

Attending

- Anna Petzen, Fresenius Kabi
- Ana Morão, Corbion
- Muhamad Diandra, Corbion
- Jean Louis Caradec, Pharma Marine
- Jenna Ritter, Nature's Way of Canada
- Simran Shergill, Nature's Way of Canada
- Laurel Sterling, Carlson Laboratories
- Ghasideh Pourhashem, LRQA/EcoEngineers
- Neil Leininger, Veramaris
- Apolline Boulaire, Olvea
- Stuart Monteith, MBP Solutions
- Bettina Buzzi, Fermentalg
- Marie Jane Fallourd, Fermentalg
- Alexia Regnard, Fermentalg
- GOED: Chris Gearheart, Ellen Schutt, Gabriela Cortez

Meeting agenda

- **[Action invitations]**
 - [Watch the call recording](#) and review the slides below the minutes.
 - Fill out [this one-question survey](#) about how often you would prefer Sustainability Committee meetings are held.
 - [Fill out this survey](#) from MarinTrust about assurances your customers want from certification labels.
 - Let Chris know (chris@goedomega3.com) if you think you should submit your company's 2025 sustainability survey response but haven't been invited.
- **Committee housekeeping**
 - New committee members
 - Anna Sanchez, Corbion
 - Ozan Oğul, EasyVit
 - Katarzyna Drlik, Natural Pharmaceuticals
 - Additional introductions during call:
 - Neil Leininger, Veramaris
 - Jean Louis, Pharma Marine
 - Anna Ian, Fresenius Kabi

-
- 2025 sustainability survey
 - Second industry-wide sustainability survey underway
 - Goal: one official response per company
 - About 40 responses so far; 11 business days left to preferred deadline
 - Contact chris@goedomega3.com if you should be the respondent and have not received it
 - Frequency of sustainability committee calls
 - Poll results: 25 percent prefer 4 weeks, about two thirds prefer 6 weeks, one response for 8 weeks
 - Likely move to six-week schedule after October 2025 call
 - Member sustainability kudos
 - Marine Stewardship Council partnered with Novotel on seafood certification
 - Austral Group launched new vessel Adriana for Peruvian anchoveta with fuel-efficient engine
 - Marin Trust announced new factory standard mandatory from May 2025 and requested member feedback on consumer-facing use of certification
 - Nippon Suisan (Nissui) highlighted climate change risks to Alaskan pollock operations
 - Aker BioMarine published a report on krill fishing history and sustainability management
 - Corbion contributed to European Algae Biomass Organization LCA guide, complementing GOED's omega-3 LCA guidance project
 - **Presentation**
 - Guest: Ana Morão, Corbion, Corporate Scientist Sustainability
 - Topic: Corbion's 2021 life cycle assessment (LCA) on the company's algal oil production
 - Key Points
 - Corbion is the largest producer of DHA through heterotrophic

fermentation of microalgae, offering a scalable supply not dependent on marine fish.

- Production relies on sugarcane feedstock and controlled fermentation tanks, which allow consistency in quality and year-round production.
- The company highlights alignment with three UN Sustainable Development Goals:
 - Zero Hunger: meeting global nutritional needs for a growing population.
 - Good Health and Wellbeing: ensuring reliable omega-3 sources for human and animal nutrition.
 - Responsible Consumption and Production: focusing on efficient energy use, reduced waste, and climate targets.
- Two main product lines were presented:
 - AlgaPrime DHA for aquaculture feed, already adopted widely in salmon farming.
 - AlgaVia for human nutrition, positioned as vegan and sustainable.
- Product formats include powders, oils, and liquid suspensions to allow blending and formulation flexibility.
- The 2021 life cycle assessment (LCA) was undertaken to:
 - Provide quantitative evidence of sustainability claims.
 - Understand environmental hotspots in production.
 - Benchmark algal oil against fish oil.
- Methodology details:
 - Compliance with ISO 14040, 14044, and ISO 14067.
 - Scope: cradle-to-gate (from sugarcane cultivation to packaged product leaving the facility).
 - Economic allocation applied between fishmeal and fish oil in comparisons.
 - Databases: Agri-footprint for agriculture, Ecoinvent for other

processes.

