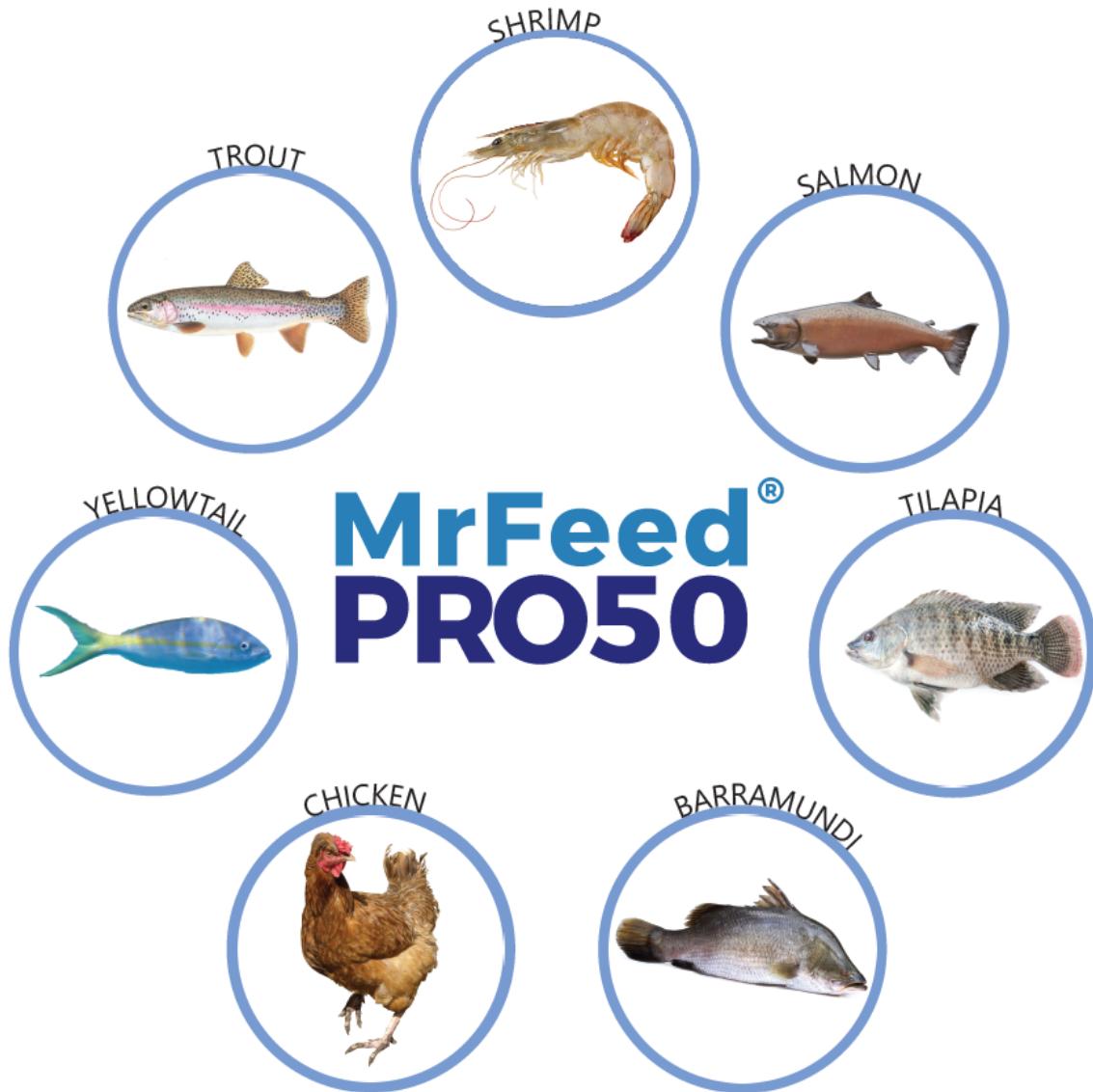


# After salmon trials, ingredient maker Menon eyes commercial feed sales

By Jason Smith

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The maker of a fishmeal alternative with disease-fighting properties that's found success in shrimp feeds hopes to make similar strides in the salmon feed market in 2020.

Suresh Menon, the president of Menon Renewable Products, told *Undercurrent News* in a recent interview that the Escondido, California-based company plans to focus on growing its finfish sales this year, with salmon being the top priority.

The company, which last year had its salmon-focused feed ingredient, PRO50FF, perform well in research trials in Canada, is now planning commercial-scale trials in Chile and Norway, Menon said.

In addition to serving as a fishmeal and fish oil alternative, the ingredient enhances the fish's skin-mucus membrane, Menon said, adding that, like its **shrimp feed ingredient**, the salmon ingredient stimulates a fish's immune system into working harder. That helps to repel sea lice, Menon said.

