



Uncovering the regenerative
potential that lies below the surface



MTP
Massive
Transformative
Purpose

Revitalizing the world's oceans by empowering marine cultivators

Educate kelp farmers and rewilders
on:

How?

Precision kelp farming
Circular business development

Propositions:

Build

Use our proven expertise to help build your circular
kelp business towards economic viability

Empower

What?

Empowering your team through
education, support, and advice

Co-develop

Let's innovate together and
revitalize the world's oceans



Dr. Alexander Ebbing
Co-founder

"We are on the brink of the fastest, deepest, and most impactful disruption in the food and bio-based raw materials industry in human history. Seaweed aquaculture will play a central role in this transition. I want to contribute to this new world and roll up my sleeves to help others make this transition a success. For everyone."



Core Competencies

- Global expert in precision kelp farming
- Lateral thinker
- Team player
- Teaches and inspires

Work experience

2024: Co-Founder @ Ebbing Tides

Using more than a decade worth of experience to aid seaweed farmers and scale the seaweed industry.

2023: Innovation lead @ Tekkoo

Innovate towards a new world in the circular economy.

Clients: Greencycl as business developer; Cosun Beet Company as Market researcher; Brabantse Ontwikkelings Maatschappij as Food-tech Strategist; Provincie Zuid Holland as Quartermaster for the Dutch Seaweed community.

2020 - 2023: Senior Scientist @ Hortimare

Responsible for the implementation of the precision kelp farming method at Hortimare.

Clients: Kelp Blue; Ocean Rainforest; Cascadia Seaweed; Atlantic MariCulture; Royal Greenland; Greenwave

2017 - 2022: PhD candidate @ NIOZ

Validating the fundamental forces behind the precision kelp farming method. During this period we also developed the first-ever Seaweed Continuous bioReactor system (SeaCoRe) for MAD gametophytes in the world.

2012 - 2016: Project lead Breeding and Tissue culturing @ Hortimare

Responsible for the development of the first European Kelp variety. Successfully farmed and maintained two seaweed farms in Norway, which were part of an Salmon IMTA.

Quotes

"Alex – Thank you for everything you have done so far, the industry and all of us need leaders such as you" – David Howitt, Atlantic Mariculture

"You have played a pivotal role in shaping this industry and supporting the "pioneers" – David Aldridge, Sintef Ocean

"Inspiring a team to innovate through problems is what you are about!!" – Adrian Macleod, SAMS

Videos

[Ideological dilemmas of food pioneers](#)

[Lifecycle control of kelp gametophytes](#)

Expertise

More than a decade of actively pioneering in various aspects of the production process in kelp farming, from farm design and harvest technology to biomass storage and biorefinery. My specialty however lies in a particularly crucial part of the production process, which is seed control and breeding. Over the past 12 years, I have been co-developing a novel cultivation method that optimizes, quantifies, automates, and ultimately allows for further upscaling in kelp farming.

In recent years, I have been expanding my expertise to include circular business development, value chain development, and start to scale-up guidance. My multifaceted field of expertise allows me to seamlessly transition between disciplines, identifying both bottlenecks and synergies in your kelp farming endeavours.

Achievements

2022 – Innovation award recipient for the SeaCoRe system - Seagriculture seaweed conference

2017 – Openmind grant recipient - NWO

Thesis

2022 – (A)biotic factors influencing MultiAnnual Delayed (MAD) gametophytes

Publications

2020 – (a)biotic factors influencing reproduction in MAD gametophytes

2021a – Seasonality in MAD gametophytes

2021b - In-culture selection in MAD gametophyte cultures

2022 – The SeaCoRe system for large scale precision kelp farming



In-depth information pages

We help you with precision kelp farming



Precision kelp farming is a novel cultivation method that has been made possible in recent years. This new method is the culmination of several key developments aligned together, creating a synergy greater than the sum of its individual parts.

Direct Seeding: Initially pioneered in 2012, direct seeding allows farmers to seed kelp directly onto deployable lines, thereby skipping the hatchery phase.

