The Seaweed Consortium

Ocean to Market – Vertically Integrated Seaweed Solutions

February 2026

INNOVATING SUSTAINABLE SEAWEED SOLUTIONS FROM OCEAN TO MARKET

Introducing – The Seaweed Consortium

Founded by Dr. Stefan Kraan

Globally recognized phycologist and seaweed entrepreneur
Pioneer in seaweed commercialization

Vertically Integrated

Research & Development, Seaweed cultivation and manufacturing of biostimulants and blue materials

Community-centered model

Empowering 2,000+ coastal farmers while delivering commercial grade agri-solutions

Proven at Scale

Decade of commercial success with 850,000 farmers and 452,000 hectares served

Seaweed Aquaculture & Mechanization

Advanced cultivation systems optimized for Indian and Atlantic coastal environments. Innovative hatchery design and delivery.

Bioproduct Development

Extraction and processing for biostimulants, animal feed pigments, agarose bioplastics and biopaper

Sustainable Innovation

Research-driven biodegradable materials and eco-friendly solutions

Proven at Scale

India, Indonesia and Zanzibar based farming and manufacturing - catering to global markets

FROM OCEAN FARMING TO AGRICULTURAL SOLUTIONS – COMPLETE VERTICAL INTEGRATION

Three Pillars – One integrated value chain

R&D and commercialisation

Dr. Stefan Kraan

Founder & Director

- **Expertise**: 35 years seaweed research
- **Funding**: €10M+ secured for research
- **Reach**: Global partnerships & scientific validation
- **Innovation**: Animal feed ingredients, biostimulants, meat replacers, Blue materials & innovation pipeline

Seaweed Cultivation

Hari Shankar Thivakar

Co-founder & Director

- **What we cultivate:** Red & brown seaweed (Kappaphycus alvarezii, Gracilaria spp., Alaria esculenta, Saccharina latissima)
- **Where we operate:** Tamil Nadu, Gujarat, Lakshadweep (India) & Indonesia
- **Farmers**: 2,000+ coastal “blue farmers” trained
- **Practices**: Sustainable, scalable ocean farming systems

Production & Commercialization

Prasanna Mohan

Director, Prasmo Agri

- **What we deliver:** 15+ biostimulant formulations & animal feed
- **Who we serve:** 800,000 agricultural farmers
- **Network**: 800+ dealer distribution
- **Impact**: 452,000 hectares of farmland regenerated

Ocean Farming
Seaweed biomass cultivation

Processing & Formulation
Extract development

Agricultural Products
Biostimulants & feed

Distribution
Market delivery

SCIENTIFIC LEADERSHIP

Dr. Stefan Kraan

35 years of Seaweed Research and Scientific Development

Global Leadership

- President, International Society for Applied Phycology (2024–2027)
- Past President, International Seaweed Association (2016–2019)
- PhD Marine Botany and Molecular Biology & Aquaculture, was Manager of Seaweed Research center and seaweed Industry organisation

Proven Commercial Track Record

- Co-founded Ocean Harvest Technology (2009–2017) - Global animal seaweed feed comp.
- Co-founded The Seaweed Company (2018–2024) - seaweed-based meat alternatives for food markets
- Business advisor to 14 Indonesian seaweed companies (Dutch Ministry of Foreign Affairs and Climate program)

Powering Product Development

- Research-backed formulations, patented and with international credibility
- Global network of research institutions and industry partners
- Innovation pipeline: biostimulants, animal feed, blue materials
- 35 years translating science into commercial products

