

ASX Release 11 June 2021

# **RotoGro Systems Cultivate Significant Yields in New Crop Trials for** Perishable Foods and Lawful Cannabis

Roto-Gro International Limited (ASX:RGI) ("RotoGro" or the "Company") is pleased to provide this update on its patented and proprietary, state-of-the-art indoor vertical farming technology (the "RotoGro Technology").

## Highlights

- Following the successful completion of the Company's crop trials, conducted in collaboration with Verity Greens Inc. and Fresh Leaf Limited, the resulting data indicates that RotoGro Garden Systems produce more yield per square metre and consume less electricity than other indoor vertical farming methods:
  - o Industry studies indicate that leading indoor farming producers yield between 34.6 and 139 kilograms of leafy greens per square metre facility-wide, annually.
  - o RotoGro projects yields of 840 kilograms of leafy greens per square metre utilizing the RotoGro Technology, annually. When considering RotoGro's full-facility cultivation layout, encompassing multi-layered automation (including RotoGro's proprietary Automated Guided Vehicles) and safety walkways, RotoGro anticipates yields of 531 kilograms per square metre, annually. These are 3.8 to 15.3 times the yield per square metre compared to industry leading indoor farming producers and greater in contrast to greenhouse or conventional farming.
  - RotoGro projects yields of 509 kilograms of fresh cut basil and 281 kilograms of fresh cut cilantro per square metre utilizing the RotoGro Technology, annually. When considering RotoGro's full-facility cultivation layout, encompassing multilayered automation (including RotoGro's proprietary Automated Guided Vehicles and safety walkways), RotoGro anticipates yields of 322 kilograms of fresh cut basil

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per square metre and 178 kilograms of fresh cut cilantro per square metre, annually.

- New plant cultivation trials utilizing RotoGro's Model 710 Garden Systems (the "RotoGro 710") are focused on shorter full crop cycle lengths, targeting shorter grow cycles with the RotoGro 710 while maintaining current yields, and precisely refining both the plant irrigation schedules, to further minimize water usage, and the environmental controls, to ensure enhanced energy efficiencies.
- Within a 2.97 square metre floorspace footprint, RotoGro's Model 420 Garden System (the "RotoGro 420") consistently produces 10.2 kilograms of dried cannabis flower in a single 56-day crop cycle when stacked 3-high.

RotoGro's CEO, Michael Di Tommaso, states, "Our crop trials with Verity Greens and Fresh Leaf clearly demonstrate that there is interest globally in the RotoGro Technology. Ventures like these will strengthen RotoGro's market presence by successfully penetrating the burgeoning indoor vertical farming industry with its technology offerings. Our internal crop trials using the RotoGro 710 (conducted in collaboration with Verity Greens and Fresh Leaf), focused on the cultivation of high-quality leafy greens and herbs, are progressing extremely well, yielding remarkable numbers per square metre. Our customers utilizing the RotoGro 420 for the cultivation of lawful cannabis continue to report excellent results. Our studies, coupled with the Company's customers' data, validate the commercial viability of the RotoGro 420 for the commercial-scale cultivation of lawful cannabis. RotoGro continues to develop relationships globally to expand its presence in both the perishable foods and lawful cannabis markets."

## **RotoGro's Market Position**

RotoGro is an agricultural technology company specializing in designing and manufacturing fullfacility state-of-the-art cultivation solutions for the indoor vertical farming marketspace. The versatility of the RotoGro Technology allows it to operate in two business segments – perishable foods and lawful cannabis. RotoGro offers each segment a specialized technology to significantly increase yields per square metre, while significantly decreasing operational costs in comparison with

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traditional single level indoor farming techniques and advanced multi-level indoor vertical farming techniques. RotoGro owes its unique market position to its competitive advantage: Its revolutionary agricultural cultivation technology produces sustainable products, while simultaneously bolstering the business of indoor vertical farming, making it sustainable in and of itself.

## **RotoGro's Core Technology: The Rotational Garden Systems**

RotoGro's Rotational Garden System (the "RotoGro Garden Systems") is the core of its technology. A technological revolution, the RotoGro Garden System is a commercial-scale, cutting-edge crop cultivation solution set to lead the charge in sustainable, urban indoor vertical farming. The intrinsic design of the RotoGro Garden System permits RotoGro to offer indoor vertical farmers a technology that not only significantly increases yields per square metre, but significantly reduces the operational expenditures compared with other indoor vertical farming technologies, including flat deck, stacked growing methods.