Multi-Annual Delayed (MAD) Gametophyte Reproduction: By utilizing MAD gametophytes to reproduce in large quantities, farmers can employ a new seed reproduction method previously available only to kelp breeders.

Quantification: The combination of direct seeding with MAD gametophyte reproduction allows for the first time to actually quantify the kelp production process. Quantification provides insights into farm performance, progress compared to previous years, and identifies areas for improvement.

We help you with circular business development



Business development in the circular economy is novel with few experts that actually have skin in the game. Tekkoo, with whom we were associated, participates in the circular economy and is actively pioneering in this novel field of circular business development

Start-up to Scale-up Guidance: Tekkoo invests in circular start-ups (e.g., Peel Pioneers, Sunt, Nature principles) and shares insights through programs like Circular Factory, educating new circular businesses on overcoming challenges that are fundamental in this new economy.

Value Chain Development: Creating reliable value chains for new circular feedstocks is crucial. Tekkoo helps circular value chains, whom often still consist out of fully vertically integrated companies, by positioning the right players in the right place in the value chain. With expertise from waste streams and biobased building blocks, to kelp aquaculture, Tekkoo actively builds the circular economy.

What is precision kelp farming?



Precision kelp farming evolved from early breeding practices and scales small scale lab protocols to large-scale kelp farms.

The principles are simple: having a precise understanding of **gametophyte density, reproductive success, and seeding density**, combined with precise control and understanding of **planting dates and harvest yields**, results in an reliable and thus scalable kelp farming endeavor.

Traditional V precision kelp farming

Traditional kelp farming usually employs spore seeding techniques, whereas precision farming ideally uses clonal gametophytes. The main differentiator between these two cultivation methods is the level of **control over gametophyte reproduction**. In traditional methods, reproduction occurs on the deployable substrate, whereas in precision farming, it happens entirely in vitro.

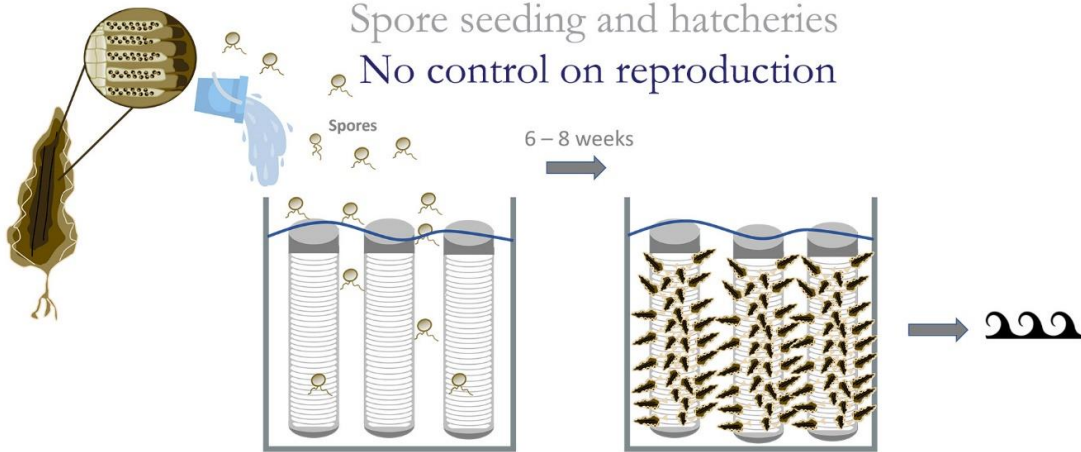
Why precision kelp farming is the future

Precision kelp farming gives the farmer more control and allows for **quantification, enabling further optimization**. The better you can optimize, the better you can scale. An added benefit is that **direct seeding and novel breeding practices can seamlessly integrate** into this cultivation method, enhancing its potential for the future and it's economic value.

