



Fundamental  
Systems



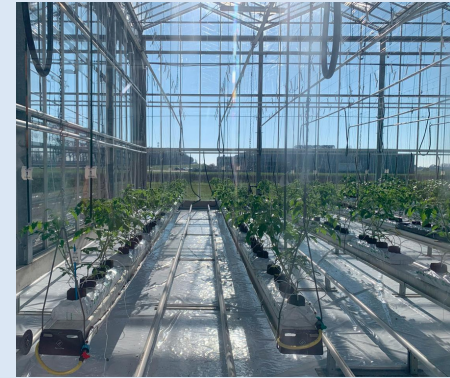
UNIVERSITEIT  
VAN AMSTERDAM

# Cultivation trials

stowa

Fundamental Systems conducted research on tulips, tomato and bell pepper plants during six months in collaboration with Vivent, Verify, STOWA and students of the Tesla Minor Team from the University of Amsterdam.

One half of the crop was treated with infused water and the other half acted as a control group. The crops were treated with infused water containing 67% hydrogen and 33% oxygen.



## In the treated plants

We saw a **higher**

- Nutrient index balance
- Photosynthetic activity
- Yield per plant in kg:  
tomatoes +12%, tulips +6%



And it required **less**

- Chemical intervention
- Plant protection products

**No negative effect** was found from water infusion on

- The plant
- The microbiome around the roots
- The water balance
- The composition of nutrients



# Tulip trial



The study covered a full production cycle. Here we used a semi-eb and flood system in crates with overflow.

The treatment had a visible positive effect on root development, and within the microbiome we saw a shift towards the bulb's own composition.



Crop  
**Tulip**

Size  
**10-11**

Length  
**42 cm**

Weight  
**25 gr**

dropout  
**1,8%**

Name  
**Strong Gold  
Purple Prince  
Silver Dollar**

Root length  
**5 cm**

Weight per cm  
**0,6 gr**

Remarks  
**No ruptures  
Firmer leaves**

## Root system

The rooting was better. The bulbs had white, fresh roots and smaller root development. This allowed more energy from the bulb to be used for growth.



## Water system

We were able to realize a circular water system. Here we used water from an open basin and only coarse filter cloth.

No further interventions in the water were necessary and nutrients were not affected by the infusion. Eurofins demonstrated this with specialized water testing.



# Tomato and bell pepper trial

The study covered a full life cycle: from seed to harvest. We used drip irrigation in a greenhouse.

To measure the effect of the treatment on the plants, we used biofeedback. This allowed us to measure both plant rhythm and the activity profile. Despite exposure to a lot of stress, the crops remained of good quality. Vivent's plant scientists analyzed the measurements from the sensors and came to the following conclusion:



The treated plants are **more active** and have a **more stable rhythm** with **more optimal hours** and **fewer suboptimal hours**.

This means the treatment helps reduce plants' response to stressors and changes in climate. They gain higher resilience.

We have used high quality cultivars and have not been able to show any disease(s).