- Main findings:
 - Lower carbon footprint per kilogram DHA compared to average fish oil values.
 - Higher land use intensity due to sugarcane farming.
 - Water use results varied significantly depending on database assumptions.
 - Other categories (acidification, particulate matter, eutrophication) showed mixed results, with algae sometimes better and sometimes worse than fish oil.
 - Standard LCA impact categories do not account for depletion of marine resources, which may understate the benefit of algae-based oils.
 - The study underwent third-party review and was published in a peer-reviewed journal to ensure transparency and credibility.
- Next steps include:
 - Updating assessments every five years or sooner as processes change.
 - Improving efficiency through strain development and process optimization.
 - Incorporating biodiversity-related indicators.
 - Continued collaboration with industry groups, including GOED's LCA methodology project, to harmonize allocation rules, impact variables, and boundaries.
- **Discussion / Q&A**
 - Questions focused on methodological choices, particularly allocation between fishmeal and fish oil. Clarification was given that economic allocation was applied, with impacts divided based on production volumes and relative economic value of fishmeal and fish oil.
 - Water use results prompted questions, as some datasets showed fish oil with

unexpectedly high water impacts. Explanation was that variation likely stems from differences in how databases classify water types such as blue water, green water, and rainwater. Recognition followed that harmonization is needed for more reliable comparison.

- Questions were also asked about sugarcane cultivation modeling. Corbion used Agri-footprint datasets but supplemented these with extensive primary supplier data. Discussion highlighted the major influence of agricultural inputs on overall impacts, emphasizing the importance of robust supply chain data.
- Observations were made about variability in fish oil databases. Members noted that published fish oil data ranges widely depending on geography, processing, and assumptions. This complicates direct comparisons and underscores the need for consistent reference databases.
- Comments were raised on the inclusion of additional impact categories. Participants suggested biodiversity and marine ecosystem depletion should be incorporated into future studies. Agreement followed that standard LCA methodology does not yet adequately capture these dimensions.
- Discussion turned to frequency and updates. Corbion confirmed LCAs are typically refreshed every five years, in line with best practice for data quality. Ongoing digitalization efforts may allow more frequent updates in future.
- Participants welcomed Corbion's transparency in publishing its LCA and sharing methodological details. Several emphasized the importance of industry-wide standardization to prevent disputes over scope, boundaries, and allocation. GOED's LCA methodology guidance project was highlighted as a venue for developing shared practices.
- Broader reflection noted that exposure to each other's LCAs often leads to recurring questions about allocation, impact variables, and boundaries. General agreement was reached that a standardized framework will improve comparability and reduce confusion.
- Looking forward, October's call with the Global Feed LCA Institute (GFLI) will build on this discussion by introducing another source of reference data.

Members were encouraged to attend if interested in database harmonization and comparative data for feed and oil ingredients.

- **Next Committee Calls**

- October 15, 2025 | [[Click for your local time](#)]
 - Guest: [The Global Feed Lifecycle Assessment Institute](#) (GFLI)
 - Topic: GFLI as a database of LCA data for crude fish and other oils

GOED Sustainability Committee Call

Main Topics: Corbion's Life Cycle
Assessment

September 17, 2025

Agenda

- **Committee housekeeping**
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 - Ozan Oğul, EasyVit
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 - 2025 sustainability survey
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 - Member sustainability kudos
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Sustainability survey



2025 Sustainability Survey

GOED is currently conducting its second survey of the category's sustainability posture, an extension of our goal to benchmark ongoing progress. The first survey was conducted in 2021 and yielded some of the findings presented in [this presentation from GOED Exchange 2022](#).

[Note: While we request that respondents identify themselves, the results will be shared in aggregate only. If you are willing but only able to respond to this survey anonymously, [please contact Chris Gearheart](#)]

* 1. Company and Respondent

Company name

Respondent name

Respondent's title

Respondent's email

Committee call frequency

Sustainability Committee Call Frequency

Anonymous • 1 question



1. I would prefer committee meetings to happen every...

- ☐ Four weeks (the default)
- ☐ Six weeks
- ☐ Eight weeks

By responding to this survey, you agree to [Zoom's Privacy Statement](#) and [Terms of Service](#).

Submit

 Who can see your responses?

Member kudos

Marine Stewardship Council (MSC)

Novotel, with nearly 600 hotels worldwide, has partnered with the World Wildlife Fund (WWF) to launch Sustainable Seafood Principles, banning 350 endangered species and ensuring all wild-caught seafood is GOED member [Marine Stewardship Council](#) (MSC)-certified or locally sourced.

[Read on »](#)

AUGUST 4, 2025

600-unit hotel chain Novotel outlines plans to up sustainable seafood sourcing



Christine Blank published in [Environment & Sustainability](#)



Member kudos

Austral Group

GOED member [Austral Group](#) added a new vessel, the “Adriana,” for anchoveta fishing, featuring a 508 m³ capacity and low-consumption engine technology to boost efficiency and sustainability. [Read on »](#)



Member kudos

MarinTrust

MarinTrust has rolled out its upgraded Factory Standard Version 3, now mandatory for all audits as of May 2025. The standard strengthens rules on environmental management, labor rights and traceability, while promoting by-product use to cut waste and ease pressure on wild stocks.