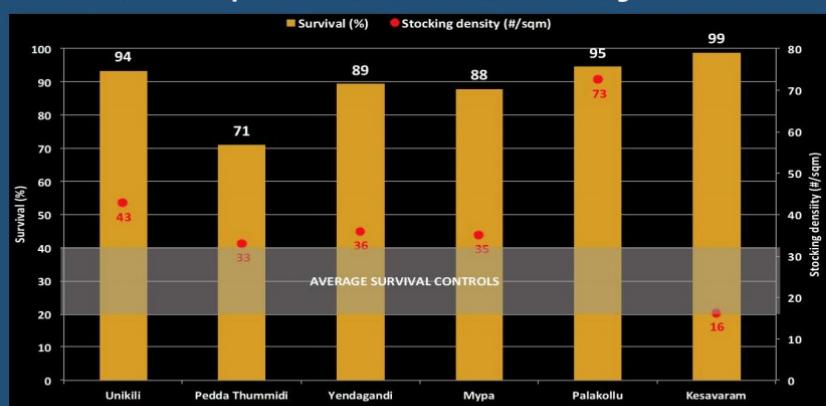
The Canadian trial found that salmon diets with the ingredient saw 30% higher growth in ponds and up to 40% reduction of sea lice in 21 days, he added. With regulatory approvals in place, the company is having conversations with feed formulators and their customers.

"Basically, the product can be produced commercially, we're just waiting for orders," he said, adding that the ingredient is being worked into finfish feeds at commercial scale for trout, large mouth bass and tilapia in the US, China, India and Mexico and Saudi Arabia.

The company's ingredients, known generally as MrFeed, are produced at sites in India, the US and Canada by taking organic material from plant-based crops and deriving "cellulosic sugars" using hydrolysis. The material is then fermented in bioreactors, with the residue going through a chemical process known as "oligomerization" which can rearrange long chains of molecules into custom-tailored formulations, Menon said.

## Performance Examples - Aquaculture

MrFeed® Shrimp Survival vs Control Diets in 6 Regions of India



Shrimp and Tilapia Pre and Post Introduction into Feeding Pro



Salmon Growth

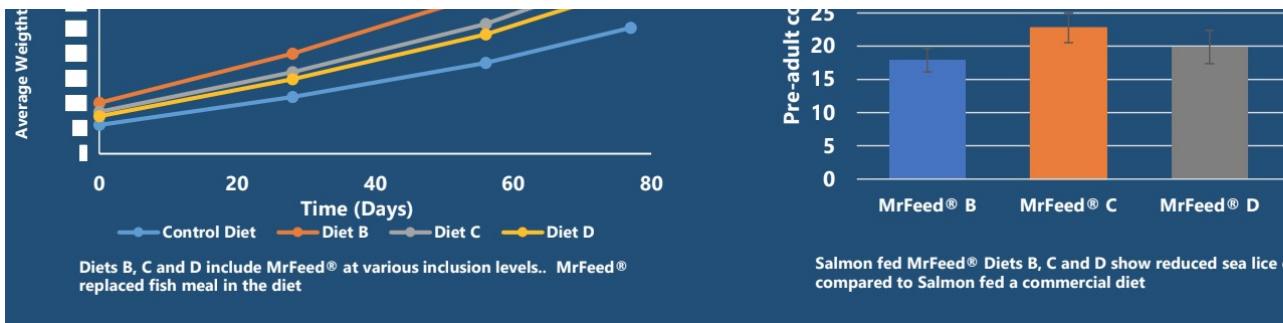
Trials in Prince Edward Island, Canada



Salmon – Sea Lice Count

After 21 Days of Exposure (PEI, Ca)





The technology once looked promising as an alternative source of jet fuel for US military aircraft but has been developed into commercial applications as a component in feeds for aquaculture and livestock.

## Scale in its sights

The shrimp feed ingredient was incorporated in some 10,000 metric tons of finished feed sold in 2018 by a slew of different manufacturers and Menon had set a production target of 300,000t in 2019.

However, the company fell short, instead producing around 200,000t last year, Menon said.

The main stumbling block, he added, is that batches of the feed must undergo a large battery of lab tests for quality assurance. Getting the results can be a lengthy process.

“This is the primary limiting factor for us. It takes too long, two to three weeks, to get results on this whole spectrum of tests back,” he said.

