

Prepared by the New Zealand High Commission in Singapore

This short report provides an overview of Singapore's investment into alternative proteins. There are likely to be opportunities for New Zealand firms in terms of agri-industrial expertise that can be applied in support of commercialising alternative proteins and selling at scale (and/or partnership opportunities in third markets in the region).

Background

Singapore is increasingly investing into the development and commercialisation of alternative proteins (both plant-based and meat grown from stem cells), including alternative 'milk' products. Underpinning these investments is modelling (by Asia Research and Engagement in 2018) that shows that demand for meat, seafood and dairy in Asia alone will increase significantly by 2050. The other trend is the need for the food industry to find ways to meet demand, while reducing its carbon footprint.

- <https://www.asiareengage.com/reports/2018/9/4/charting-asias-protein-journey>
- <https://www.temasek.com.sg/en/news-and-views/stories/future/the-next-food-revolution/agriculture-big-opportunity>

Apart from the potential for future financial returns from agrifood investments, Singapore's Government is supporting innovation in the sector as part of a strategic vision of the city-state meeting 30% of its own food needs by 2030 (which will see the scaling up of leafy green, egg and seafood production, in addition to developing alternative proteins). Singapore is currently almost entirely dependent on imported food.-

- <https://www.sfa.gov.sg/food-farming>

Investment

Singapore's SD\$300 billion + investment company Temasek has, over the last five years, invested US\$5 billion in the agrifood sector, with about a third involving early stage investments. The fund's agrifood investment strategy is built around four "core themes" when it comes to agricultural technology: sustainable proteins, supply chain resilience, affordable nutrition, and urban food systems. Recent 'global' investments included:

- US\$30 million into a venture capital fund that aims to support the development of agrifood technology in China
- SG\$55 million (jointly with Sequoia Capital China and others) into Australian plant-based meat company V2 foods
- 'significant funding' for plant-based meat company Impossible Foods
- SG\$28.5 million (with others) into UK agritech firm Tropic Biosciences, which develops high yielding tropical crops
- SG\$30 million into Unfold with Leaps by Bayer, an agritech venture capital company.

Also see: <https://www.businesstimes.com.sg/consumer/temasek-launches-vehicle-to-super-charge-agriculture-food-deals>

In terms of investment in Singapore, Enterprise Singapore Investment Arm Seeds Capital has to date provided SD\$90 million of funding for Singapore based agrifood tech start-ups. The government has also [invested \\$144m](#), through the Research Innovation Enterprise 2020 Plan, in future foods research. In total, Singapore agri-food startups are estimated to have raised SD\$177 million across 37 deals in 2019.

For details see:

- <https://agfunder.com/research/asean-2020-agrifoodtech-investment-report/>
- <https://www.enterprisesg.gov.sg/industries/type/agri-tech/industry-profile>

Research and Development

The following alternative protein research and development efforts underway in Singapore:

- Sophie's Bionutrients: aims to produce protein through the growth of micro-algae inside bio-reactors. In early 2020, the company carried out the successful fermentation of 20,000 litres of micro-algae liquid and is in the early phase of bringing products to market.
<https://sophiesbionutrients.com/>
- TurtleTree Labs: aims to produce all components of milk through culturing mammary cells in-vitro and inducing their natural ability to lactate. Plans are for the product to be brought to market in early 2021.
<https://turtletreelabs.com/>
- Shiok Meats: aims to produce shrimp meat through the cultivation of stem cells. Currently still at research and development phase, with plans to start commercialisation next year by selling product to restaurants.
<https://shiokmeats.com/>
- Singcell: is developing an automated scalable bioreactor system for manufacturing of cells for meat.
<https://www.singcell.com/>
- Float Foods: is developing onlyEG, a legumes-based substitutes for both egg yolk and egg white as two distinct components. The product will be brought to market in 2022.
<https://www.floatfoods.com/>

New Zealand – Singapore Research/Commercial Opportunities

New Zealand is also directly funding research on alternative proteins – in partnership with Singapore. Under the New Zealand-Singapore Enhanced Partnership, the Ministry of Business, Innovation & Employment (MBIE) and Singapore's National Research Foundation (NRF) and Agency for Science, Technology and Research (A*STAR), jointly fund the New Zealand-Singapore Bilateral Research Programme on Future Foods. New Zealand investments under the Programme total NZ\$11.8 million to date through support for the following projects:

- **AgResearch Limited** Cooking and processing of seaweed to improve consumer acceptance, protein digestion and nutrient bioavailability
- **Massey University** Te Rangahau Taha Wheako mō ngā Kai o Āpōpō: The Consumer Dimension of Future Foods
- **The Cawthron Institute** Realising the value of algae as a source of alternative protein
- **The University of Auckland** Understanding the interactions between plant-based protein and cellular agriculture

<https://www.mbie.govt.nz/science-and-technology/science-and-innovation/funding-information-and-opportunities/investment-funds/catalyst-fund/catalyst-strategic-new-zealand-singapore-future-foods-research-programme/>

Regulation

On 1 December, the Singapore Food Agency (SFA) approved the public sale of Eat Just's cell-grown chicken in Singapore. This is the first regulatory approval of a cultured meat product in the world.

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