[Read on »](#)



Photo: IFFO

MarinTrust pushes ahead with new fishmeal and fish oil standard

27 August 2025

by Editorial Staff

MarinTrust reports progress on Version 3 marine ingredient standard.

MarinTrust, the London-based certification body for marine ingredients such as fishmeal

Member kudos

Maruha Nichiro

GOED member [Maruha Nichiro](#) warned that climate change threatens its Alaska pollock operations in the Bering Sea, potentially cutting revenue by up to JPY 6 billion (US\$41 million, €32.5 million) by 2050.

[Read on »](#)

Maruha Nichiro warns climate change could cut Alaska pollock sales by up to \$41m

The Japanese seafood giant has warned that rising sea temperatures in the Bering Sea could shrink pollock resources by more than 10% by 2050, translating into potential sales losses of up to JPY 6bn

By Masahiko Takeuchi | Sept. 2, 2025 00:13 BST



Alaska's pollock on display at the 2024 Seafood Expo North America in Boston. Photograph by Masahiko Takeuchi

Related

South Korea's Dongwon to ramp up overseas pet food capacity, eyes Starkist Samoa hub



Maruha Nichiro to close aging Hokkaido Mori plant amid efficiency drive



Nissui sets 2030 goal to lift farmed salmon, tuna, yellowtail output above 80,000t



Rodger May's acquisition of Peter Pan assets appealed to higher US court



Colombia's tuna exports to US, Europe to speed up with 60% shipping time cut



Critics say Nova Scotia's mapping tool is green light for open-net salmon farming

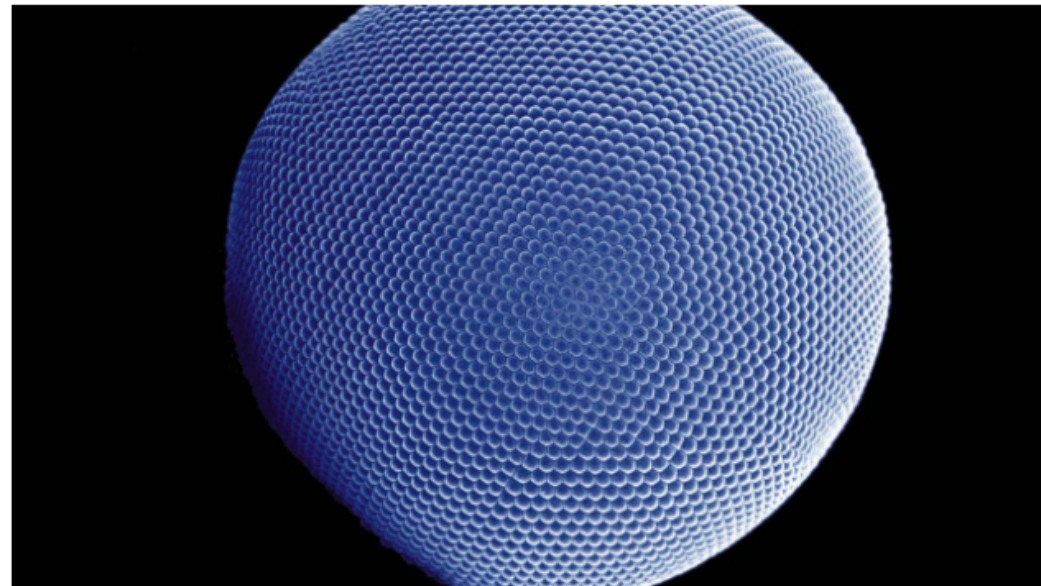


Member kudos

Tharos

GOED member [Tharos](#) has released a report detailing the history of krill fishing from 1973 to the present, and urging a conversation about policymaking at the upcoming 2025 Hobart CCAMLR meeting.

[Read on »](#)



Euphausia superba Dana eye

Antarctic Krill Fishery – 50 Years of Data-Driven Insight. Is a Change of Policy Coming on Catch per Trawler?

Member kudos

Corbion

Last month, **the European Algae Biomass Organization (EABA), including Corbion, published a report on the life cycle assessment of algal products**, a step-by-step guide to algal LCAs for related stakeholders that have limited or no experience in the methodology. This report and others, along with interviews with key omega-3 stakeholders, will inform a similar resource commissioned by GOED and currently under development.

