

NFT



ROOTS

Sustainable Agricultural
Technologies Ltd.

INNOVATING THE CLIMATE CONTROL LANDSCAPE

Root-Zone Temperature
Optimization Technology for NFT (Lettuce case study)



Roots - Sustainable Agricultural Technologies Ltd. (ROOTS)



Israeli based, publicly traded in Australia (ASX: ROO), ROOTS is a graduate of the Israeli Chief Scientist Technological Incubator program.

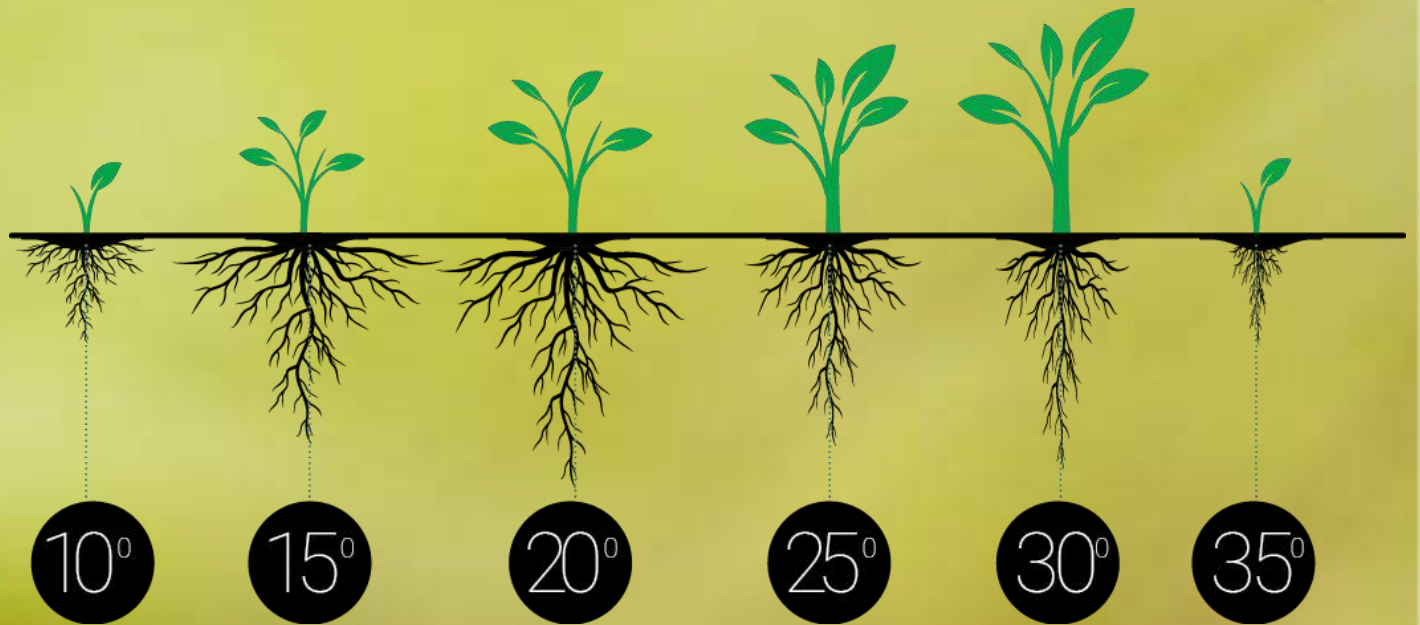
ROOTS is selling its disruptive, modular, cutting-edge technologies worldwide.

- Root Zone Temperature Optimisation (RZTO): Two-in-one root zone heating and cooling for indoors, greenhouses, hoop houses and outdoors.
- New product from Roots – sustainable agricultural technologies. The RZTO system combined with a state-of-the-art fertigation (irrigation and fertilization) system 2 in 1

Roots' technologies/systems assist growers increase yield, save energy, shorten growing cycles, provide supplies security and produce water for irrigation from humidity in the air. All designed to increase the grower's profitability and mitigate extreme weather effects on production and cultivation.



