

31 July 2018

**Roots develops innovative new products, develops key partnerships and fast-tracks commercialisation options with new research hub in Q2 2018**

**June 2018 Quarterly Report and Appendix C**

**Highlights:**

**International marketing and sales**

- Sale of RZTO system to Ramat Negev Research and Development Centre in Southern Israel, a leading agricultural research institution specialising in arid lands.
- Exhibited Roots' two key proprietary technologies at key international agriculture conference Agri-Tech Israel 2018.
- Signed Letter of Intent with Teshuva Agricultural Projects (TAP) for global collaboration on hydroponic greenhouse with RZTO systems.

**Technology**

- World-first off-grid, solar and wind-operated Irrigation by Condensation (IBC) installation on beans and alfalfa
- Successful hydroponic nutrient-temperature controlled greenhouse installation using RZTO technology, in partnership with TAP, where plant roots remained within favourable growing ranges more than 11 degrees lower than the ambient air temperature of nearly 40 degrees.
- Opened advanced research and development hub in Israel to allow faster commercialization of agtech solutions and innovations

**Team**

- Formation of Scientific Advisory Board comprising Professor Raoul Bino, Professor Haim Rabinowitch and Professor Uzi Kafkafi, academic leaders in agriculture from Holland and Israel

**ROOTS Sustainable Agricultural Technologies** (ASX: ROO, the "Company" or "ROOTS") is pleased to provide its quarterly update for the three months ending 30 June 2018.

Commenting on the Company's continued progress over Q2 2018, CEO Sharon Devir said, "Roots is expanding its RZTO commercialization efforts and pilot programs according to plans. A significant proportion of this quarter's activities were devoted to advancing the China/Dagan order. Installation teams were stationed in China and completed 70 per cent of the eight-greenhouse project. This marks a step forward for Roots from a startup to a more mature business whereby the company's managerial, production and technical capabilities are fully functional in serving a substantial project in a foreign country."

"New segments such as young tree plantations and hydroponic greenhouses that were entered during previous quarters are now fully operational. These are areas where we see large growth potential for our RZTO technologies. At *Agri-Tech Israel 2018* we showcased the latest versions of our industry-leading Root Zone Temperature Optimization (RZTO) and Irrigation by Condensation (IBC) technologies to many visitors from around the world, with successful proof of concepts on

varied crops and weather conditions at our demo site. Our partnership with Teshuva Agricultural Projects strengthens our robust technical portfolio as we look to address global agricultural challenges.”

## **Financials**

The Company’s cash balance as at 30 June 2018 was US\$1.9million.

The Company continues commercialization efforts and product engineering in new markets, investment in demonstration and pilot installations, ongoing new product development and collaborations. The Appendix 4C attached to this report contains the Company’s cash flow statement for the quarter.

## **Operational updates during the quarter**

### **Ongoing project updates**

The first commercial RZTO sale and installation in China worth A\$323,000 (US\$257,000) is due for completion in Quarter 3 2018. This is part of the binding exclusive distribution agreement for the China market with Dagan Agricultural Automation (“Dagan”), one of the world’s leading global agtech integrators. Exclusivity of the distribution arrangement is conditional on \$US19 million in sales on the basis of the agreement continuing for five years.

The world-first proof of concept of RZTO on young apricot trees for a one-year period installed at a facility east of Perth, Western Australia is progressing well. This follows January’s non-exclusive distribution agreement with Adam Water Solutions, a leading West Australian irrigation and agtech integrator, to sell, distribute and install its RZTO products in Australia.

## **New projects**

### **World-first off-grid, solar and wind-operated Irrigation by Condensation (IBC) system**

In early May Roots installed a world-first off-grid, solar and wind-operated Irrigation by Condensation (IBC) system that uses irrigation sourced only from humidity in the air. The off-grid installation at Roots’ research site in Israel was able to sustain the entire growth cycle of high-protein crops such as beans and alfalfa. The innovation will be key in markets where decentralized solutions are needed for many of the 500 million smallholder farms who currently struggle with water for crop production. The installation follows a successful proof of concept with electric power earlier in the year.

### **Global TAP collaboration**

Roots signed a letter of intent with Teshuva Agricultural Projects (TAP), a leader in turn-key greenhouses and hydroponic Nutrient Film Techniques (NFT), to develop a commercial high yielding, energy efficient nutrient-temperature controlled greenhouse based on Roots’ proprietary RZTO technology. Initial testing on the self-assembly greenhouse by farmers using the combined technologies showed excellent results with growing cycles shortened by 20 per cent. Bare plant roots remained within favourable growing ranges, more than 11 degrees lower than the ambient air temperature in the greenhouse of nearly 40 degrees.

