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Qponics Update – 18 November 2019

Progress in upgrading the algae farm in Brisbane

The new 65m x 12m raceway pond is now operational, and the improved design is delivering significantly higher productivity than experienced with the older smaller ponds, due in part to more efficient mixing of algal cells throughout the pond. The greater surface area (800 m²) and the deeper water (about 300mm) also modulates rapid rise in water temperature during hot days, which increases productivity of *Nannochloropsis*, which cannot grow effectively when water temperatures approach 40°C. The production ponds planned for the commercial algae farm will be five times greater in area, therefore this temperature modulation effect, assisted by sea breezes, is anticipated to be more pronounced.

The Liqoflux ultrafiltration system is successfully purifying brackish water pumped from the Brisbane River before use in the ponds, by removing all microorganisms including viruses. This ensures that the salty river water is as clean as possible before use. The first inoculation of the pond with *Nannochloropsis* occurred at the end of October 2019. The image at right shows the algae being pumped into the pond for the first time from the smaller-sized pond in the background.

The image below shows the pond after *Nannochloropsis* has grown to a high density. Note the paddlewheel driving the flow of water around the pond, and the Brisbane River in the background.



The Liqoflux system is certified to pre-concentrate *Nannochloropsis* in pond water into a 20-fold concentrated slurry, but at the upgraded farm the system can produce a 50- to 90-fold slurry, which will significantly reduce the number of centrifuges required at the future commercial farm. This slurry is pasteurised immediately after this step, to kill all live algae and bacteria that may induce rapid spoilage, to prolong stability. The pasteurised slurry is transferred into the large automated Evodos 25 algae centrifuge to reduce it into a dense algae paste.

During November 2019 it is planned to complete the production of 1,000 kg of *Nannochloropsis* paste from the upgraded algae farm to be freeze-dried, which will then be stable for a prolonged period at -20°C. This will provide plentiful whole dried algae for separation of EPA-rich oil and the

protein-rich by-product for analysis and assessment by companies seeking to buy the products.

The upgraded algae farm is planned to be shut down during December and much of January 2020 as key staff will be on leave. Note that on the future commercial algae farm, production will be continuous throughout the year.

The video of the upgrade process has been updated and may be viewed on the home page of the Qponics website at <https://qponics.com>.

Image at right: algae-laden water scooped from the new pond.



Dr Graeme Barnett

Chief Executive Officer and Managing Director