



**ROOTS**

Sustainable Agricultural  
Technologies Ltd.

Lettuce

# Heated Lettuce With RZT System(\*)

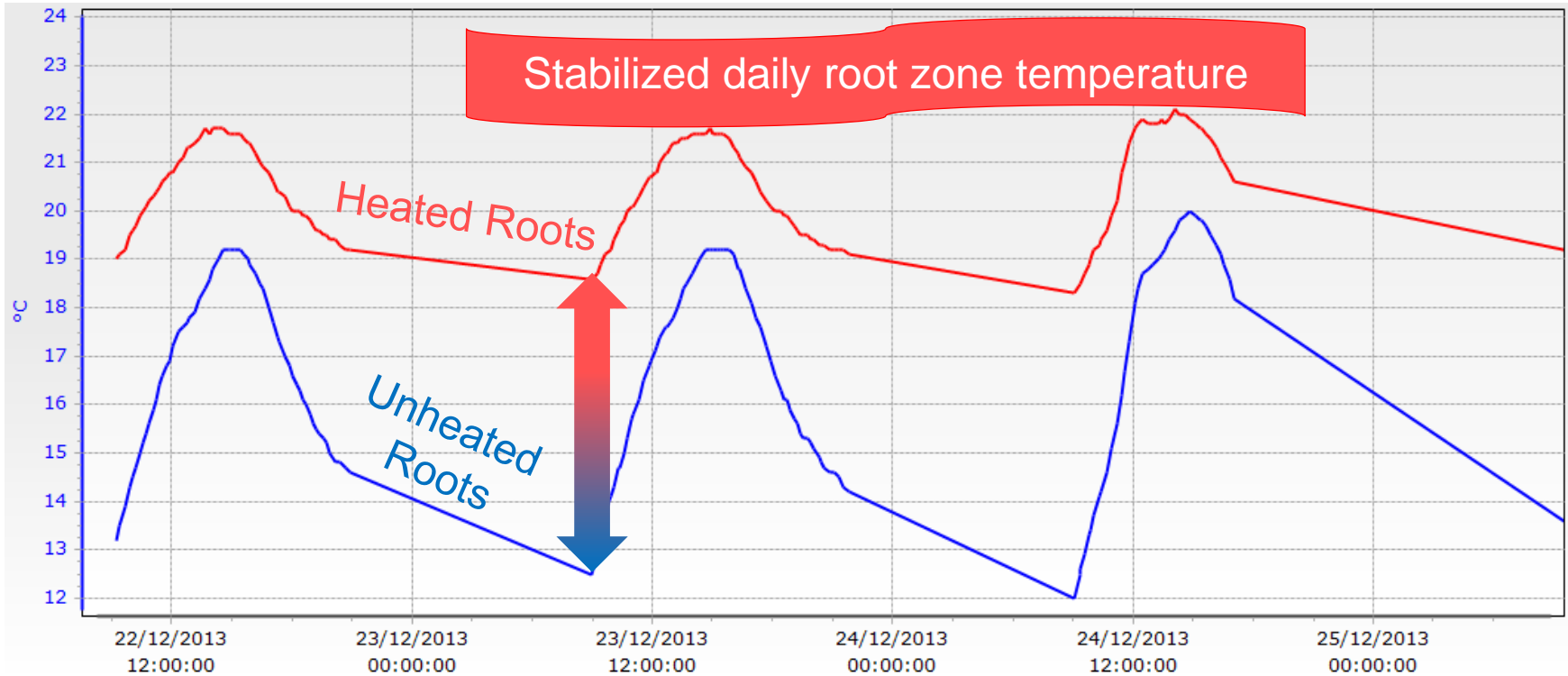
Cutting growing cycle in half  
+ 750 gr. lettuce on average