Traditional V Precision kelp farming

Traditional farming

Spore seeding and hatcheries
No control on reproduction



Pro's

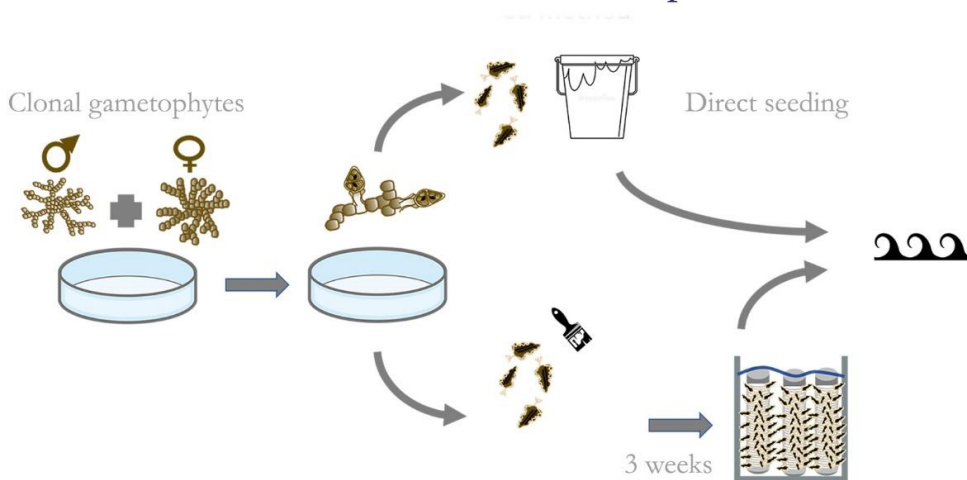
- Easier protocols
- Simple process
- Higher reproductive success

Con's

- Highly dependable of ripe sorus tissue
- Little control of crop genetics
- Scaling limited to hatchery size
- Scaling limited to sorus availability
- Longer Hatchery time (± 6 weeks)
- Increased chance for contaminations

Precision farming

Clonal gametophytes, direct seeding, and nurseries
Precise control on reproduction



Pro's

- Precise control over genetics
- Precise control of planting density
- Limitless scaling capability
- Shorter nursery time (± 3 weeks)
- Decreased chance for contaminations

Con's

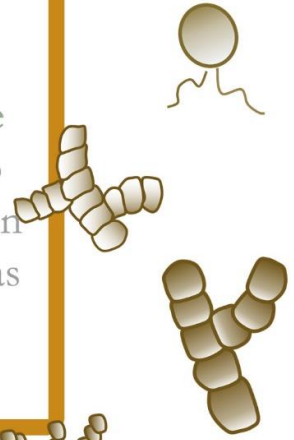
- More complex protocols
- Long build-up time clonal gene bank
- Lower reproductive success

Propositions



Build

Nothing is more important to a seaweed company than a **reliable foundation** on which it can grow. From a **dependable laboratory, supporting facilities, an effective innovation strategy** to an **efficient seaweed farm**, we help build the necessary infrastructure. **Our proven track record** in successfully helping the seaweed industry around the world has given us the confidence to also help your seaweed company **become successful** as well