# Tomato



Crop  
**Tomato**

Name  
**Bronsino F1**

Type  
**Bunch**

Fruits per bunch  
**5, joined**

Type of plant  
**Powerful and brief**

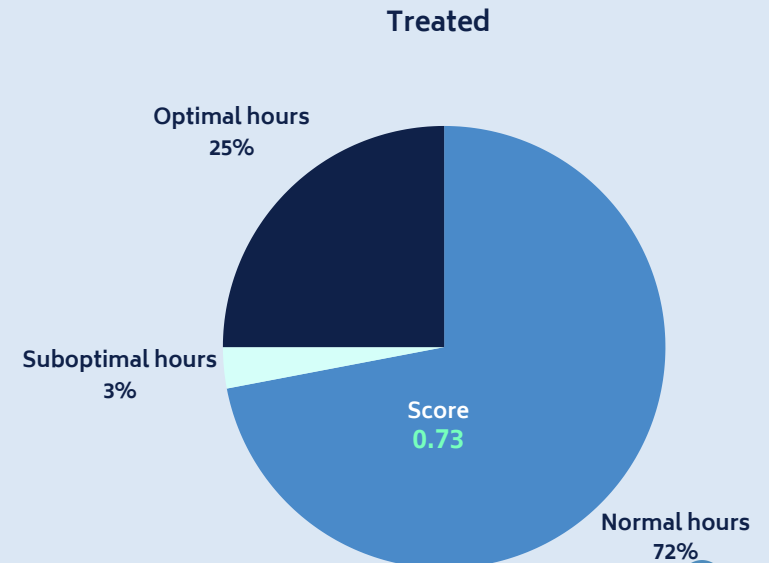
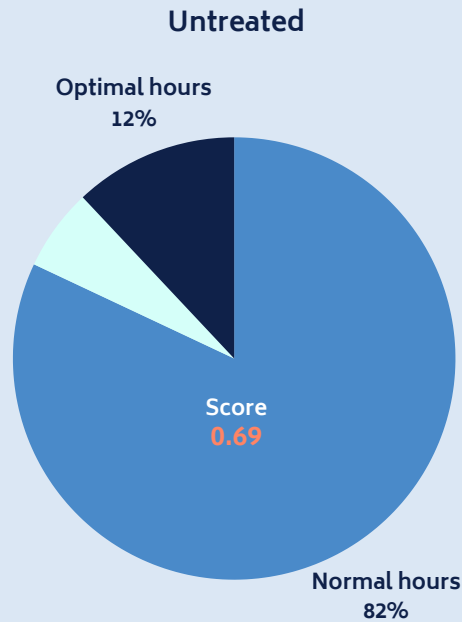
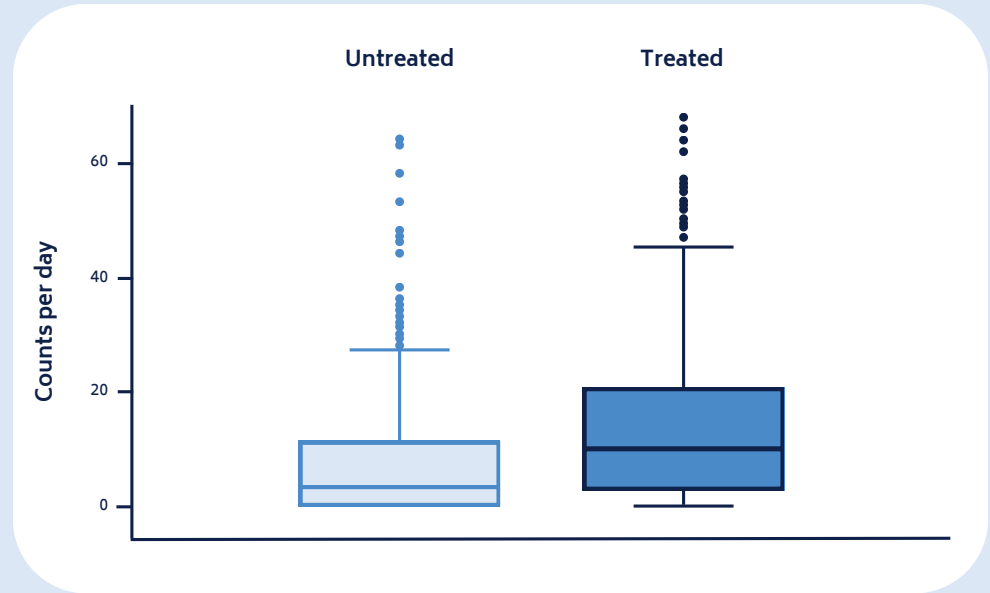
Tolerance  
**Si**

Shape  
**Round**

Weight  
**130-150 gr**

Resistances HR  
**ToMV:0-2/Ff:A-  
E/Fol:0,1/For**

Resistances IR  
**TSWV/On**



# Bell pepper



Crop <b>Bell pepper</b>	Name <b>Maranello F1</b>
Type <b>Blocked</b>	Color <b>Red</b>
Type of plant <b>Powerful and brief</b>	Earliness <b>Very early</b>
Size <b>85-95 mm</b>	Weight <b>130-150 gr</b>
Resistances HR <b>Tm:0-2</b>	Organic <b>Yes</b>