(\*)Lettuce, Net House Jordan Valley, ISRAEL

# Heating Lettuce Roots, GSHE Only (\*)

Root Zone Temperature measurements

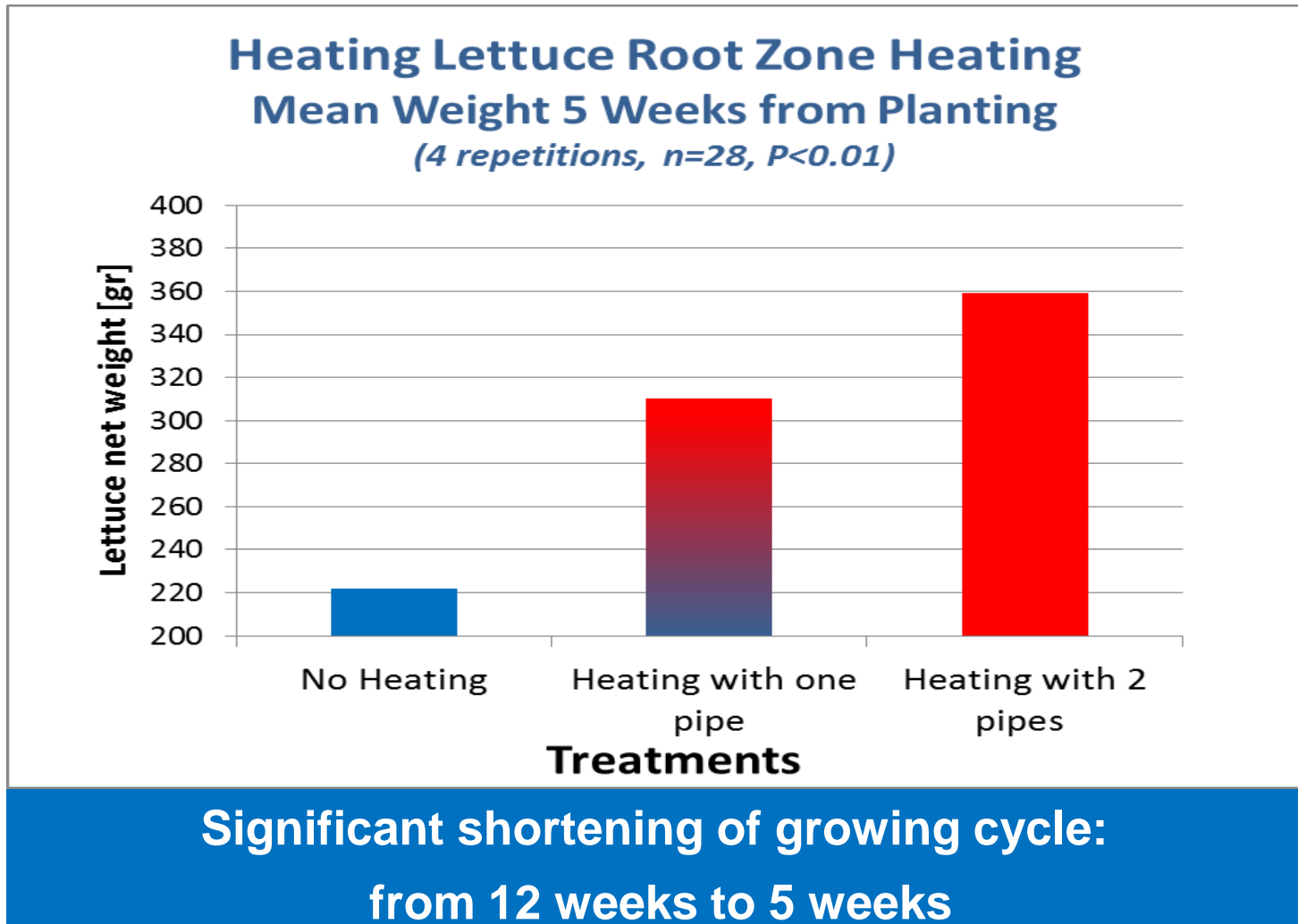


Significant temperature difference of ~6°C between Heated and Unheated

(\*)Lettuce Noga, Planting on December, Net House Jordan Valley, ISRAEL

# GSHE Lettuce Roots Heating<sup>(\*)</sup>

## Field Test Results



<sup>(\*)</sup>Lettuce Noga, Planting on December, Net House Jordan Valley, ISRAEL

