

ASX and MEDIA RELEASE

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Roots has installed an advanced, hydroponic nutrient-temperature controlled greenhouse based on its proprietary RZTO technology, in collaboration with Teshuva Agricultural Projects (TAP)

- **The joint development will be sold worldwide as a self-assembled, end-user product.**
- **Will be unveiled at the International Agri-Tech Israel Exhibition and Conference May 2018**
- **Designed to deliver higher yields, significantly lower operating cost, more efficient production facilities and increased profitability to farmers.**
- **Letter of Intent (LOI) signed with TAP, a leading global provider of advanced commercial hydroponic systems to commonly develop a commercial high yielding, energy efficient temperature controlled NFT greenhouses.**

Roots Sustainable Agricultural Technologies Limited (ASX: ROO, Roots or Company) will unveil the advanced hydroponic nutrient-temperature controlled self-assembly greenhouse at one of the world's leading agriculture exhibitions, 'Agri-Tech Israel 2018', in May.

It will be developed in conjunction with Teshuva Agricultural Projects (TAP), a leader in turn-key greenhouses and hydroponic nutrient film techniques (NFT) where water containing dissolved nutrients is used for crop growth and re-circulated past bare plant roots.

The two companies have signed a Letter of Intent (LOI) for this pioneering collaboration that will help farmers produce better quality crops, maximise production volume and minimise costs, while stabilising nutrient temperatures year-round based on Roots' patented RZTO and monitoring and control operating system.

Roots CEO Dr Sharon Devir said, "This is a game-changer for Roots as it allows us to tap into an existing, rapidly growing global advanced-hydroponics market. With this collaboration we can now address a major problem NFT farmers face in stabilising nutrient temperatures and maintaining them at an optimal range year-round."

"NFT techniques are on the increase globally due to growing consumption of high-value and exotic crops and the increasing need for global food security by increasing yield in smaller spaces. Hydroponic crops are generally high-value and every production refinement that can be made pays higher dividends to farmers. The industry is very focused on techniques that can improve yield and quality to give them a market advantage."

"The partnership strengthens our robust technical portfolio as we push toward delivering optimal growing environments, profitable farming techniques to meet shifting consumption trends, and address global food security challenges."

The opportunity

The hydroponic industry continues to deliver higher yield production compared to traditional techniques. As climate change, extreme weather and water deficiency present new challenges, smart innovations will continue to drive the economic and social agenda. The 'smart', high-end agricultural market is expected to grow from USD\$5.18 billion in 2017 to USD\$11.23 billion by 2022, at a CAGR (Compound Annual Growth Rate) of 13.27% between 2017 and 2022.¹

The Technology

In collaboration, TAP will combine its unique hydroponic greenhouse capabilities with Roots' RZTO and cloud-based monitoring and control operating system.

The next-generation greenhouse will stabilise nutrient temperatures year-round and provide optimal growing conditions for a wide variety of crops.

NFT uses a recirculating water system that carefully manages water usage and fertilizer volumes required to support healthy, consistent plant growth. This delivers multiple, proven advantages including: very high production yields; significantly lower operating costs, more efficient production facilities; major savings in water and fertilisers; longer equipment lifecycles and increase profitability.



The greenhouse jointly developed by Roots and Teshuva Agricultural Projects, uses hydroponic nutrient film techniques and Roots' patented RZTO and monitoring and control operating system, and can be installed by the farmer.

1. Smart Agriculture Market by Agriculture Type (Precision Farming, Livestock Monitoring, Fish Farming, Smart Greenhouse - Global Forecast to 2022. marketsandmarkets.com March 2017 Report Code: SE 4043

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About Roots Sustainable Agricultural Technologies Ltd:

Roots Sustainable Agricultural Technologies Ltd was established in 2012 and is developing and commercialising disruptive, modular, cutting-edge technologies to address critical problems facing the agricultural industry today, including plant climate management via root zone temperature optimization and the shortage of water for irrigation.

Roots has developed proprietary capabilities and patented technology to optimize performance, lower installation costs, and reduce energy consumption to a minimum to deliver maximum benefits to farmers. Roots is a graduate company of the Office of the Israeli Chief Scientist Technological Incubator program.

About Teshuva Agricultural Projects Ltd:

For over 20 years Teshuva Agricultural Projects Ltd. (TAP) has been building and marketing turnkey hydroponic production, intensive vegetable and ornamental production greenhouses and net-houses (protected agriculture) to farmers, research around the world. TAP projects implement advanced, sustainable technologies that maximize yield and return on investment. TAP's two main growing systems are cocopeat growbags and nutrient film technique (NFT).

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