RotoGro Garden Systems maximize plant surface growing area by situating a spherical garden around a centrally placed proprietary lighting system, utilizing what would otherwise be considered "dead space" within traditional plant canopy systems. Furthermore, the RotoGro Garden Systems can be stacked one on the other, in side-by-side arrays, maximizing the yields per square metre when compared to the footprint which they occupy. The result is maximized utilizable plant surface grow area within the cultivation space.

RotoGro Garden Systems are comprised of patented and patent-pending designs that allow indoor vertical farmers utilizing this technology to minimize their operational expenditures. Indoor vertical farming consumes significant amounts of electrical power. This is the greatest operational cost associated with indoor vertical farming operations. The RotoGro Technology minimizes electrical consumption in two ways: First, the proprietary design of the RotoGro Garden Systems (consisting of a cylindrical garden bed rotating around a centrally placed lighting system) optimizes the concentration of light to the growing surface area; second, the RotoGro proprietary lighting system incorporates a unique, ducted cooling system which draws cooling external air through the light

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tube and disperses heated air out of the growing room. By removing the heat generated by the light source through this ventilation system, the air conditioning costs associated with cooling the heat generated from the light source are reduced, and the air conditioning costs associated with controlling the environment within the cultivation area are reduced. Furthermore, the heated air generated by the lights may be repurposed and used to heat other areas of the facility, lowering the heating costs normally associated within colder climates.

### RotoGro's Supporting Technology: Automation, Fertigation, and Proprietary Lighting Systems

RotoGro's proprietary software systems are designed to allow the RotoGro Garden Systems to be a operated on a "plug and play" basis. RotoGro's proprietary software controls of all the mechanical components of the RotoGro Garden Systems: the environmental parameters within the cultivation areas and the plant nutrient management systems (the "RotoGro Fertigation System"), all on screen and in real-time. These parameters can be pre-set, automating the entire cultivation process facility wide. This, in turn, significantly reduces the labour traditionally required for indoor vertical farming, which positively contributes to workflow efficiencies and labour costs. In addition, the RotoGro Fertigation System delivers the water and nutrient solutions to feed the plants. The entire process is controlled by RotoGro's proprietary software and its advanced design for both the RotoGro 710 and RotoGro 420 recycles approximately ninety percent (98%) of the water used to feed the plants, further decreasing the operational expenditure and negative environmental impacts, when compared to other farming techniques. Furthermore, the RotoGro Garden Systems utilize RotoGro's proprietary LED lighting system, increasing yield and plant quality when compared to traditional HPS lighting systems. RotoGro's plant science team has optimized the LED spectrum for optimized plant growth. RotoGro's software provides cultivators with the ability to adjust the RotoGro's proprietary LED lighting system's spectrum, intensity, dimmability, and other parameters to automate the lighting process within the RotoGro Garden Systems throughout the cultivation process.

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### Updated Trials: The RotoGro 710 (Perishable Food)

The RotoGro 710 is RotoGro's newest, state-of-the-art garden system that will be utilized for the commercial-scale cultivation of high-quality perishable food. The RotoGro 710's footprint is 6.22 square metres and may be stacked three-high in commercial cultivation facilities, extrapolating into 48.75 square metres of growing surface area within a 6.22 square metres footprint.



Photo 1: RotoGro 710 Cultivating Lettuce Varieties

Photo 2: RotoGro 710 Proprietary LED Lighting System

The RotoGro 710 has yielded remarkable results throughout its most recent crop trials, cultivating both leafy greens (various lettuce varieties) and herbs (basil and cilantro).

Throughout its first trials cultivating basil and cilantro within the RotoGro 710, the Company's agronomy team cultivated 48 kilograms of fresh cut basil and 26.5 kilograms of fresh cut cilantro, each in half-planted RotoGro 710s (i.e., each in half the capacity of a single garden system) in a single harvest cycle. The Company's agronomy team projects single harvest yields of 288 kilograms of fresh cut basil and 159 kilograms of fresh cut cilantro within the 6.22 square metres footprint of the RotoGro 710, when stacked 3-high. This equates to 46.3 kilograms of fresh cut basil and 25.6 kilograms of fresh cut cilantro per square metre, per crop cycle, with approximately 11 crop cycles

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per year utilizing the RotoGro Technology. In turn, the Company's agronomy team project yields of 509 kilograms of fresh cut basil and 281 kilograms of fresh cut cilantro per square metre utilizing the RotoGro Technology, annually. Factoring in RotoGro's full-facility cultivation layout, encompassing multi-layered automation (including RotoGro's proprietary Automated Guided Vehicles) and safety walkways, our agronomy team projects yields of 322 kilograms of fresh cut basil and 178 kilograms of fresh cut cilantro per square metre, annually.