Research Partners

Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

nutri-san

Seaweed Solutions

SRM
INSTITUTE OF SCIENCE & TECHNOLOGY

Universidad de Oviedo

QUEEN'S UNIVERSITY BELFAST

Ollscoil na Gaillimhe
University of Galway

CEVA
ALGAE TECHNOLOGY & INNOVATION CENTRE

LERØY 125 YEARS SINCE 1899

אוניברסיטת חיפה
UNIVERSITY OF HAIFA
جامعة حيفا

ctaqua CENTRO TECNOLÓGICO DE LA ACUICULTURA

SINTEF

AWI

ARCTIC SEAWEED

Collaborations

NACOF

Erasmus University Rotterdam

CCMAR Centro de Ciências do Mar Algarve

DTU

ATU
Ollscoil Teicneolaíochta an Atlantaigh
Atlantic Technological University

WAGENINGEN UNIVERSITY & RESEARCH

Ollscoil na Gaillimhe
University of Galway

NORWEGIAN SEAWEED ASSOCIATION

North West Shell Fish Ltd

Blaaker

nutri-san

Clients

SEITARO ARAI & Co., LTD.
IMPORTERS & EXPORTERS SINCE 1888

nutri-san

SNAP Natural & Alginate Products Pvt. Ltd.

UPL

MEGHMANI ORGANICS LTD
Chemistry of Success at Work

SWAY

algolesko

zerocircle

Notpla

Katapult

Merci les algues !

Marinoë
SUPER FOOD FROM THE SEA

Global Seaweed farming footprint

Seaweed cultivation

- **India**: Coastal areas of Tamil Nadu, Gujarat and Lakshadweep islands
- **Indonesia**: Kalimantan , Bunny Island and Tarakan

Government of India collaboration

- Strategic advisor to Ministry of Fisheries, Animal Husbandry & Dairying
- Technical consultant for National Seaweed Mission implementation
- Policy development for sustainable marine aquaculture frameworks

Institutional Partnerships

- Collaboration with Central Marine Fisheries Research Institute (CMFRI)
- Partnership with Tamil Nadu Fisheries Department
- Research collaboration with Indian Council of Agricultural Research (ICAR)

FOUNDED IN 2013 AND BUILT ON SKYWIN GROUP'S 40+ YEARS EXPERTISE

Prasmo Agri – Manufacturing & Commercial Backbone




01

Manufacturing Facility

- **4–acre** processing plant, Thanjavur District, Tamil Nadu
- **400,000 L** per month (8 hours shift) plant manufacturing Capacity
- **Multiple production lines:** Biostimulants, animal feed, hydrocolloids
- **CSIR patent license** (U.S., EU, India) & Government certifications

02

Distribution Network

- **800+** dealers across Tamil Nadu
- **800,000** farmers served annually
- **USD 4.6m** annual turnover
- Expanding to pan-India coverage

03

Product Impact

- **15+** biostimulant formulations
- **10–30%** yield improvements
- **452,000** hectares regenerated
- **100%** organic compliance

04

Global Expansion – 2026

- Technology partnerships: **Zanzibar, Indonesia**
- Market entry: **Japan, EU**

BIOSTIMULANTS, BLUE MATERIALS AND HEALTH PRODUCTS

Product Portfolio

Biostimulants (core business):

- **15+** formulations
- **50+** SKU's
- **Applications**: Rice, Sugarcane, Cotton, Vegetables, Horticulture
- **Benefits**: Enhanced growth, stress tolerance, 100% organic

Other products:

- **Animal feed additives: 6 formulations**
  - **Applications**: Poultry, Swine, Cattle, Fish and Shrimp
  - **Benefits**: Improved gut health, better FCR, enhanced immunity
  - **Validated**: in Ireland, Vietnam, China and USA
- **Blue materials & hydrocolloids**
  - **Biopaper & Bioplastic** feedstock pallets
  - Food-grade Agar and Pharmaceutical-grade Agarose
  - **Carrageenan**
  - Fibre (food and biopackaging applications)

MEASURABLE RESULTS AT SCALE

Documented Impact

Agricultural Impact

- Improved soil health & microbial activity
- Reduced pesticide and chemical fertilizer dependency
- Solutions for salinity, heat and freezing stress,eases waterlogging effects due to hydrocolloid matrix
- 100% organic compliance
- Better growth and yield

Community Empowerment

- 200+ fishermen families with stable income
- 500+ government officers trained
- 15+ government-supported clusters
- Adopted by 3 Indian states

Environmental Benefits

- Marine biodiversity enhancement
- Carbon absorption through farming of seaweed
- Reduced methane emissions (livestock)
- Ecosystem restoration & water quality