[Read on »](#)

Published August 21, 2025 | Version v1

ReportOpen

Life cycle assessment of algal products: A step-by-step guide to application

Braud, Léa (Project manager)¹  ; Gallardo Rodriguez, Juan (Project member)²  ;
Rajaonison, Andriamahefasoa (Project member)³  ; Schelte, Nora (Project member)⁴  ;
Mangini, Silvio (Project member)¹  ; Bernard, Olivier (Project member)⁵  ;
Pedra, Igor (Project member)⁶  ; Monteiro, Laura (Project member)⁶  ;
Costa, Luis (Project member)⁶  ; Speranza, Lais (Project member)⁷  ;
Bălița, Karina (Project member)⁸  ; Bradley, Tom (Project member)⁹  ;
Morão, Ana (Project member)¹⁰  ; Kliphuis, Saskia (Project member)¹⁰  ;
Nyvall, Pi (Project member)¹¹  ; Jamois-Piquet, Mathilde (Project member)¹¹  ;
Schmid, Stefan (Project member)¹²  ; Chami, Ismail (Project member)¹²  ;
Perignon, Carole (Project member)¹³  ; Pierre, Ronan (Project member)¹⁴  ;
Ras, Monique (Project member)¹  ; Verdelho, Vítor (Hosting institution)¹  ;
Cadoret, Jean-Paul (Hosting institution)¹  ; Unamunzaga, Carlos (Hosting institution)¹ 

Hide affiliations

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- **Next Committee Calls**



SUSTAINABILITY

Putting preservation into action

Putting preservation into Action

Introduction to Corbion

Introduction to AlgaPrime™ and Algavia™ DHA

Life Cycle Assessment AlgaPrime™ DHA

Preserve what matters

Global sustainable specialty ingredients company with unique technology platform

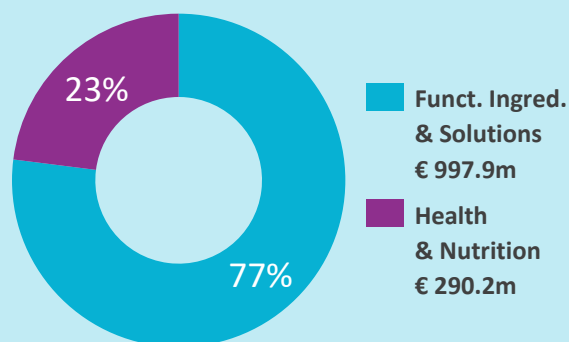
€1.3bn
net sales

€175m
Adjusted EBITDA

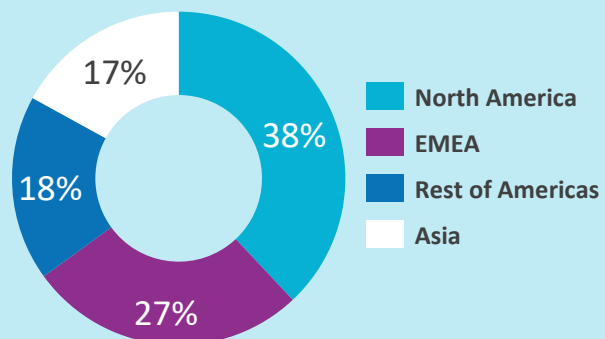
2,399
Employees

Key figures (2024)

