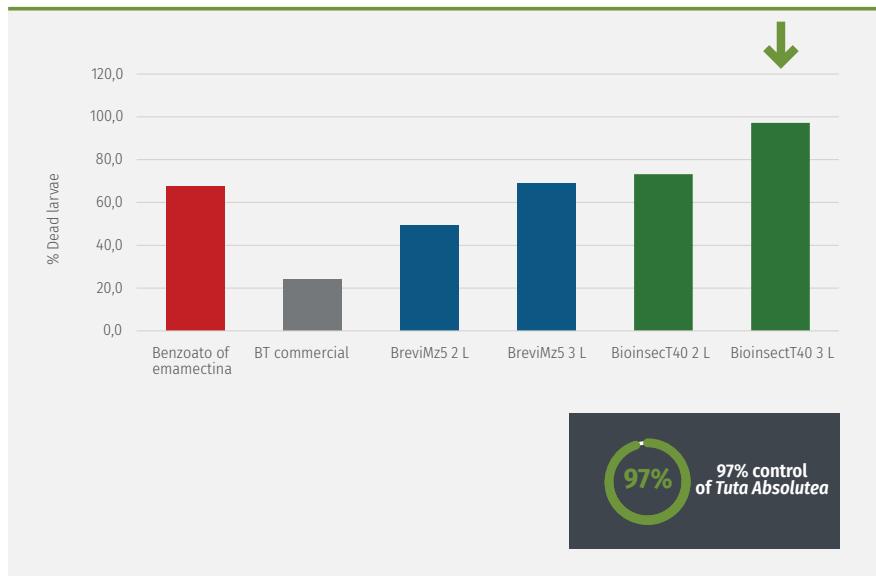
## Bioinsecticide

BreviMz5: *Brevibacillus laterosporus* MZ5

Bioisnect T40

**Doses:** 2 and 3 L/ha. **Time of application (2):** 1. Start of oviposition and first hatching; 2. 7 days after the first application. **Evaluation:** 0 DAA 2<sup>o</sup>; 3 DAA 2<sup>o</sup>; 7 DAA 2<sup>o</sup>; 14 DAA 2<sup>o</sup>.

## Trial I | Province of San Juan





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