452k Hectares Regenerated
Agricultural land transformed

800,000 Farmers reached
Using products annually

2,000+ Blue Farmers
Trained in cultivation

10–30% Yield Implementation
Documented across crops

BUILT ON SKYWIN GROUP'S 40+ YEARS EXPERTISE

Global Expansion Roadmap

2025
Foundation

- JV: Oceana, TSC, and Prasmo
- Indonesian expansion
- India consolidation

2026
International Entry

- Japan (Sietaro - White Lilies)
- EU (Alganex platform)
- Zanzibar (100K L facility)
- Indonesia manufacturing

2029
Scale & Consolidation

- Multi-continental ops
- **5M** farmers target
- **50K** blue farmers
- Blue materials launch

A TEAM THAT TRULY ENJOYS THE SEAWEED LIFE

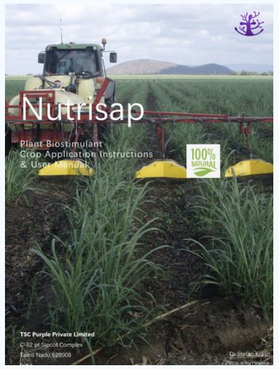
Gallery

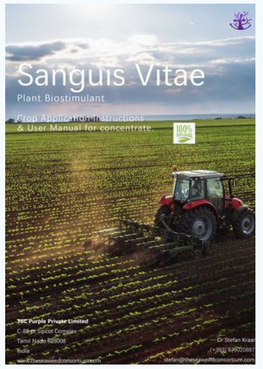
Appendix

A. Biostimulant application and trial data
B. Animal feed MOA, application and trial data
C. Seaweed Hatchery and production systems

OCEAN TO MARKET

Products & Application





Core Bio Stimulants

- **KSap –** Kappaphycus Alvarezii extract
- **Nutri Sap**
- **Yield Win**
- **Sanguis Vitae**

15+ Formulation Categories

- **Brown Seaweed Granules**
  - Potash Ash Coated Granules
  - CMS Coated Granules
- Bentonite Clay Granules
- Red Seaweed Gel - Soil Application
- **Red Seaweed Liquid**
  - 3 Different Formulations
- Red Seaweed Liquid - Foliar Application
  - Cream Form
  - Paste Form
- **Brown Algae Seaweed**
  - 3 Different Formulations
- Brown and Red Seaweed
  - 3 Different Formulations`

Packaging

- Consumer Packaging
  - **500 ml , 1L, 5L , 25L , 50L**
- Bulk - IBC's

FIELD TRIALS IN RICE, PULSES & VEGETABLES

Bio-Stimulant - Trial Data

- Conducted with **Tamil Nadu Agricultural University** (Rice Research Institute)
- 1-hectare randomized test plots, with **3 replicates + control**
- Two products tested: **Soil Application & Foliar Spray**

Key Results

Crop	Treatment	Yield Improvement	Notes
Rice (ADT 53)	12.5 kg/ha soil + 0.5% foliar spray	+13.49%	Stronger root system, higher NPK uptake
Black Gram	Soil + foliar	+13.48%	Improved nodulation & pod density
Tomato	Soil + foliar	+14%	Higher fruit count, improved plant vigor
Potato (Field Test)	12–14 Ha plots	+5–12%	Higher THP yield (61,000–62,000 kg/ha)

Measured Parameters

- Plant height, Leaf area index, Root volume & length
- Chlorophyll content, Grain weight (**1000-grain**), Tillers per plant
- Yield (grain + straw), **B:C ratio**

Soil & Environmental Benefits

- **+20%** improvement in Soil Organic Carbon
- Increased **N, P, and K uptake** (25–37 kg/ha)
- Enhanced microbial activity & reduced fertilizer dependency