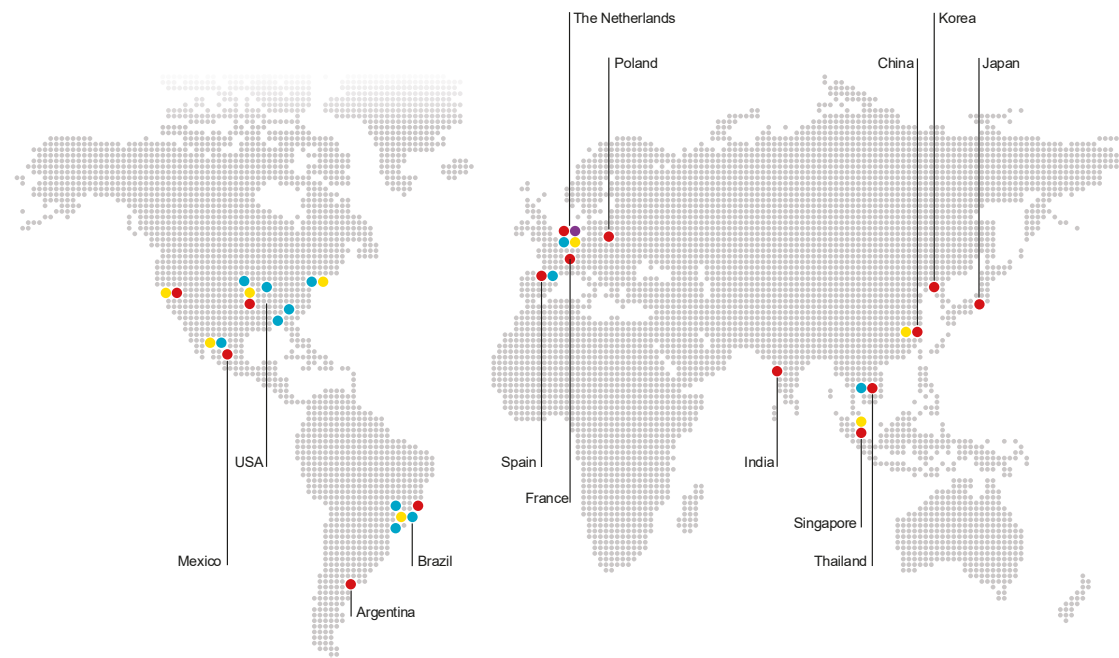
NET SALES



NET SALES PER REGION



● Corbion Headquarters ● Corbion Production Location ● Corbion Sales Office ● Corbion Innovation Center



- Largest producer of lactic acid with global footprint
- **Largest producer of Omega-3 DHA by heterotrophic fermentation of microalgae**
- Leading market positions in sustainable food solutions
- Unique technology platform: fermentation
- 14 manufacturing facilities, 8 innovation centers, and sales offices across the world

How Corbion preserves what matters

Portfolio aligned to SDGs



We help preserve
> 8 million tons of
food globally

AlgaPrime DHA
enables sustainable
aquaculture growth
to **feed 10 billion**
people by 2050



Our **sustainable**
food ingredients
help **control food-**
borne pathogens.

Resorbable
orthopedic implants
reduce follow-up
surgery which
improves health care
affordability



We are committed
to **1.5°C science-**
based targets and
net-zero by 2050

Bioplastics
produced from
renewable resources
are key to **decouple**
plastics from fossil
feedstocks

How Corbion preserves what matters



WE CARE FOR PEOPLE

- Create a **safe** and healthy workplace with **zero incidents**
- **Develop** all our people to unleash their potential
- Become a more **diverse** and **inclusive** organization
- Respect **human rights** and labor standards for our own people and in our supply chain



WE ARE COMMITTED TO REDUCE OUR FOOTPRINT

- Transition to **100% renewable electricity** by 2025
- Reduce our GHG emissions in line with **1.5°C** and **achieve net zero by 2050**
- Reduce our impact on **water** resources
- **Eliminate landfill** of waste by 2030



WE HAVE THE COURAGE TO BE A FRONTRUNNER

- **We show that it can be done:** grow the business while reducing our footprint
- Top scores for **Ecovadis** and **CDP**



WE COLLABORATE TO CREATE MORE IMPACT

- We **enable** our customers to reduce their footprint
- We **partner** with our **key raw material suppliers** to achieve targeted Scope III reductions

Putting preservation into Action

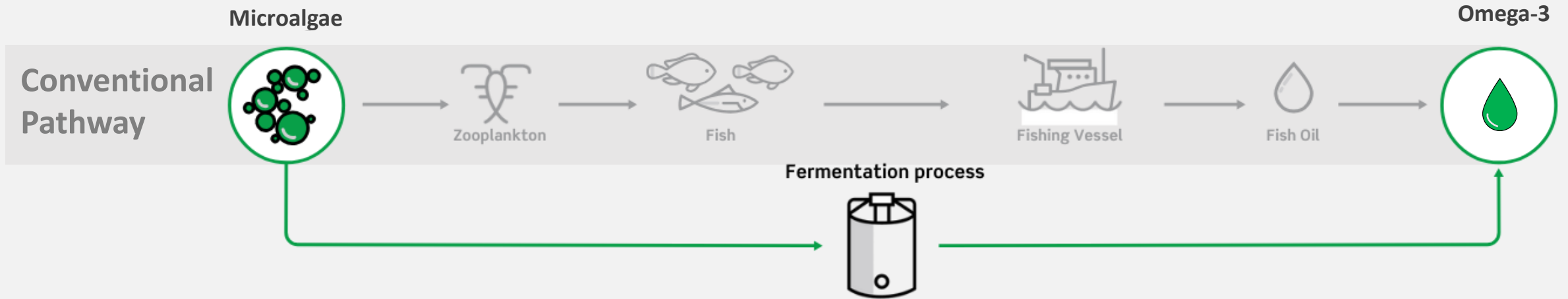
Introduction to Corbion

Introduction to AlgaPrime™ and AlgaVia™ DHA

Life Cycle Assessment AlgaPrime™ DHA

Preserve what matters

Taking the “middle fish out” to deliver Omega-3



AlgaPrime™ by Corbion **AlgaVia™** by Corbion

- INTRODUCTION ALGAPRIME™ DHA & ALGAVIA™ DHA

Algae-derived Omega-3 DHA available in multiple forms for diverse market needs

Designed to fit the needs of our customers in aquaculture, livestock, pets and human applications



