

Efficient and sustainable shrimp production system with LED lighting

The challenge

ShrimpVet (Minh Phu AquaMekong Co., LTD), a private Vietnam-based company founded in 2014, offers the aquaculture industry a variety of services, ranging from research to breeding to diagnostics to technical support to education to disease control and beyond. Recently this innovative organization turned its attention to overcoming certain challenges endemic to the shrimp industry: disease control, pollutant environment, and insufficient stability in the farming system; resulting in inconsistent shrimp yields, high production costs and lower profits for farmers. "That's why we need to improve the aquaculture system, as well as applying technologies such as lighting to increase shrimp's growth and resistance to weather and season change," says Loc Tran, founder and director of ShrimpVet.



"Adding lighting to shrimp production makes the shrimp grows faster and increase the survival rate by 35%. I saw this as a huge potential to increase shrimp production."

Loc Tran, founder and director ShrimpVet

The solution

Shrimp have historically been farmed in the absence of the lighting solutions that support farming of other types of seafood. ShrimpVet's experts thought that the time had come to change that. "Applying technologies such as lighting would increase shrimp's growth and resistance to weather and seasonal changes," Loc says. Lighting enables shrimp's behaviors which depend on vision. ShrimpVet and Signify teamed up to perform research that focus on shrimp's grow out phase using Philips AquaAdvance 260W Shrimp and a specific light recipe developed for shrimp: combination of blue-and green patented spectrum in a controlled period.

Key benefits

- Increase yields by up to 30%
- Harvest shrimp year-round
- Reduce feed conversion ratios by 20%
- More efficient use of food and energy resources
- Higher shrimp survival rates
- Improve shrimp health and well-being





Benefits

The combination of Philips AquaAdvance 260W Shrimp and the light recipe prevents abrupt light changes that can trigger stress reaction on shrimp, letting farmers control environmental conditions and influence shrimp's behaviors, such as feeding activity and physiological processes (metabolic rate, growth and maturation). The result of well-aligned biological clock was better shrimp resistance to pathogens and stronger immunity in general. Survival rates rose to 35% followed with 47% increased yield.

The Philips AquaAdvance 260W Shrimp also helped shrimp metabolize food better, improving the feed conversion up to 22% while increasing the shrimp weight to 32%. With Philips AquaAdvance 260W Shrimp, it is now possible to harvest in rainy season and adding an extra growing season. This not only made farming more efficient, but was positive for the environment, as using less feed means less waste in the water. Faster growth rates mean shorter production cycles, giving diseases less time to take root.

"We didn't have much understanding of using lighting solutions until working with Signify," says Loc. "Signify has brought us knowledge and experience in system installation and operation and since Signify's image and branding are so good, we're happy to partner and receive help from them."

“Signify has brought knowledge and experience in system installation and operation. Together with ShrimpVet, we had many exchanges to develop outlines and carry out successful research projects.

Loc Tran, founder and director ShrimpVet

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