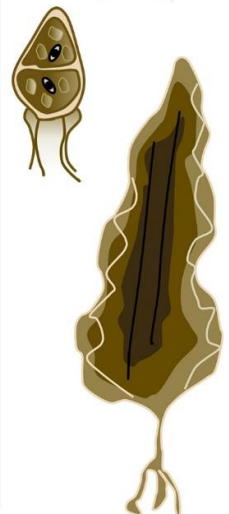
Empower

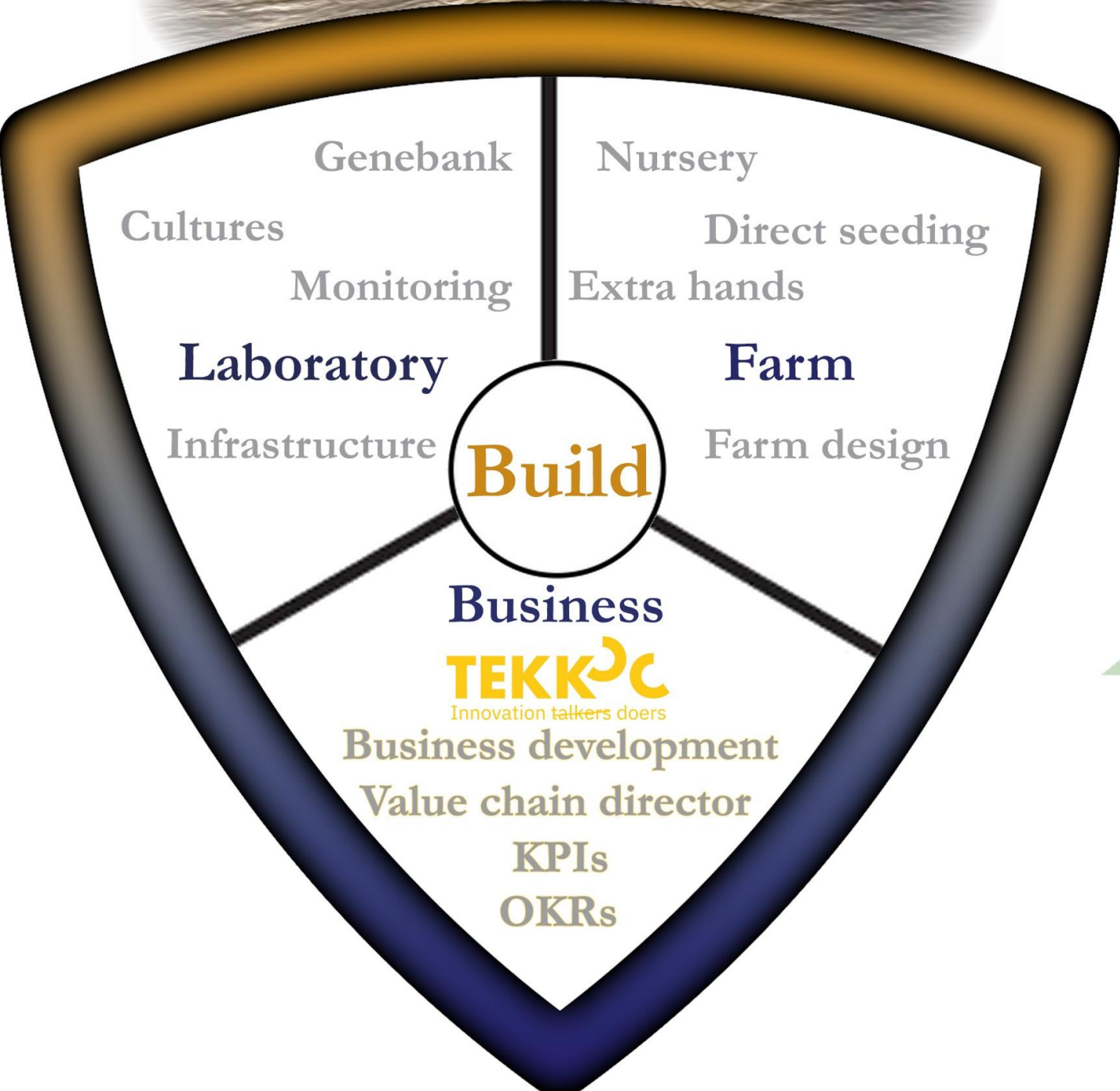
Why you do something is as important as **what** you are doing. To **empower you and your team**, we offer **masterclasses** on the theory behind the practice. We also bridge the gap between theory and practice by writing **custom production protocols** tailored to your team and facilities. This ensures that your team is prepared for the inevitable developmental phase of any successful company: **The scaling phase.**



Co-develop

Rome was not built in a day, and this is definitely true for the seaweed industry. There is abundant room for innovation, and the need for co-development is essential. Share your challenge with us, and we will strategize a solution. If necessary we can **leverage our network** of experts from around the world to address your specific needs. **Let's join forces** and make a large-scale seaweed industry a reality!





Genebank

Nursery

Cultures

Direct seeding

Monitoring

Extra hands

Laboratory

Farm

Infrastructure

Farm design

Build

Business

TEKKOC
Innovation talkers doers

Business development

Value chain director

KPIs

OKRs