# Lettuce - Roots Heated with RZT System<sup>(\*)</sup>

*Comparison among treatments*



<sup>(\*)</sup>Lettuce Noga, Planting on December, Net House Jordan Valley, ISRAEL



# Lettuce - Roots Heated with RZT System(\*)

*Comparison among treatments*



**Heated with 1  
RZT pipe**

**Control  
Unheated**

**Heated with 2  
RZT pipes**

(\*)Lettuce Noga, Planting on December, Net House Jordan Valley, ISRAEL

# Effects of Lettuce Root Zone Cooling versus Control<sup>(\*)</sup>

Greater uniformity,  
rapid growth and bigger plants  
In the cooled root zone rows vs. control

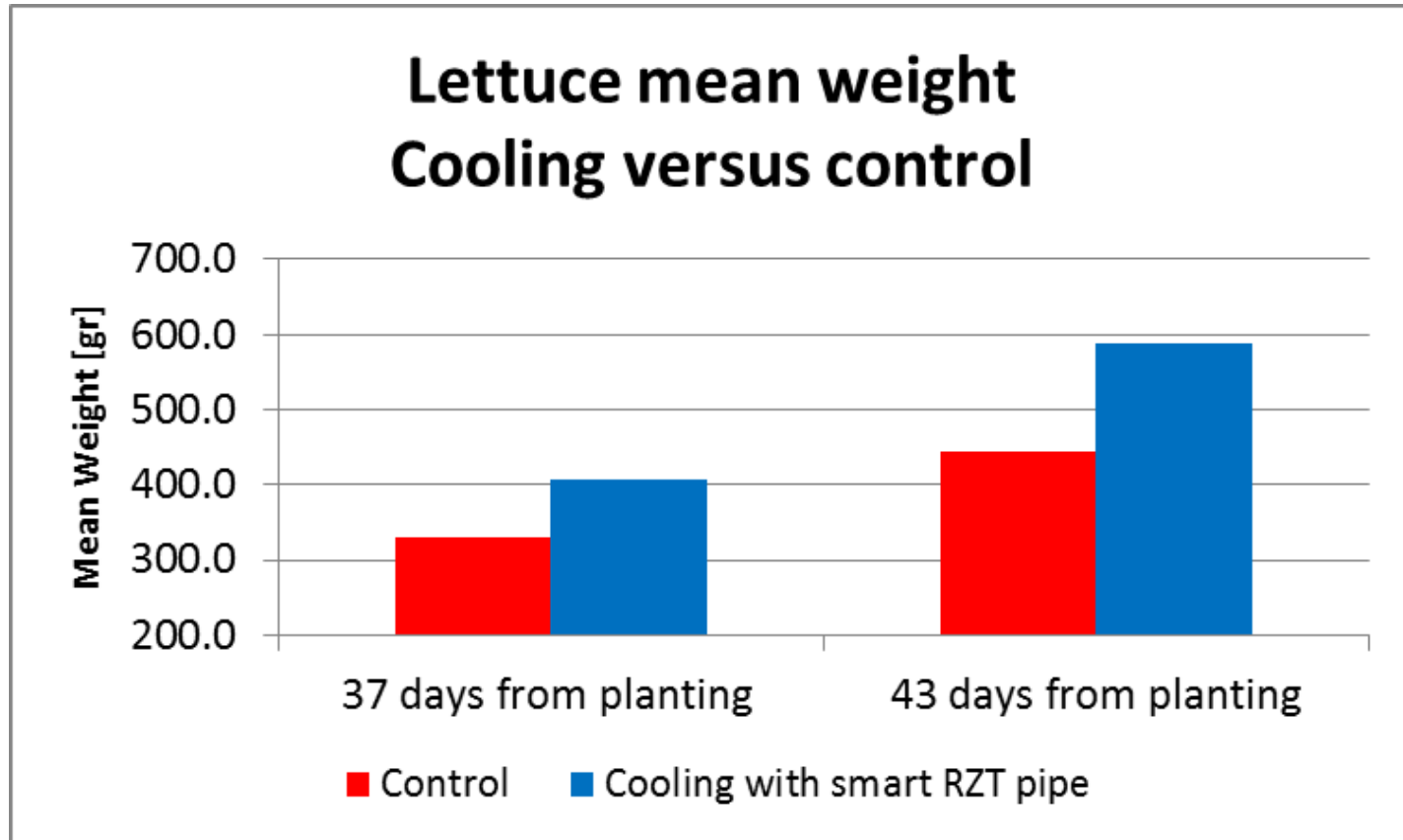


Cooled  
root zone

Control

# Lettuce Yield Increase (\*)

Effects of cooling root zone with smart RZT and GSHE only

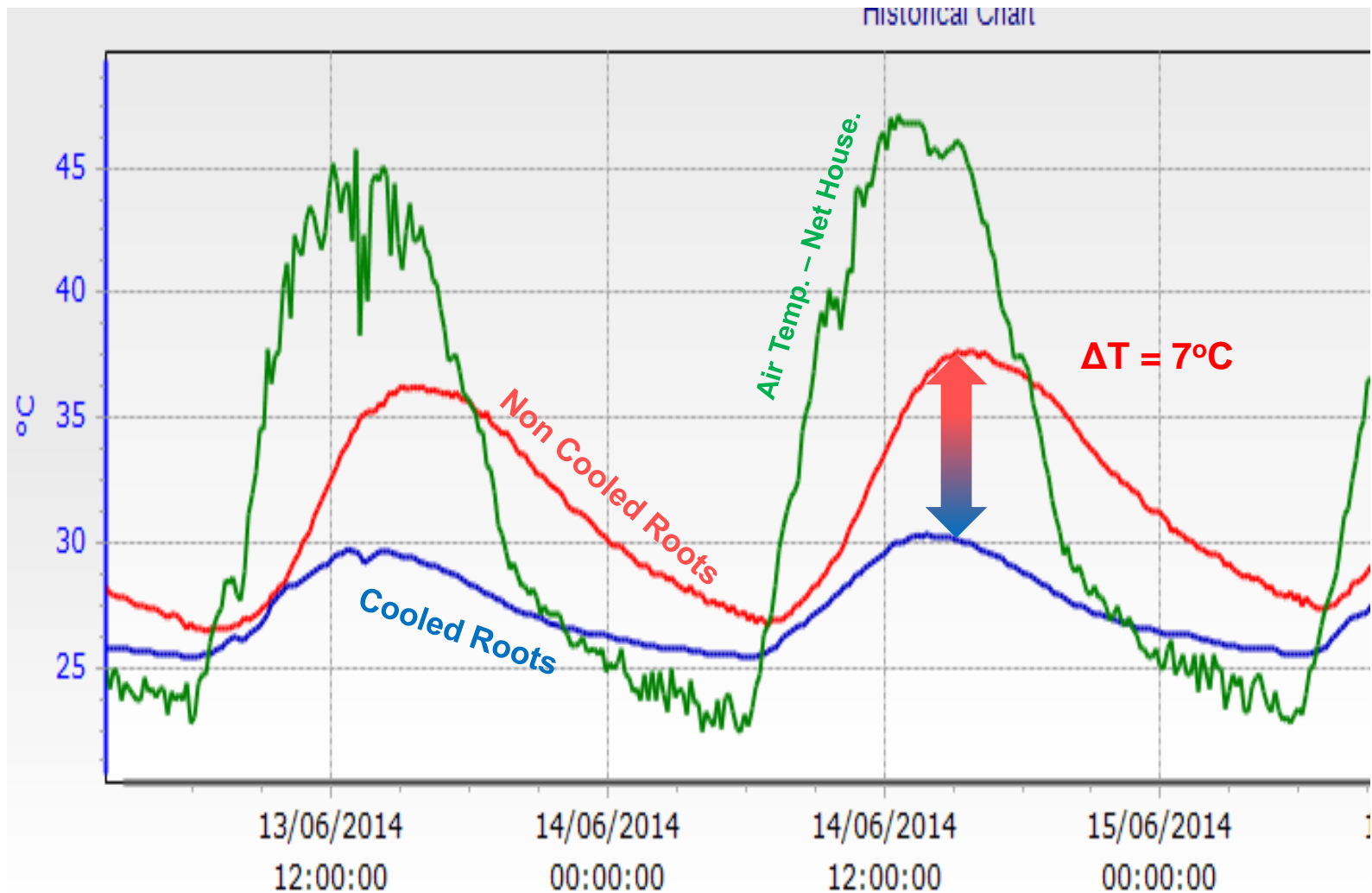


(\*) Yield difference between control and cooled:  
24% on day 37,  $p < .11$ , 33% on day 43,  $p < .001$