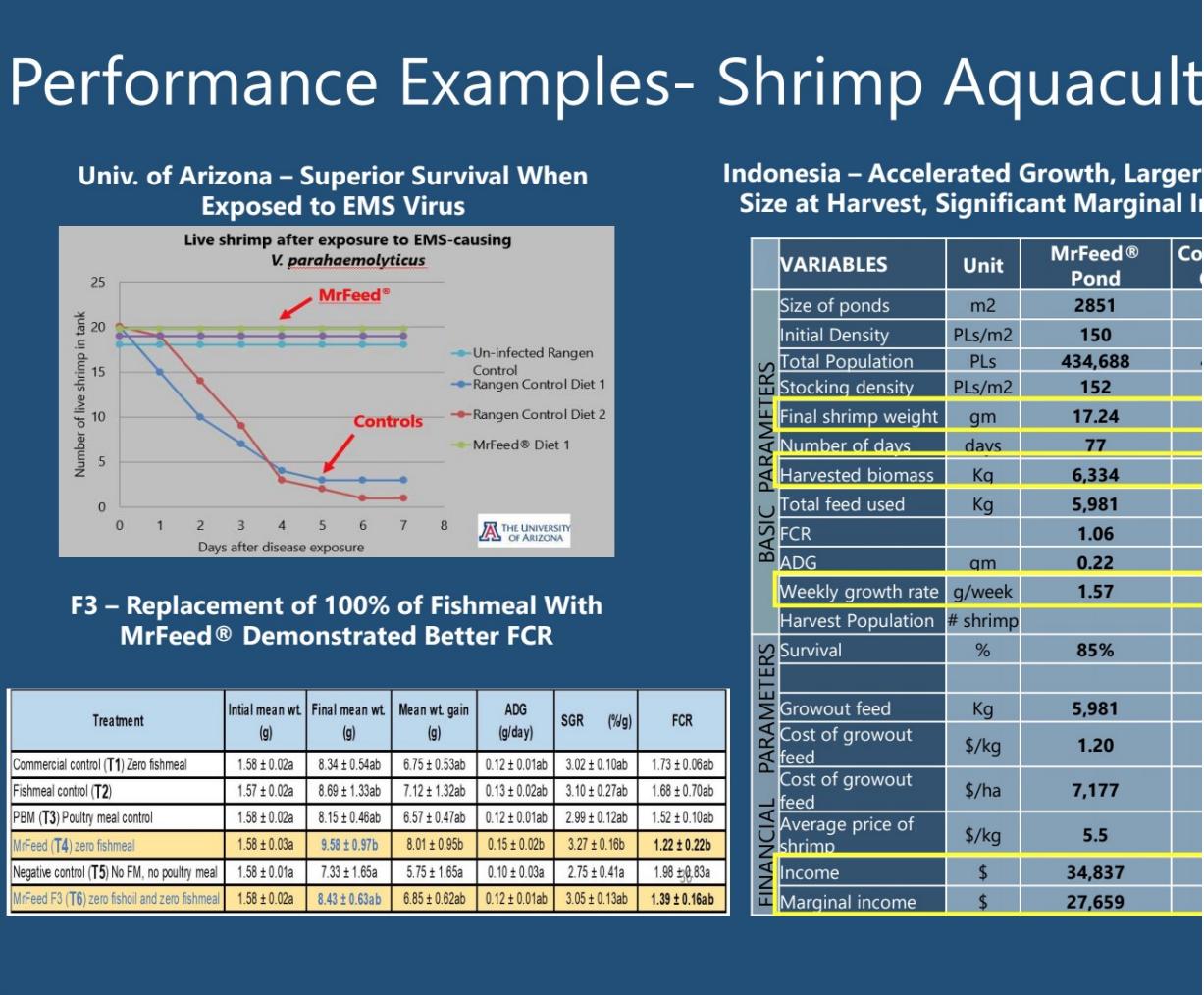
He added that the company is still working to resolve that issue. Additionally, scaling up will require finding new and consistent sources of the plant-based waste the company uses as inputs to produce the cellulosic sugars that are used in the feed ingredient.

And while many shrimp farmers have welcomed the ingredient's use as a preventative for diseases like white-spot and white feces, the company has faced some resistance from feedmakers and some large farmers who worry that their shrimp won't eat alternative diets unless some fishmeal is included as an attractant, Menon said.

“It’s a real problem for ingredient makers like us to help overcome the sustainability issue unless we have support from the big guys,” he said.

And when fishmeal falls in price, some buyers balk at buying higher-priced alternatives despite the disease-fighting properties, Menon said.

"What we have done in the last two years is that we have built the reactors in such a way that we are competitive to fishmeal at a certain volume," he said. "If my product is a little higher than fishmeal, it's not an issue because you are getting higher survival in the ponds, higher yield."



However, formulators always look for the “least-cost formulation”, which alternative ingredient makers struggle to meet without scale.

“It’s true that the market has accepted us but on a value proposition, not a least-cost formulation proposition,” Menon said, adding that hitting the 300,000t finished feed target would be an important milestone.

“It gives us a scale where our product cost suddenly drops and is very competitive to less than fishmeal costs,” he said.