Powder



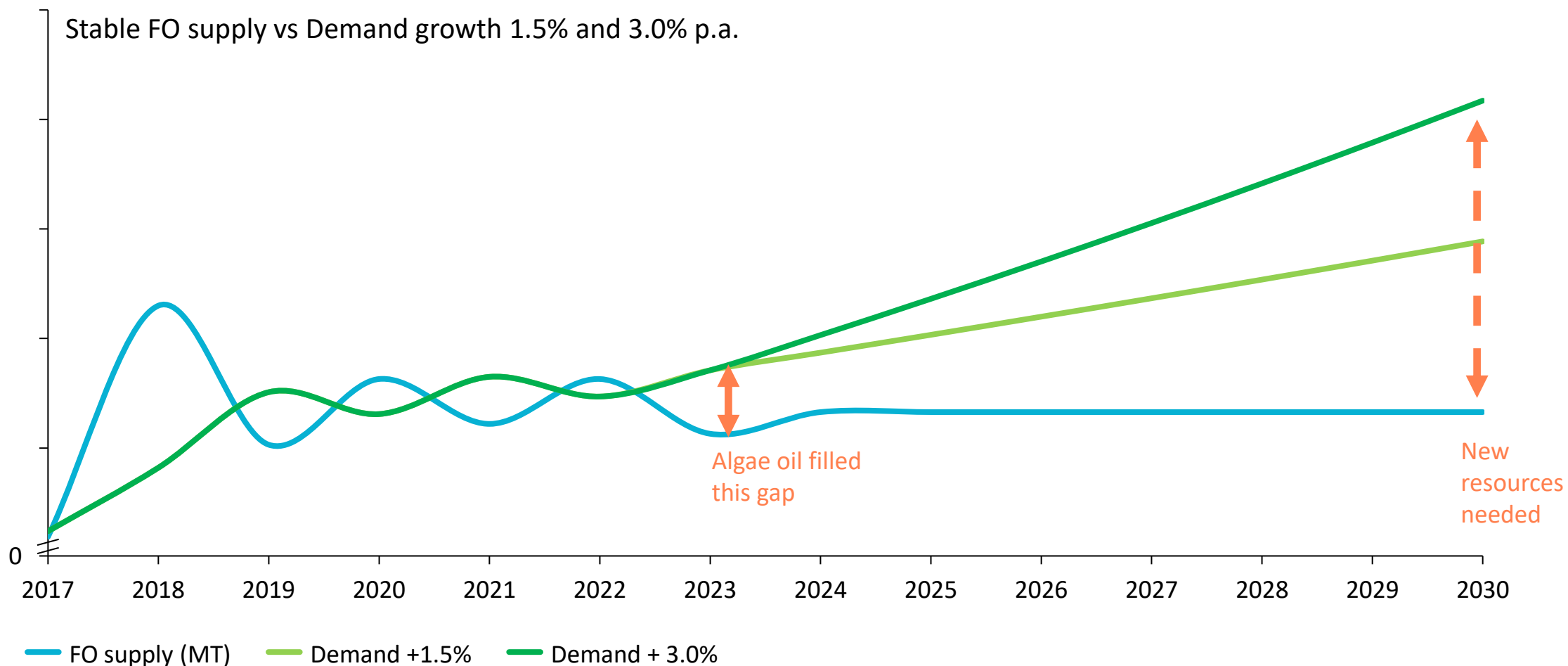
Liquid suspension



Crude oil

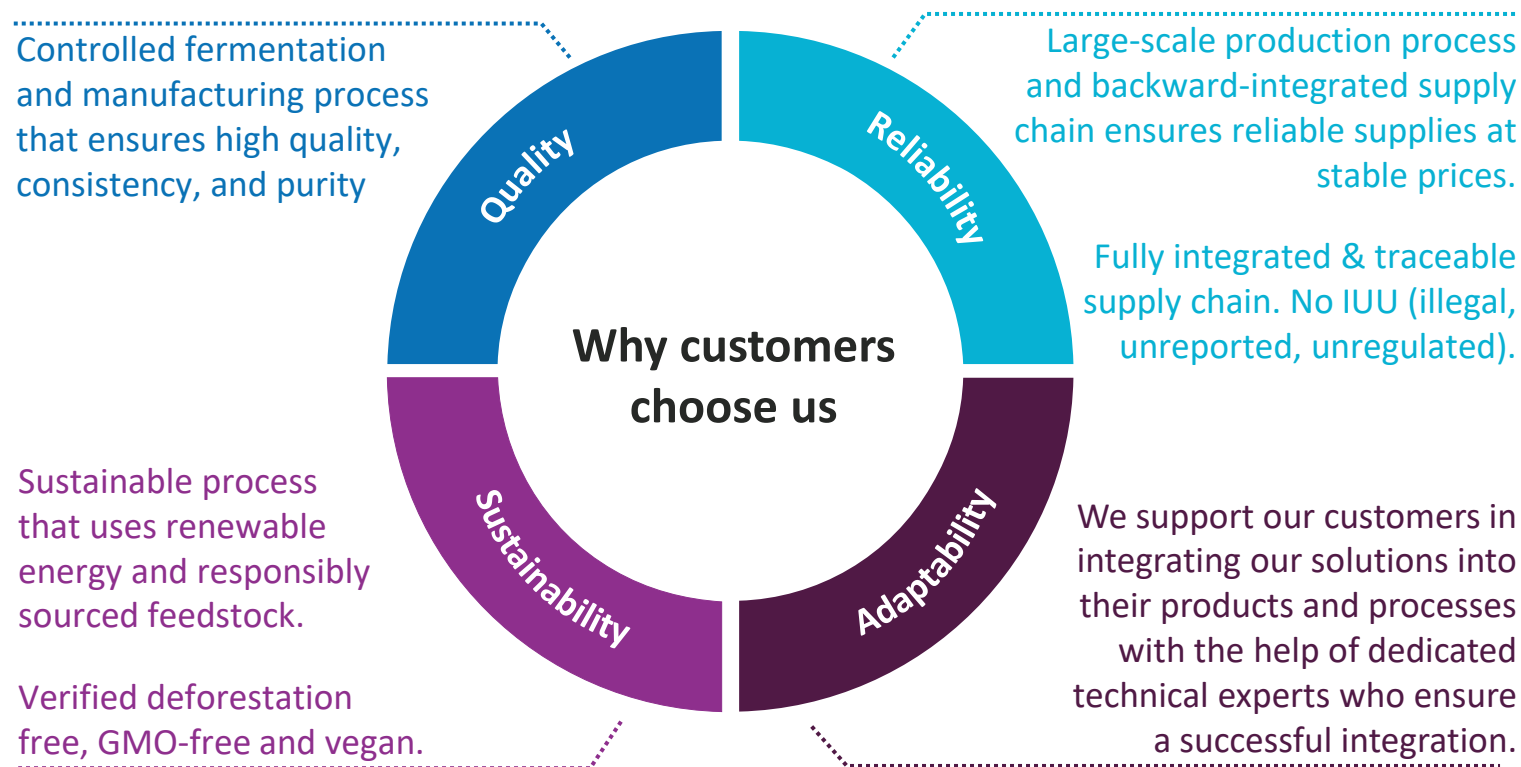
As demand grows, so does the gap between sources of Omega-3s

Sustainable alternative sources are needed to build resilient supply chains



Corbion is market leader in algae-derived Omega-3 DHA

Our Omega-3 DHA ended up in over 4,000 million tons of feed, food and nutraceutical applications



Algae oil is a complement to fish oil – blending oils allow brands to maintain on pack claims and ensure sustainable supply.

- leading oil refiner

DHA from fish oil or from algae is the same thing for us – analytical/chemical speaking. We want to have a fair and stable price with a partner that can guarantee sustainability and supply security.