### **Showcasing Roots two key proprietary technologies at Agri-Tech Israel 2018**

These two industry-leading innovations were showcased at one of the key international agriculture conference and exhibitions, *Agri-Tech Israel 2018*, in May. Roots' IBC off-grid system and RZTO technology received a high level of commercial interest from international delegates during the exhibition. We are now working to convert this interest into sales in new territories.

### **New Research hub, technology and pilot programs**

During the reporting period Roots opened a new research and development hub in Hasharon, Israel to allow faster commercialization of agtech solutions and innovations. Quarter activity has included final stages of optimising machinery development for efficient installation of RZTO systems and progressing development of Roots "smart pipes" to provide advanced intermittent heating and insulation properties.

The following pilots were started during the quarter:

- avocado tree heating in Northern Israel;
- tomato cooling in Southern Israel in soil-based greenhouses;
- tomato cooling in Carmia, Israel with the same basil farmer who received 66% yield increases with root zone heating in winter (Q1); and
- peas cooling in Southern Israel – the first time RZTO technology has been used on this crop.

### **Sales**

Sales include the company's RZTO heating and cooling system to Ramat Negev Research and Development Centre in Southern Israel and the sale and completion of hybrid system installation in a high-end private farm. Further sales are anticipated this quarter from new segments and territories.

### **Team**

A world-class Scientific Advisory Board was formed during the period to progress the company's development program of products that incorporate its proprietary IBC and RZTO technologies. The Scientific Advisory Board comprises three internationally recognised researchers and opinion leaders – Professor Raoul Bino, Professor Haim Rabinowitch and Professor Uzi Kafkafi – who will provide scientific guidance to the company.

Finally, the quarter also saw Dr Gadi Peled, renowned roots physiology expert, named as Chief Agronomist. And Ms Dafna Shalev-Flamm was appointed as a Non-Executive Director. Ms Shalev-Flamm is an experienced Chief Financial Officer and director with extensive experience in operational management, accounting and finance, capital management and corporate governance. Ms Shalev-Flamm replaces Ms Tal Misch Vered, who had to resign from her position due to other Board commitments.

### **Outlook**

Roots is in a commercial phase with its RZTO technology and will continue to perform proof of concept and pilot demonstrations with new and potential customers on cooling and heating greenhouse crops, hydroponics and open field trees in Israel, Spain, USA and Australia.



Further discussions are under way to expand Roots' presence in Australia and demonstrate the ground-source, heat exchange-based heating and cooling systems capacity to influence yield, quality, maturity time and extreme weather ameliorating effects.

Roots will continue to launch its technology with commercial contracts in new market segments such as supplying to cannabis and hydroponics growers, and additional territories round the world building off its base of operations and sales in Israel, Spain, China and Australia.

The company is progressing well with its engineering development in scaling up ground source heat exchange systems and root zone pipes embedding installation machinery for these expected contracts.

We anticipate launching a semi-commercial version of Roots' IBC standalone alternative energy system later this year.

-ENDS-

**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)

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+Rule 4.7B

## Appendix 4C

### Quarterly report for entities subject to Listing Rule 4.7B

Introduced 31/03/00 Amended 30/09/01, 24/10/05, 17/12/10, 01/09/16

**Name of entity**

Roots Sustainable Agricultural Technologies Ltd

**ARBN**

619 754 540

**Quarter ended ("current quarter")**

30 June 2018

<b>Consolidated statement of cash flows</b>	<b>Current quarter US\$'000</b>	<b>Year to date (6 months) US\$'000</b>
<b>1. Cash flows from operating activities</b>		
1.1 Receipts from customers	91	172
1.2 Payments for		
(a) research and development	(297)	(513)
(b) product manufacturing and operating costs <sup>(i)</sup>	75	(140)
(c) advertising and marketing	(237)	(395)
(d) leased assets	-	-
(e) staff costs	(163)	(309)
(f) administration and corporate costs	(153)	(307)
1.3 Dividends received (see note 3)	-	-
1.4 Interest received	-	-
1.5 Interest and other costs of finance paid	-	-
1.6 Income taxes paid	-	-
1.7 Government grants and tax incentives	-	-
1.8 Other (institutes, IPO costs)	(67)	(105)
<b>1.9 Net cash from / (used in) operating activities</b>	<b>(751)</b>	<b>(1,597)</b>
(i) Reclassification of costs during the quarter. Refer to Section 3.9.		