(\*)Lettuce Noga, Planting in ground on June ,Net House Jordan Valley, ISRAEL



# Lettuce - Effects of Root Zone Cooling versus Control(\*)



(\*)Lettuce Noga, Planting in ground on June ,Net House Jordan Valley, ISRAEL

# Lettuce - Effects of Root Zone Cooling versus Control (\*)

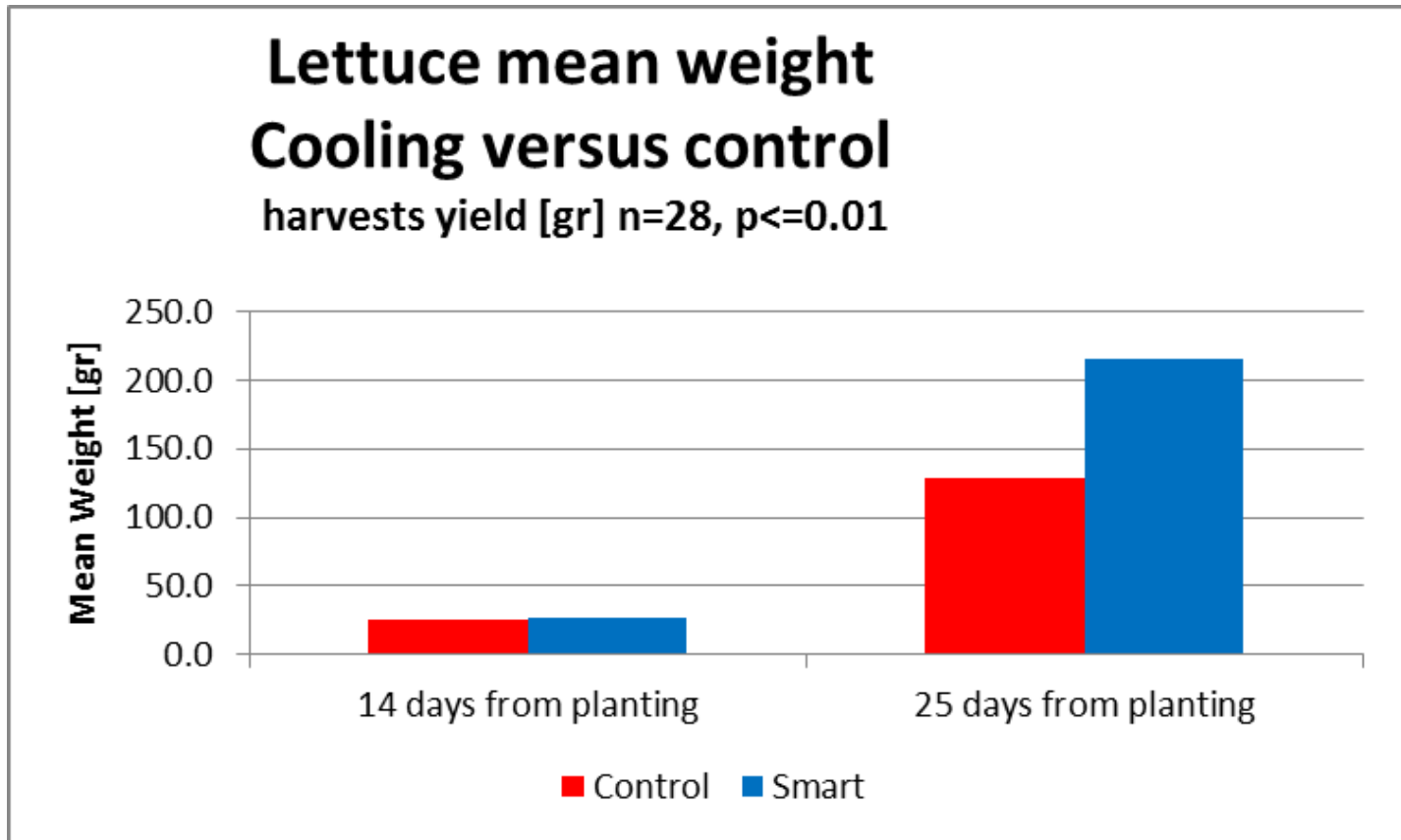
*Harvest 43 days after planting*



(\*)Lettuce Noga, Planting in ground on June ,Net House Jordan Valley, ISRAEL

