

## ASX and MEDIA RELEASE

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**Roots opens advanced research and development hub to fast-track commercialisation of agri-tech solutions and sells RZTO to one of Israel's premier agriculture research facilities**

- **Boost Roots' innovation and initial testing of new products**
- **Support independent pilots of Root Zone Temperature Optimisation (RZTO) and Irrigation by Condensation (IBC) technologies**
  - RZTO testing on seedlings and mature plants
  - IBC testing on staple crops
- **Test Roots proof of concept and provide parallel testing of new products and technologies.**
- **Sale of RZTO system to Ramat Negev Research and Development Centre in Southern Israel**

**Roots Sustainable Agricultural Technologies Limited (ASX: ROO, Roots or Company)** has finalised construction of its new research and development hub in the Hasharon area, Israel, which will allow for faster commercialisation of its agri-tech solutions and new innovations.

The hub will complement local and international pilots in testing the viability of Roots' existing agri-tech solutions – including its patented RZTO root zone and IBC technology – on a broad range of seasonal crops in various weather conditions. It would also serve for testing and validation of proof of concept for new innovations.

Roots' RZTO technology and its ability to shorten growth cycles, increase yields and profits for farmers will be closely analysed on several seedling and small tree crops. RZTO utilises ground source heat exchange to heat or cool crop roots, stabilising the root temperature and reducing the impact of external weather conditions.

The new research and development hub will also test the capability of Roots' world-first off-grid Irrigation by Condensation technology to grow staple crops. The IBC off-grid system utilises humidity in the air and energy sourced from the sun or wind to irrigate crops and operates without access to electricity or a normal water supply.

Designed to boost innovation capability, the hub will also test proof of concept and provide parallel testing of new products and technologies.

In addition, Ramat Negev Research and Development Centre in Southern Israel has chosen Roots' RZTO heating and cooling system for use in their research facility to study the effect of cooling roots zone on yield and physiological parameters.

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Roots CEO, Dr Sharon Devir said, “Our new advanced research and development hub positions us as a serious global agri-tech innovator, allowing us to test a broader range of crops in controlled environments and demonstrate the diversity of crops that can benefit from our innovative solutions.”

“The hub will allow us to monitor and measure the physiological variables of crops using our RZTO and IBC technology, including ripening, yield, size and growth rates to help us suggest the right solutions for different crop farmers in different parts of the world.”

“Roots will also conduct proof of concept pilots at our research hub, enabling us to develop additional products and take them to market quicker than in the past.”

“We are not alone in being confident that our RZTO system is the technology to provide systemic results that help optimise crop yields under different conditions. Our RZTO system sale will provide Ramat Negev with the capability to optimise their testing of new crop possibilities.”



*Roots’ new advanced research and development hub will test commercialisation options for crops using Roots’ patented RZTO and IBC technologies.*

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### **About Roots Sustainable Agricultural Technologies Ltd:**

Israeli-based Roots Sustainable Agricultural Technologies Ltd. is developing and commercialising disruptive, modular, cutting-edge technologies to address critical problems being faced by agriculture today, including plant climate management and the shortage of water for irrigation.

Roots has developed proprietary know-how and patents to optimise performance, lower installation costs, and reduce energy consumption to bring maximum benefit to farmers through their two-in-one root zone heating and cooling technology and off the grid irrigation by condensation technology.

Roots is a graduate company of the Office of the Israeli Chief Scientist Technological Incubator program.

More information [www.Rootssat.com](http://www.Rootssat.com)

### **About Root Zone Temperature Optimization (RZTO):**

Root Zone Temperature Optimization (RZTO) optimises plant physiology for increased growth, productivity and quality by stabilising the plant's root zone temperature. Leveraging the principle of Ground Source Heat Exchange (GSHE), Roots installs a closed-loop system of pipes. The lower part is installed at a depth where soil temperature is stable and not affected by weather extremes, and the upper part in the target crop's root zone just below the soil surface. Water flowing through the lower pipes is charged by the soil's stable temperature. The heated (or cooled) water is pumped through the pipes installed in the root zone, where the heat (or cold) is discharged.

This significantly increases yields, increases growing cycle planting options, improves quality, mitigates extreme heat and cold stress while significantly reducing energy consumption by stabilising and optimising the roots zone temperature.

### **About 'Irrigation by Condensation' (IBC) technology:**

Roots' Irrigation by Condensation (IBC) system allows a farmer to produce food crops using irrigation sourced only from humidity in the air.

First water is cooled in a well-insulated water tank to below dew point temperatures. Cold water is circulated, with a small flow pump, in pipes laid in the field or greenhouse to condense humidity in the air on the external surface of pipes. Pipes are placed near plants in various configurations – generally horizontally at ground level.

For many crops no additional irrigation is required to maintain plant survival and food production and initiate a year-round, sustainable food chain for humans and animals. The amount of water produced and required energy depend on relative humidity, air temperature, pipe numbers and surface area, and water temperature circulating in the pipes.

### **Investor Enquiries**

Justin Foord  
Market Eye  
[justin.foord@marketeye.com.au](mailto:justin.foord@marketeye.com.au)  
+61 2 8097 1200

### **Media Enquiries**

Tristan Everett  
Market Eye  
[tristan.everett@marketeye.com.au](mailto:tristan.everett@marketeye.com.au)  
+61 403 789 096

### **Corporate Enquiries:**

EverBlu Capital  
E: [info@everblucapital.com](mailto:info@everblucapital.com)  
P: +61 2 8249 0000

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