After multiple trials cultivating leafy greens (various lettuce types) utilizing the RotoGro 710, the Company's agronomy repeatedly achieved yields 124 kilograms in a fully planted RotoGro 710. Therefore, our agronomy team projects single harvest yields of 372 kilograms of leafy greens within the 6.22 square metres footprint of the RotoGro 710s, when stacked 3-high. This extrapolates to 60 kilograms of leafy greens per square metre per crop, with approximately 14 crop cycles per year utilizing the RotoGro Technology. In turn, our team projects yields of 840 kilograms of leafy greens per square metre utilizing the RotoGro Technology, annually. Factoring in RotoGro's full-facility cultivation layout, encompassing multi-layered automation (including RotoGro's proprietary Automated Guided Vehicles) and safety walkways, the Company projects yields of 531 kilograms per square metre, annually, which is 3.8 to 15.3 times the yield per square metre compared to industry leading indoor farming companies,<sup>1</sup> with an even greater contrast when compared to greenhouse or conventional farming.

RotoGro's internal studies consistently demonstrate that the RotoGro 710 cultivates significantly higher yields per square metre, while utilizing less electricity (due to its proprietary and patented design, and its patented ducted light cooling system), compared to conventional farming, greenhouse farming, and traditional flat deck, multi-level indoor farming techniques.

<sup>1</sup> https://agfundernews.com/the-economics-of-local-vertical-and-greenhouse-farming-are-getting-competitive.html; https://agfundernews.com/the-economics-of-local-vertical-and-greenhouse-farming-are-getting-competitive.html;

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RotoGro's current trials, conducted in collaboration with Verity Greens Inc. and Fresh Leaf Limited demonstrate the optimization of its automated crop growing schedules. The Company's recent results validate the Company's plan to refine its recommended cultivation protocols further. More specifically, our agronomy team is trailing shorter full crop cycle lengths while maintaining yields, and precisely refining the plant irrigation schedules to further minimize water usage and refining the environmental controls to ensure enhanced energy efficiencies.

## Updated Trials: The RotoGro 420 (Lawful Cannabis)

The cultivation process for a vast variety of lawful cannabis strains utilizing the RotoGro 420 is now entirely automated. RotoGro's proprietary software controls the wheel revolution speed, lighting cycles and spectrum variations, direct CO<sub>2</sub> injection, as well as the plant irrigation processes, and the cultivation rooms' environmental controls (temperature, air conditioning, humidification, and dehumidification). The RotoGro 420's footprint is 2.97 square metres and may be stacked three-

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high in commercial cultivation facilities, providing 16.5 square metres of growing area within a 2.97 square metre footprint.



Crop cycle times for the RotoGro 420, from planting to harvest, is 56 to 60 days (strain dependent), with each RotoGro 420 consistently yielding between 2.5 and 3.4 kilograms of dried cannabis flower per harvest. Given the unique stackable design of the RotoGro Garden Systems, cultivators can achieve 10.2 kilograms of dried cannabis flower within a 2.97 square metre footprint every 56 to 60 days, while significantly reducing the electrical costs associated with flat deck, stacked cultivation.

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This announcement is authorised for release to the market by the Board of Directors of Roto-Gro International Limited.

#### For more information please contact:

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### About Roto-Gro International Limited

Roto-Gro International Limited ("RotoGro") is an Australian company which utilises its state-of-the-art, automated agricultural cultivation technology to provide sustainable and cost-effective solutions to both conventional and indoor vertical farms. The Company's global operations are focused on the cultivation of perishable food (produce) and lawful cannabis utilising its proprietary, patented, and patents-pending technology in the indoor vertical farming space.

The core of RotoGro's technology is its patented Rotational Garden Systems which provides for greater space savings and yields with lower operating costs compared to other farms utilising different technologies. RotoGro's Rotational Garden Systems are supported by the Company's proprietary iGrow Enterprise Edition software, state-of-the-art nutrient management system and in-house design and engineering services.

RotoGro's in-house engineering teams provide consultative services for full facility designs to produce state-ofthe-art facilities equipped with RotoGro's technology. Similarly, RotoGro's research and design teams work with its existing customers to ensure their long-term success cultivating high-quality crops.

RotoGro has formalised a collaboration with Verity Greens Inc. for the cultivation of perishable foods (produce). This venture is reliant upon RotoGro's technology to produce greater yields with lower operating costs. In addition, RotoGro continues to nurture relationships for technology sales and growing management services in the lawful cannabis cultivation space, globally.

RotoGro maintains its focus on expansion into industry synergistic opportunities and exploring strategic partnerships in the perishable food (produce) space and the lawful cannabis space, while sourcing lawful cannabis cultivation license ownership opportunities, engaging in growing management services contracts, and providing the agricultural industry with industry-leading nutrient management systems and supporting, automated technology.

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