# Lettuce Yield Increase (\*)

Effects of cooling root zone with smart RZT and GSHE only

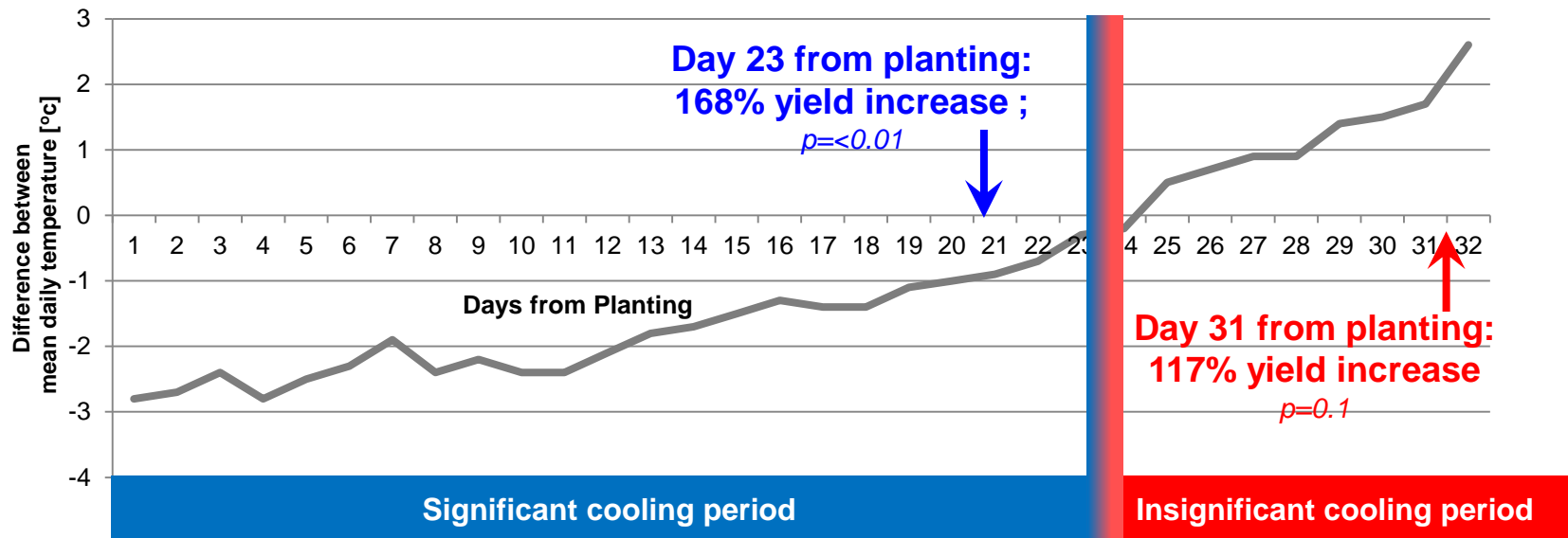


(\*) Yield difference between control and cooled:  
68% on day 25,  $p < 0.01$

(\*)Lettuce Noga, Planting in ground on July, Net House Jordan Valley, ISRAEL

# Cooler Lettuce Root Zone Temperature Resulted in Higher Yield Difference (cooled versus control [%] <sup>(\*)</sup>)

## Daily mean temperature difference between cooled and