

Liquid food for baby mussels

Reducing losses of juvenile mussels (spat) after seeding on coastal farms remains a key priority for the Greenshell™ mussel industry. Seeding larger spat that are in better condition is one of the most effective ways to improve survival through those critical first months and make better use of this valuable natural resource.

Through my PhD research I discovered that Greenshell™ spat can absorb dissolved sugars directly from seawater and use them to boost growth and overall condition. Testing this at a hatchery scale, I found it was possible to replace a significant portion of the live microalgae feed for spat. However, an attempt to restore the nutritional condition of wild Kaitaia/Te Hiku spat highlighted that very small, stressed spat at high densities need more than a quick sugar hit to recover after harvest and transport.

My subsequent research looked into what other dissolved nutrients spat can utilise. I have confirmed that spat can directly absorb not only individual amino acids, but also small protein fragments (di- and tri-peptides), at similar rates to the sugars. This means spat can take up energy and nutrients not only from carbohydrates dissolved in seawater, but also from small protein components that help to build tissue.

This presents an opportunity to develop a balanced liquid diet made of a mixture of both carbohydrates and small proteins fragments that could be used to reduce feeding costs in hatcheries and condition spat prior to seeding. My current research aims to determine what combinations of nutrients work the best and how long these need to be in seawater to maximise the nutritional benefits to spat. Once this has been determined I am keen to test how this liquid feed performs against traditional microalgal diets under industry-relevant conditions.

Hopefully this research will result in useful methods to help our mussel farmers to grow and seed more robust spat. I appreciate the continued support from industry, and look forward to sharing the next round of results as this research progresses!

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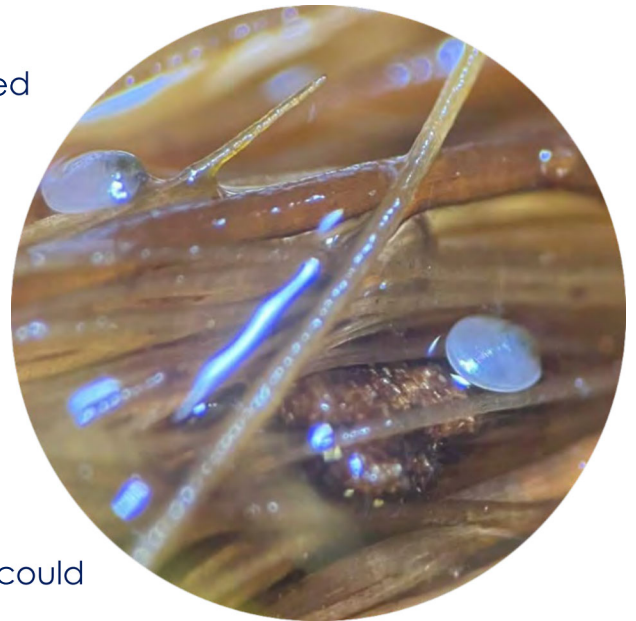


Figure 1. *Tiny post-settlement Greenshell™ mussel spat (approx. 0.5mm shell length) settled onto fibrous coir rope.*