Aotearoa New Zealand's Seaweed Sector Framework

CH4 Global Case Study

START-UP COMPANY

CH4 GLOBAL
Zero Methane Agriculture

Company Profile

Markets

» Dry stock feed (cattle, sheep)

Products

» Methane-reducing feed supplement for cattle and sheep (dried seaweed)

Seaweed species

» *Asparagopsis* species

Supply chain

» Hatchery production of juvenile seaweed

» Aquaculture supply from Australia, New Zealand & United States (land-based and ocean-based farms)

» Sale in domestic markets, with export to Australia and North America

Selling points

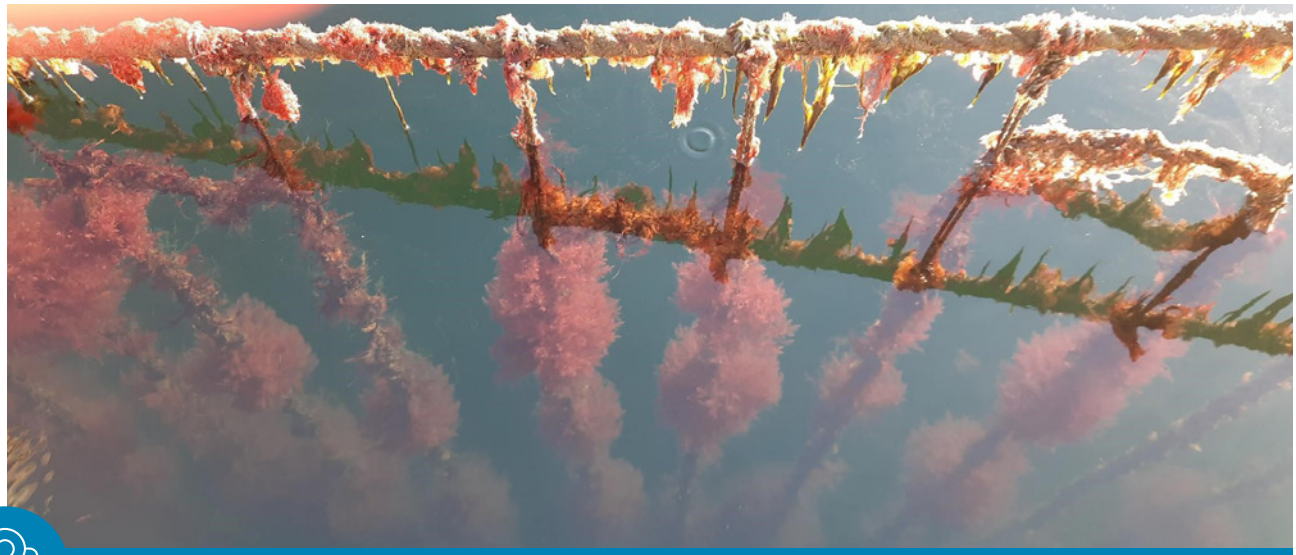
» Global methane reduction via uptake in ruminant farming industry

» Scientifically demonstrated methane-reduction benefits (licenced IP)

Contact Information

www.ch4global.com

CH4 Global



Origin story

Back in 2018, Silicon Valley-based entrepreneur Steve Meller wanted to use his experience working with waste, energy, and water to create a more sustainable future with seaweed. Steve and his business associates approached FutureFeed, an Australian company that hold proven intellectual property for reducing methane emissions from cows by up to 90% using *Asparagopsis* seaweed feed supplements.

In 2019, CH4 Global was established in New Zealand with the goal to grow *Asparagopsis* in marine farms and supply feed supplements for ruminant agriculture. They acquired the first licence from FutureFeed to commercialise their intellectual property, then set about researching how to scale the supply of *Asparagopsis* species.

Nigel Little, General Manager, and Michael Lakeman, Vice President for Biology, are charged with developing farming systems to scale *Asparagopsis* production. They want to *"scale production of Asparagopsis species, capture intellectual property and develop growing systems that can be deployed globally."*

CH4 Aotearoa initially focused on marine farming of Asparagopis. This was achieved by adding the species to existing consented mussel farm space. Land-based aquaculture of *Asparagopsis* is now the focus of CH4 Global in New Zealand as *"the control in land-based systems lowers the overall risk."* CH4 see this path as offering fewer regulatory hurdles and greater control of environmental variables. What hasn't changed is CH4's desire to reduce the impact that ruminant methane emissions have on global climate change.

Growth aspirations

CH4 Global wants to have operations on every habitable continent to reduce global livestock methane emissions. Their vision is to *"meaningfully impact climate change at scale today, by harnessing the power of Asparagopsis seaweed to reduce methane from cows and making it easy for farmers to adopt."*

The purpose of CH4 Global's operations in New Zealand is to develop land-based seaweed aquaculture systems for *Asparagopsis* that can be easily and rapidly deployed offshore. Operations here are focused on developing a tank-based system on land, so there is a high investment in tanks and other equipment.

CH4 Aotearoa initially developed biomass production systems to support its seaweed hatcheries and nurseries. In their view *"seaweed biomass science is developed to the point where land-based production has the same or better economics than marine-based aquaculture."*

With marine-farming, the company knows how to grow and harvest *Asparagopsis*, but it doesn't yet know the ideal growing environment. It is trialing several locations to find ideal growing conditions.

Case Study

CH4 Global continues to work on understanding the best marine-farming approaches but will not scale into this opportunity until it has improved the economics of processing the seaweed into suitable formats for animal feeds. In the meantime, the focus will be on scaling land-based aquaculture of *Asparagopsis*.

Barriers to growth

The company is steadily tackling and overcoming the expected scientific and technological barriers to *Asparagopsis* farming. However, they didn't expect the scale of the regulatory barriers they would face. These are mainly in obtaining resource consent for marine farming of seaweed, and the restrictions of Fisheries Act regulations under which seaweed collection falls.

Resource consent attempts for marine space have been time consuming and offer little certainty.

CH4 Global intentionally did not try to gain resource consents for new water space. Instead, it focused on adding *Asparagopsis* to existing mussel farm consents to reduce the time and expense of gaining access to the required water space.

Additional barriers to growth come from the Fisheries Act and associated regulations. *"The Fisheries Act is not fit for purpose for seaweed aquaculture; it was designed for fin fish and shellfish, without mechanisms for seaweed"*.

Required sector responses

It is the view of CH4 Global that there needs to be improved consistency from councils granting resource consents in the marine space, especially when adding seaweed to existing marine farming consents. While some councils are supportive, others are still trying to understand seaweed aquaculture. Improvements are needed on the overarching regulatory frameworks, particularly from the Ministry of Primary Industries (MPI) and Fisheries NZ to better accommodate the seaweed sector.

CH4 Global feels regulators should be taking a "risk relativity approach" and look at seaweed aquaculture in relation to the existing consented species, rather than focusing on risk minimisation. A particular priority is to remove barriers that exist around use and supply of product collected with a research permit. *"There needs to be a clearer path to use the progeny of seaweed collected under a research permit as a commercially farmed product."*

About Sustainable Seas Challenge

Our vision is for Aotearoa New Zealand to have healthy marine ecosystems that provide value for all New Zealanders. We have 60+ research projects that bring together around 250 scientists, social scientists, economists, and experts in mātauranga Māori and policy from across Aotearoa New Zealand. We are one of 11 National Science Challenges, funded by Ministry of Business, Innovation & Employment.

For more information on this project, visit:
www.sustainableseaschallenge.co.nz/our-research/building-a-seaweed-economy

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