Consolidated statement of cash flows		Current quarter US\$'000	Year to date (6 months) US\$'000
<b>2.</b>	<b>Cash flows from investing activities</b>		
2.1	Payments to acquire:		
	(a) property, plant and equipment	(8)	(35)
	(b) businesses (see item 10)	-	-
	(c) investments	-	-
	(d) intellectual property	-	-
	(e) other non-current assets	-	-
2.2	Proceeds from disposal of:		
	(a) property, plant and equipment	-	-
	(b) businesses (see item 10)	-	-
	(c) investments	-	-
	(d) intellectual property	-	-
	(e) other non-current assets	-	-
2.3	Cash flows from loans to other entities	-	-
2.4	Dividends received (see note 3)	-	-
2.5	Other (Restricted cash)	2	(13)
<b>2.6</b>	<b>Net cash from / (used in) investing activities</b>	<b>(6)</b>	<b>(48)</b>

<b>3.</b>	<b>Cash flows from financing activities</b>		
3.1	Proceeds from issue of shares	-	-
3.2	Proceeds from issue of convertible notes	-	-
3.3	Proceeds from exercise of share options	-	-
3.4	Transaction costs related to issues of shares, convertible notes or options	-	-
3.5	Proceeds from borrowings	-	-
3.6	Repayment of borrowings	-	-
3.7	Transaction costs related to loans and borrowings	-	-
3.8	Dividends paid	-	-
3.9	Other (IPO costs) <sup>(ii)</sup>	69	-
<b>3.10</b>	<b>Net cash from / (used in) financing activities</b>	<b>69</b>	<b>-</b>
(ii)	Reclassification of costs during the quarter. Refer to Section 1.2(b).		

<b>Consolidated statement of cash flows</b>		<b>Current quarter US\$'000</b>	<b>Year to date (6 months) US\$'000</b>
<b>4.</b>	<b>Net increase / (decrease) in cash and cash equivalents for the period</b>		
4.1	Cash and cash equivalents at beginning of quarter/year to date	2,587	3,544
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(751)	(1,597)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(6)	(48)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	69	-
4.5	Effect of movement in exchange rates on cash held	-	-
<b>4.6</b>	<b>Cash and cash equivalents at end of quarter</b>	<b>1,899</b>	<b>1,899</b>

<b>5.</b>	<b>Reconciliation of cash and cash equivalents</b> at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	<b>Current quarter US\$'000</b>	<b>Previous quarter US\$'000</b>
5.1	Bank balances	1,899	2,587
5.2	Call deposits	-	-
5.3	Bank overdrafts	-	-
5.4	Other (provide details)	-	-
<b>5.5</b>	<b>Cash and cash equivalents at end of quarter (should equal item 4.6 above)</b>	<b>1,899</b>	<b>2,587</b>

<b>6.</b>	<b>Payments to directors of the entity and their associates</b>	<b>Current quarter US\$'000</b>
6.1	Aggregate amount of payments to these parties included in item 1.2	(60)
6.2	Aggregate amount of cash flow from loans to these parties included in item 2.3	-
6.3	Include below any explanation necessary to understand the transactions included in items 6.1 and 6.2	

Salaries and wages paid to Directors and/or Director related entities	US\$38k
Corporate advisory fees paid to a Director related entity	US\$22k

7. <b>Payments to related entities of the entity and their associates</b>	Current quarter US\$'000
7.1 Aggregate amount of payments to these parties included in item 1.2	(65)
7.2 Aggregate amount of cash flow from loans to these parties included in item 2.3	-
7.3 Include below any explanation necessary to understand the transactions included in items 7.1 and 7.2	

Payments for research and development to a related entity.

8. <b>Financing facilities available</b> <i>Add notes as necessary for an understanding of the position</i>	Total facility amount at quarter end US\$'000	Amount drawn at quarter end US\$'000
8.1 Loan facilities	-	-
8.2 Credit standby arrangements	-	-
8.3 Other (please specify)	-	-
8.4 Include below a description of each facility above, including the lender, interest rate and whether it is secured or unsecured. If any additional facilities have been entered into or are proposed to be entered into after quarter end, include details of those facilities as well.		

N/A

9. <b>Estimated cash outflows for next quarter</b>	US\$'000
9.1 Research and development	(122)
9.2 Product manufacturing and operating costs	(20)
9.3 Advertising and marketing	(208)
9.4 Leased assets	-
9.5 Staff costs	(145)
9.6 Administration and corporate costs	(119)
9.7 Other (provide details if material)	-
<b>9.8 Total estimated cash outflows</b>	<b>(614)</b>

10. <b>Acquisitions and disposals of business entities (items 2.1(b) and 2.2(b) above)</b>	Acquisitions	Disposals
10.1 Name of entity	N/A	N/A
10.2 Place of incorporation or registration		
10.3 Consideration for acquisition or disposal		
10.4 Total net assets		
10.5 Nature of business		

### Compliance statement

- 1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.
- 2 This statement gives a true and fair view of the matters disclosed.



Sign here:  
(Company secretary)

Date: 31 July 2018

Print name: Sarah Smith

### Notes

1. The quarterly report provides a basis for informing the market how the entity's activities have been financed for the past quarter and the effect on its cash position. An entity that wishes to disclose additional information is encouraged to do so, in a note or notes included in or attached to this report.
2. If this quarterly report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, *AASB 107: Statement of Cash Flows* apply to this report. If this quarterly report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standard applies to this report.
3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.