un cooled roots



(\*)Lettuce Noga, Planting in ground on July, Net House Jordan Valley, ISRAEL



# Open Field Root Zone Cooling (\*)

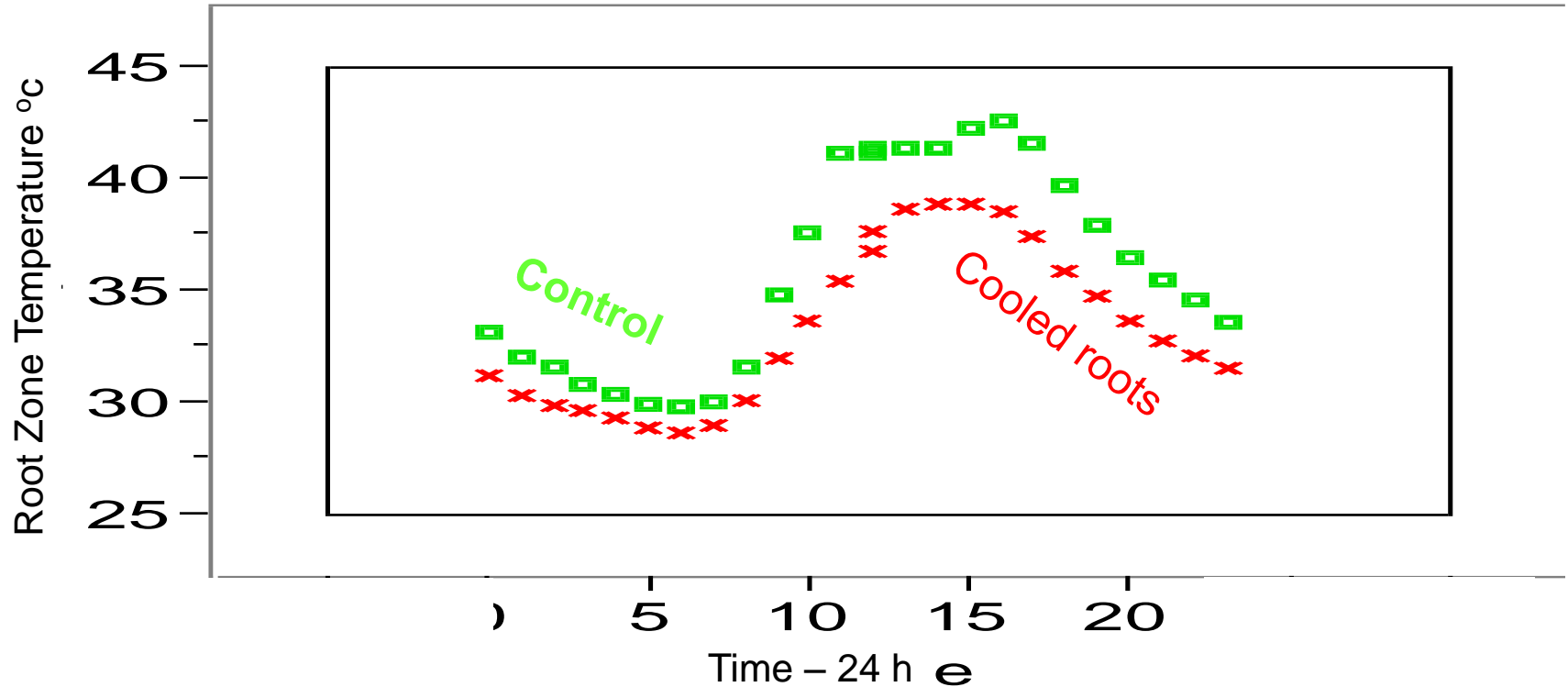
*During the Summer*



*(\*) Israeli strawberry breeder , Sharon area, ISRAEL*

# Open Field Lettuce Root Zone Cooling (\*)

Effects of root zone cooling versus control



- ✕ Temperature experiment
- Temperature control

(\*) Israeli strawberry breeder, Sharon area, ISRAEL