

A Solution for Eco-friendly Shrimp Farming with Zero Water Replacement

Two DTU students, Nguyen Cong Duc, from the K18 Pharmacy class, and Huynh Minh Trang, from the K20 PSU class of the International School, defeated six other teams from big national universities, well-known for their technology and business administration studies. Their project “A Solution for Eco-friendly Shrimp Farming with Zero Water Replacement”, won the 6th National Final Round, which took place on May 20th at Schneider Electric Vietnam. The champions were awarded 20 million dong and became the only Vietnamese team to enter the Asian finals on June 10th.

In 2014, DTU organized several field trips for students to research solutions to support farmers facing mass shrimp deaths in various localities. The team determined that the shrimp deaths were caused by the deteriorating marine environment and antibiotic residues exceeding legal levels.



Nguyen Cong Duc and Huynh Minh Trang, the 2016 Go Green in the City champions

With the financial support of the university and guidance from their lecturers, Trang and Duc focused on researching their project for two years. They hope to teach the farmers how to effectively treat the waste products from shrimp cultivation and create a clean, sustainable, environmentally friendly shrimp farming industry.

Nguyen Cong Duc explained that, by introducing direct waste treatment microorganisms into a shrimp pond, they solved the issue of waste and leftover feed deposited on the bottom, without having to construct additional traditional wastewater treatment systems. The microorganisms develop, providing a clean and healthy environment and fresh and nutritious food for the shrimp.

According to Trang, experimental production model computations have shown a 20% reduction in the cost of feed and over a 20% savings in water supply. The system is equipped with an automatic monitoring and control system, using pH, temperature and dissolved oxygen sensors to monitor the quality of the aquatic environment, which automatically controls the feeding system, pumps and water fans to guarantee the best environment for the developing shrimp. Farmers can monitor and control their ponds through observational data that are then automatically transferred to a cloud database, without going to the pond. The team also plans to create a monitoring and control application for mobile devices, which will automatically inform the farmer of the status and provide prompt alerts if problems should arise.

There will comprehensive testing

“This solution of farming shrimp without replacing the water is currently being developed on a small scale but will soon be attempted on a much larger scale,” explained Dr. Tran Nhat Tan, a Faculty of the Environment lecturer. “We hope that this solution will help protect groundwater resources, reduce environmental pollution, prevent and isolate diseases and increase feed usage efficiency, while reducing costs at the same time.”

(Media Center)