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Taiwan revolutionizes Shrimp farming

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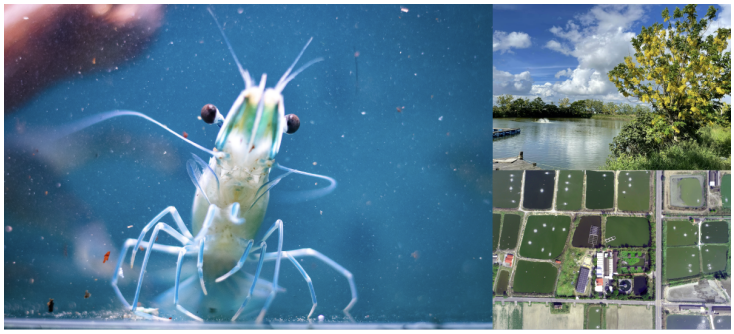

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A huge industry has developed with annual production values exceeding $10 million as a result of captive-bred shrimp surpassing wild-caught shrimp, according to the UN's Food and Agriculture Organization (FAO). Global demand for shrimp products is substantial, but the aquaculture industry faces environmental challenges, such as disease outbreaks and elevated mortality rates caused by erratic weather conditions.

Taiwan, which is located in the subtropical region, experiences enormous weather variations throughout the four seasons. The traditional shrimp farming industry in coastal regions has also been adversely affected by extreme weather events. Excessive rainfall has resulted in devastating losses in various regional conditions, such as water quality and soil quality, that pose challenges to shrimp farming standardization.

Revolutionizing Farming Conditions Through Technology

Although this innovative technology may cost a bit more at first, it has proven highly effective in curbing the spread of diseases through waterbirds and mitigating the effects of severe weather. Biological control and water purity have been of paramount importance to Hsu since the farm's inception. In our approach, shrimp are grown in specialized greenhouses equipped with a recirculating aquaculture system. In order to achieve precise environmental control, greenhouses must be constructed in various sizes. Upon entering the farm, the shrimplets are sterilized and examined to prevent infection.

Farmers' decision-making has been improved, labor requirements have been reduced, and shrimplet survival rates have been enhanced to approximately 90% with this technological innovation. Additionally, a mobile phone application provides real-time monitoring of water quality via an Internet of Things (IoT) network. Temperature, pH level, and dissolved oxygen content are some of these parameters. In addition to year-round farming, this technology can accommodate diverse seasons and species, such as vannamei schrimp, kurumaprawns, and groupers. The sapphire tiger prawns produced by Kazuo Aquaculture are cultivated without the use of pharmaceutical interventions.

Tackling Climatic Challenges

In the case of Taiwanâ??s Kazuo Aquaculture, ltd. has constructed an inland greenhouse recirculating aquaculture system (RAS), fortifying risk management within the farm environment. This innovative approach also bolsters yields and revenues while conserving water resources through the recycling of up to 90% of the aquaculture water. Evaporation losses are offset through rainwater, with salinity adjustments achieved through salt supplementation. Given that the upfront costs exceed those of traditional earthen ponds, this approach has found limited adoption in Taiwan.

Charlie Hsu, General manager at Kazuo Aquaculture, concedes that the expenses of establishing a comprehensive greenhouse RAS are significantly higher. High-yield aquaculture should, however, lead to satisfactory returns on investment. Construction of similar indoor aquaculture ponds is expected to become less expensive as technology matures, and pond quality is expected to improve as well.