

# Advancing the future of farming

AQUAPONIC farming is a combination of aquaculture, the act of raising aquatic animals with hydroponics, the activity of growing plants in water.

This farming system creates a sustainable ecosystem of food resources that produces little waste. Leading this incredible research to encourage sustainable farming is the recently launched UCSI University (UCSI)'s BSc (Hons) Aquatic Science head, Asst Prof Dr Teo Swee Sen.

Dr Teo's goal is to develop a modern, closed, self-sustaining system that can produce food independent of feed, fertiliser and energy. Her inspiration

stems from the waste produced by the many species of fish in the well-equipped lab.

Remembering the advice of UCSI founder and group chief executive officer Datuk Peter Ng, who also practises aquaponic farming at home to always search for ways to use resources sustainably, Dr Teo launched her research and planted the first batch of lettuce and kangkung last October.

Water from the fish tank is pumped through filters where bacteria convert the ammonia from fish waste into nitrates.

The nitrate-rich water is then absorbed by the roots of the

vegetables growing in cups

suspended from foam sheets floating on the water's surface.

At the same time, the plant uptake of the nitrate rich water help to filter and make the water clean for the fishes to live in.

Dr Teo's interest in aquaponics also stems from her concern on water quality problems faced by urban and agricultural areas.

Dr Teo's passion is strongly supported by the university's founder and group chief executive officer, who constantly reminds students that it is humanity's responsibility to preserve marine habitats.

"One thing we can do is care for our oceans by actively participating in efforts to save it. We need to rehabilitate our oceans, which are so damaged to the point where bleached corals are aplenty as are broken bits of corals on the seabed," said Ng.

He added that Malaysia is a country known for the beauty of its beaches and islands, and education has a role to play to ensure this is passed on to the next generation.

## Careers through conservation

UCSI has the distinction of being the first private university in Malaysia to offer a degree that covers the study of both freshwater and marine

ecosystems. Through UCSI's BSc (Hons) Aquatic Science, students will have a chance to explore the wonders of our aquatic systems and use their knowledge to conserve and manage the current water bionetwork.

They will also play an important role in maintaining the aquatic ecosystem for the next generation to explore and learn from. During the final year of this programme, students have the option to specialise in either Aquatic Health and Management or Seafood Processing and Safety.

Students can also decide to focus on the research field and eventually academia, as aquatic research is heavily supported by

**One thing we can do is care for our oceans by actively participating in efforts to save it.**

- DATUK PETER NG

the Malaysian government.

Further adding to these programmes' credibility, UCSI has been ranked Tier 5 - the highest ranking received by a private institution of higher

learning in the SETARA 2013 ranking by the Malaysian Qualifications Agency.

It is also among Top 300 in the 2015 QS Asian University Rankings and recently achieved a place in the Malaysia Research Assessment (MyRA).

This comes on the back of increasing research output, internationalisation and affiliations with renowned universities like Harvard, Imperial and others.

With UCSI being the first private university in Malaysia to offer both the BSc (Hons) Aquatic Science and Diploma in Aquaculture and Entrepreneurship, students can rest assured they will be ahead of the pack when they graduate.

Asst Prof Dr Teo is a leading research authority on the *Gracilaria changii*, a type of red seaweed found in Malaysia.

She has published numerous research papers on the subject and is focusing on sharing her knowledge with the next generation of scientists through UCSI's BSc (Hons) Aquatic Science programme.

■ To find out more about UCSI University's Faculty of Applied Sciences, contact 03-9101 8882 or e-mail [www.ucsiuniversity.edu.my/onlineenquiry](mailto:www.ucsiuniversity.edu.my/onlineenquiry).



Asst Prof Dr Teo examining kangkung seedlings growing on the water surface of fish tanks containing ikan kelah in the university's Aquatic Science lab.