ROOT TEMPERATURE IS THE MOST INFLUENTIAL FACTOR IN PLANT PHYSIOLOGY FOR GROWTH, PRODUCTIVITY AND QUALITY. AN OPTIMUM TEMPERATURE RANGE IS ESSENTIAL TO PRODUCTIVITY, HEALTH AND OUTPUT QUALITY.





Root-Zone Temperature
Optimization Technology for
Lettuce summery

LETTUCE



60%

Yield increase

Added
Growth cycles

Suitable for
Any substrate

Applicable for indoors,
greenhouses, hoop

Quick ROI

House and
outdoors

80% energy saving

Heating and cooling of
roots in one closed cycle
system

Greater
resistance to
diseases

Remote control PC
and mobile viewing



[Click here to view farmer testimonial](#)



RESULTS

Sun-grown, open field in Washington State

UP TO

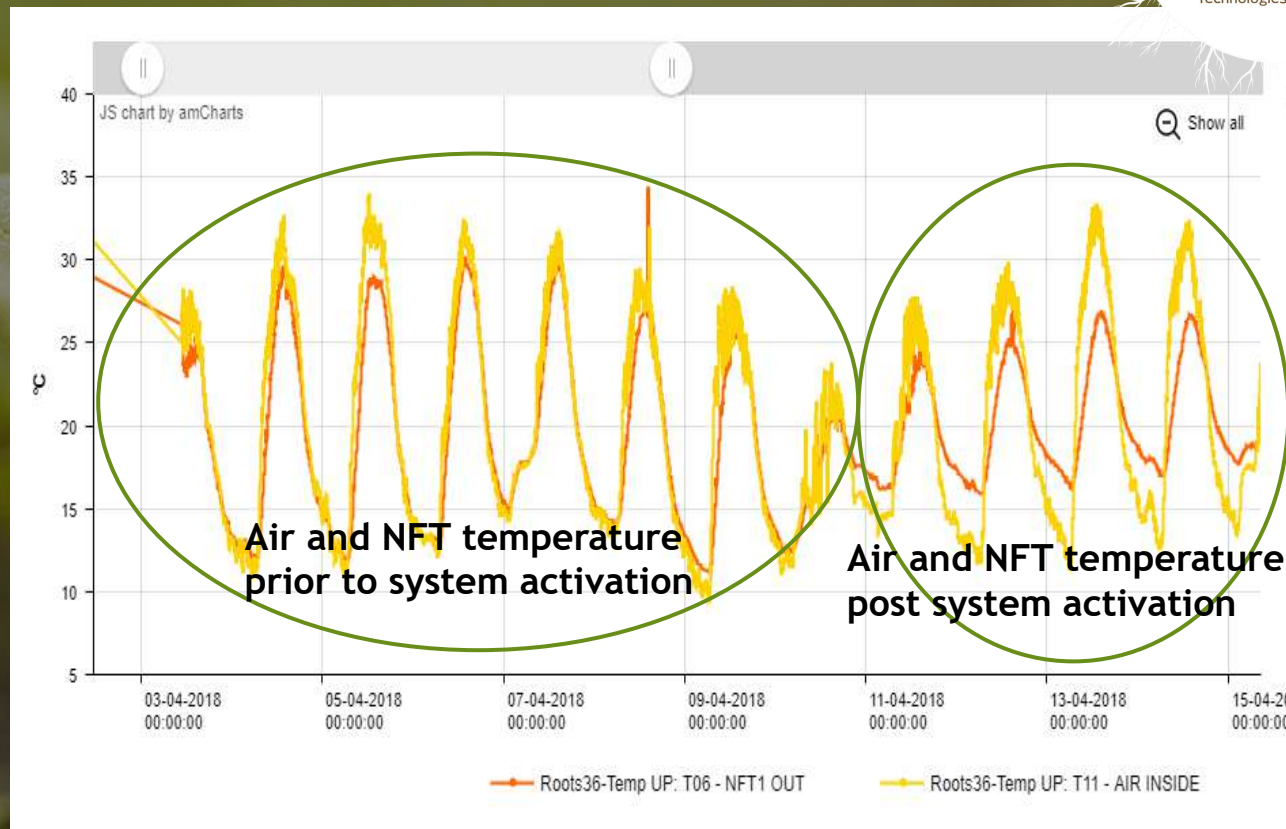
11°C



DEFERENCE
BETWEEN AIR TEMP.
AND NUTRIENT TEMP.
WITH RZTO
TECHNOLOGY



ROOTS
Sustainable Agricultural
Technologies Ltd.



AMBIENT TEMPERATURE



COOLED ROOTS TEMPERATURE



Cooling NFT lettuce
during the summer



**COOLED ROOTS:
60%
YIELD
INCREASE**



Ground source heat exchange installation without heat pump. Operates only with a closed cycle circulation pump.



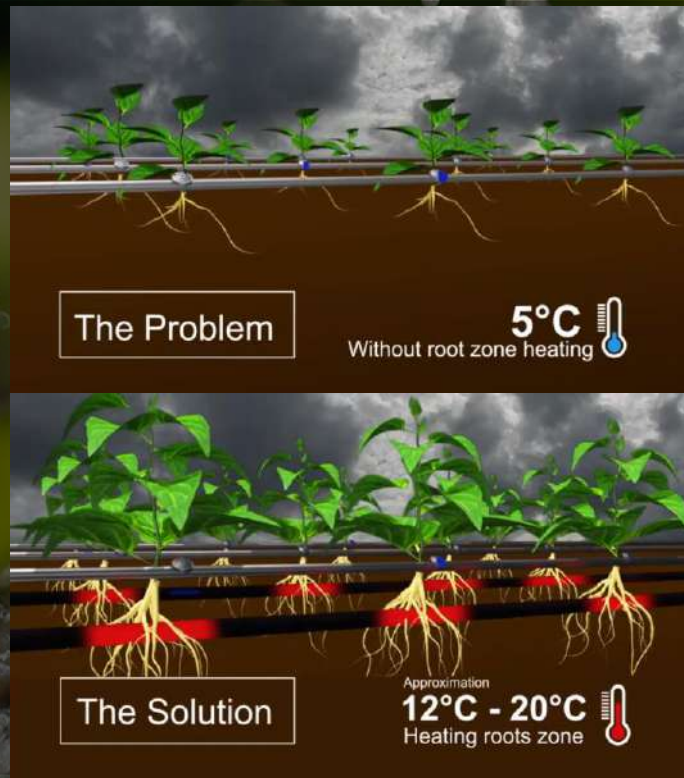
Innovating the Climate Control Landscape



ROOTS technology cools & heats root zone in one system to maintain an optimum temperature range year round



[Click here to view technology video](#)



The RZTO technology ensures that the water that delivered dissolved nutrient to hydroponic bare plant roots remains within a favorable growing temperament range



How does it work?



Configuration A:

Heat pump

We install efficient heat pumps for root zone heating and cooling, remotely controlled operated either with electricity or gas.

Configuration B:

Ground source heat exchange (also called Geothermal):
Inserted coils pipe in soil at 10 Meters for heat exchange between water in the coils and soil at depth. Stable water temperature of water emerges from the underground exchange discharged near roots in any substrate. The only energy used to cool or heat by up to 10 degrees vs. control is a circulation pump.

Configuration C:

Hybrid – Inserted Geothermal coils + heat pump

For more accurate and influential results under more extreme weather conditions. Slightly more energy use compared with the basic configuration.

All three configurations come with a stable monitoring and control equipment available for viewing in app on mobile phone and PC.



THANK YOU

Roots Sustainable Agricultural Technologies Ltd

ARBN: 619 754 540

Beit Halevy 202, 4287000, Israel

ROOTS@rootssat.com | www.rootssat.com