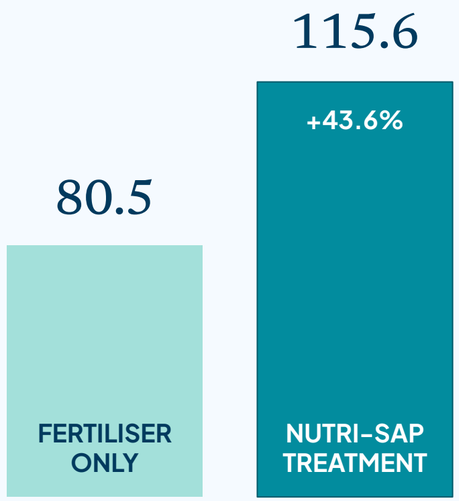
INDIAN INSTITUTE OF SUGARCANE RESEARCH, LUCKNOW | VARIETY COPK 05191

Sugarcane Trial Results

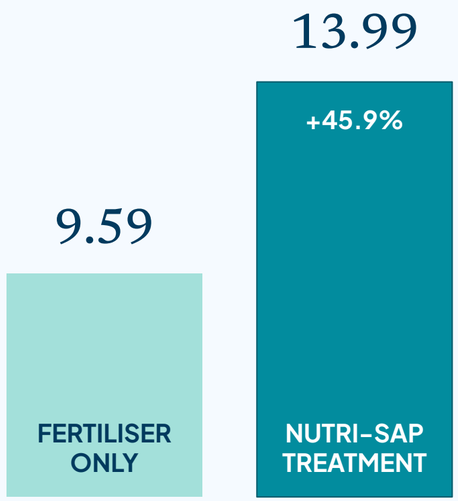
- Conducted at **IISR Lucknow** over two planting seasons (Nov & Feb)
- Standard fertiliser: **150 : 60 : 60 N–P–K kg/ha**
- Compared: **Fertiliser** only and **Nutri-Sap** (Soil + Foliar) — **25 kg/ha soil + 25 L/ha spray**

Yield Performance

Cane Yield (t/ha)



Sugar Yield (t/ha)



Agronomic Impact

- **+15.6%** overall increase in productivity over fertiliser alone
- Higher germination, tillers and millable canes with combined treatment
- Improved **N, P_2O_5 and K_2O** availability in soil
- Soil organic carbon significantly improved
- Brix (sugar content) consistent, no compromise on quality

OCEAN TO MARKET

Products & Application

TSC-Purple Swine

TSC-Purple Aqua

10+ Formulation Categories

- **Brown Seaweed Extracts**
  - Fucoidan and laminarin
- **Red Seaweed Liquid**
  - Red Seaweed Gel - feed Application (mineral gels)
- **Seaweed Fiber**
  Forage product horses and cattle
  - Bulk filler

TSC-Purple Poultry

TSC-Purple Ruminants

Core Animal feed ingredients

- **TSC Shrimp**
- **TSC Swine**
- **TSC Bovine**
- **TSC Poultry**

Packaging

- Consumer Packaging
  - **3 kg , 10 kg, 25 kg**
- **Bulk** - 1 ton bags
  - 24 ton container

Seaweed Animal feed - Trial data

Salmon & Trout | Norway, Canada, Denmark

Trial Summary:

- Seaweed blend (**2–5%** inclusion), tested in both lab and field trials
- Proven action against sea lice

Key Outcomes:

- **+30%** increase in **Omega-3 content** (Wilke et al., 2014)
- Stronger immune response (**↑ IL-6, IL-12**; activation of killer B & T cells)
- Thicker mucus layer, reducing parasite damage
- Weight gain comparable, with lower feed conversion ratio (FCR)
- Trials in Seabass, Seabream & Tilapia, Milkfish (Asia) showed similar outcomes

Impact:

- Better fish health, improved product quality
- Reduced reliance on antibiotics

Shrimp | Vietnam, Netherlands, Belgium, China

Trial Summary:

- Species**: Litopenaeus vannamei, Penaeus monodon**
- Inclusion rate: **5% seaweed blend**

Key Outcomes:

- **+16%** improvement in FCR efficiency
- Reduced mortality rates by up to **40% (WSSV, Vibrio challenge tests)**
- Improved growth rate and overall survival
- Enhanced taste and market acceptability

Impact:

- Significant disease resistance gains
- Higher yield and improved product quality

