

Startup aims to come to aquafeed sector's rescue with natural coloring

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A startup pitching at the North Atlantic Seafood Forum's "seafood innovation day" is aiming to come to the rescue of an aquafeed industry that relies on coloring to give seafood its "right" hue.

Hawaii's Kuehnle AgroSystems (KAS) has developed a "dark fermentation" process for the microalga *Haematococcus pluvialis*, a trusted source of natural astaxanthin. It debuted the product in February this year.

Traditionally the aquaculture industry has used astaxanthin synthesized from petrochemicals, but increasingly consumer awareness of this is on the rise, and the demand for a natural equivalent is increasing too, said KAS CEO Heidi Kuehnle.



The problem is, supplies of natural astaxanthin are low and the price is high, with sectors such as health supplements willing to pay far more than aqua feed producers are able to. As a result, natural astaxanthin is a high-value, high-profit product in a \$1 billion market, she said.

KAS' production system can make the coloring at costs up to 10-times less than current methods, growing it and developing its red color faster. It is low cost, high value, and "massively scalable", said Kuehnle.

The firm is now looking for \$1.5 million of investment, which it will use to scale up its manufacturing and commence sales. This will allow it to convert letters of intent with "lead customers" into purchase agreements.

"We anticipate that around 75% of our facility's production is already pre-sold," she said, revealing a number of high-profile potential customers that have been in touch, including Cargill, Skretting, DSM, Corbion and Shiok Meats.



Its business plan has production hitting 60 metric tons by year five, and around 110t by year seven. That would mean gross profit of \$40m in year five, and \$70m in year seven, with a gross profit margin of 74% or more.

"We are confident we can aggressively grow our market share due to three factors: there are very few players in the space, and none with our technology; we have a competitive cost structure; and 75% of our first factory production is anticipated pre-sold."

The firm grows its algae in steel tanks and in complete darkness, using standard fermentation equipment. "It is a patented platform technology with enormous market pull for multiple products," said Kuehnle.

The technology beats other production methods -- raceways or photobioreactors -- in economic terms, she said, and does not suffer crop failures.

Feed manufacturers and vertically integrated operations the company has already spoken to "all want to swap to natural astaxanthin, especially from algae," she said. "They understand it will boost their branding, deal with consumer backlash, demonstrate sustainability, and they've seen the KAS product proven effective in salmon, trout, and shrimp."

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Heidi Kuehnle
CEO of Kuehnle AgroSystems (KAS)

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The algae-derived product outcompetes bacteria or yeast products on several important counts including digestibility, she added. It is also already approved for human and animal consumption.

KAS is in talks with several customers and "industry partners" now. "We are determined to support the industry at the right price and supply volumes."

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