SEAWEED ANIMAL FEED – TRIAL DATA

Swine | Canada, Netherlands, Ireland, USA, Vietnam, China

Trial Summary:

- Nursery and post-weaning trials; 0.6% inclusion rate

Key Outcomes:

- **+12.7%** improved FCR and **22%** reduction in mortality
- Comparable performance to AGP
- Reduced diarrhoea and improved gut health
- Trials confirmed consistency across breeds
- Economic gain: **$3.18 net profit** per pig

Impact:

- Reduced antibiotic dependency
- Improved animal health and commercial profitability

Poultry | Netherlands, Belgium

Trial Summary:

- **0.3% inclusion rate**; multiple trials measuring feed intake, FCR, and mortality

Key Outcomes:

- **+3%** improvement in FCR
- More uniform growth and lower rejection rates
- Reduced mortality and medication costs
- Healthier inflammatory markers and better feed efficiency

Impact:

- Increased farm-level profitability
- Sustainable alternative to antibiotic feed additives

Bovine | Netherlands, Ireland, USA

Trial Summary:

- **70g/day** seaweed blend in feed
- Monitored for milk yield, composition, and herd fertility

Key Outcomes:

- **+5%** higher milk yield with richer fat, protein, lactose content
- **+8.7%** increase in milk protein levels
- **+50%** improvement in herd fertility
- ROI: **€10,903** extra profit per 100-cow herd

Impact:

- Improved reproductive health
- Higher milk quality and productivity

Our most advanced seaweed farm - Lakshadweep

Hatchery

- **First** spore based and tissue culture based state of the Hatchery for Seaweed
- **USD 675,000** Government Funded
- TSC Purple Design , Installation and Operation.

01

Seaweed Network

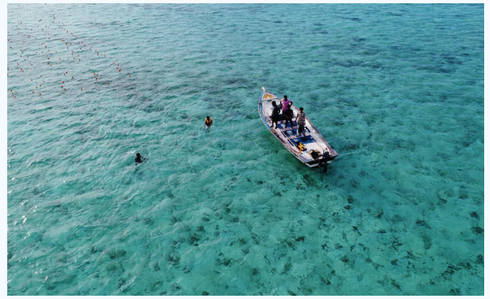
- **4 Islands with over 150K Sq km** area available for Seaweed Expansion
- **500** Fisher families Trained

02

Strains

- **New** Seaweed Strains
- Varying **Gel Strength**
- Multiple Native Species used as Food

03



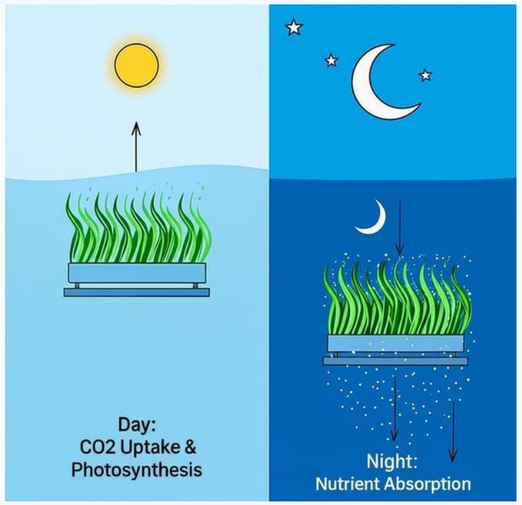
Nature Of The Island

- **100%** organic compliance
- **Next** to an Ocean Updraft
- Islands on top of a coral mountain

04

A CUTTING EDGE TECHNOLOGY FOR STORING AND FARMING SEAWEED

Depth Cycling



- Technology JV with **Mr. Eric Smith and Mr. Joseph Rauch**
- Deepwater irrigation that lowers and raises submersible seaweed platforms diurnally to enable nutrient uptake at depth and during the day photosythesise.
- Proves resilient to the most offshore conditions avoid storm damage.
- Shelter during bad Monsoon days
- More energy and cost effective using Fully Automated operated via Solar Panels.
- Internet and app enabled
- Web based command and control and Environmental monitoring.

The Seaweed Consortium

Thank you

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