- leading oil refiner

Putting preservation into Action

Introduction to Corbion

Introduction to AlgaPrime™ and Algavia™ DHA

Life Cycle Assessment AlgaPrime™ DHA

Preserve what matters

LIFECYCLE ASSESSMENTS AT CORBION

Measuring what matters

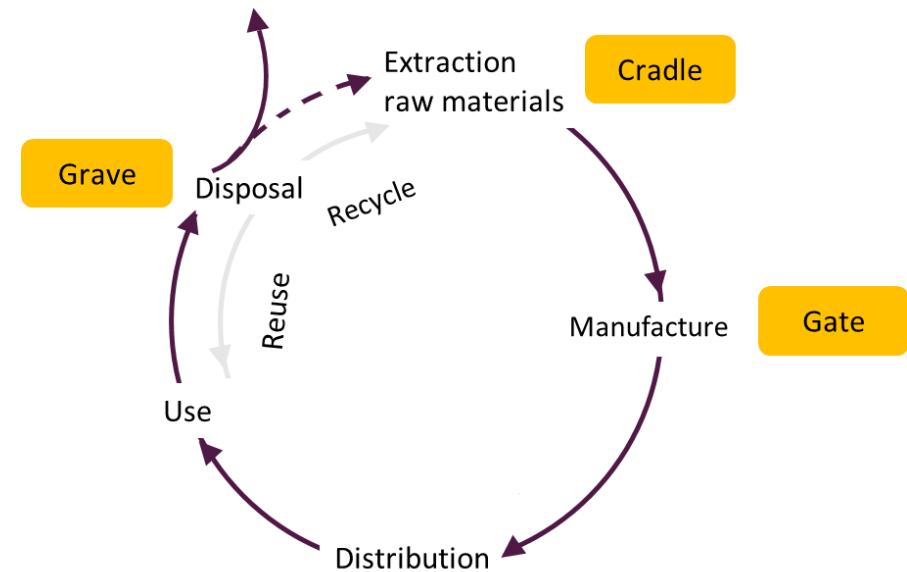


Life Cycle Assessment of our products and processes

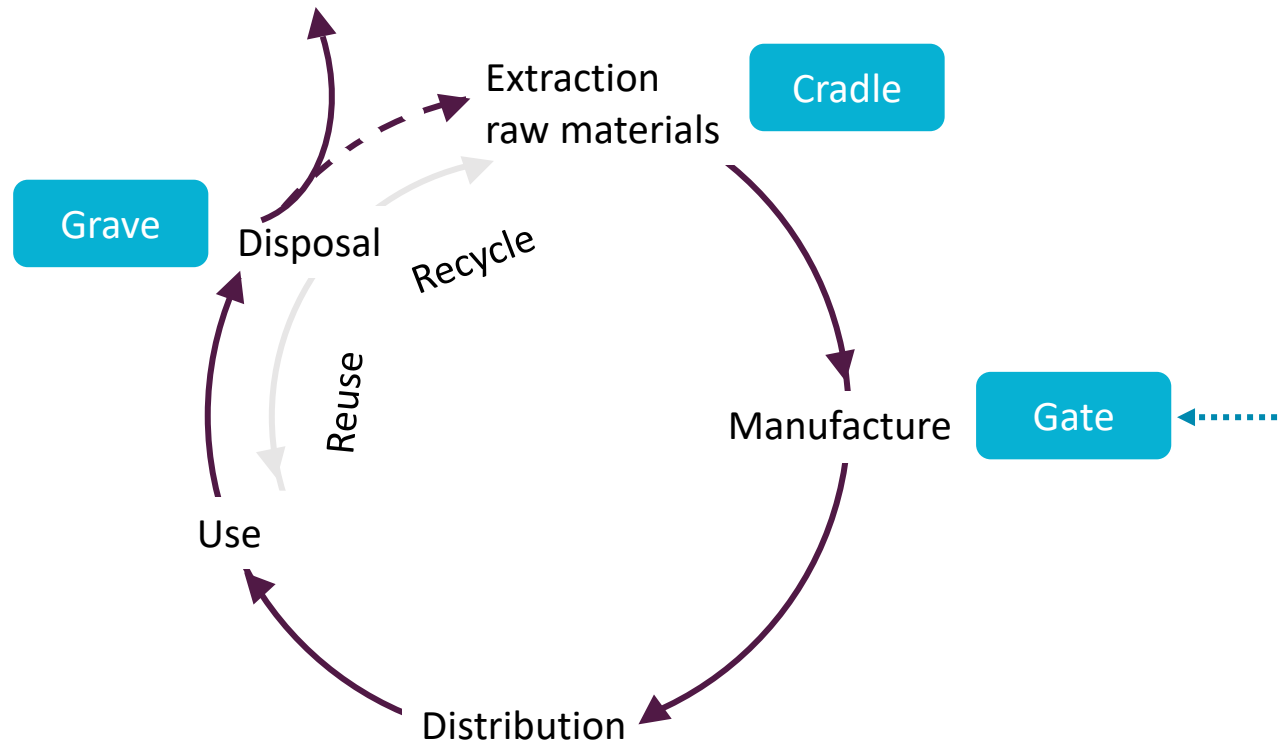
Corbion uses Life Cycle Assessments (LCA) as a tool to understand the environmental impacts of a product from the extraction of resources to their use and end of life

To support carbon footprint labeling for our customers, we have conducted LCAs for 92% of products

LCAs comply with ISO 14040/44



We measure what matters and share insights with customers promoting sustainable growth



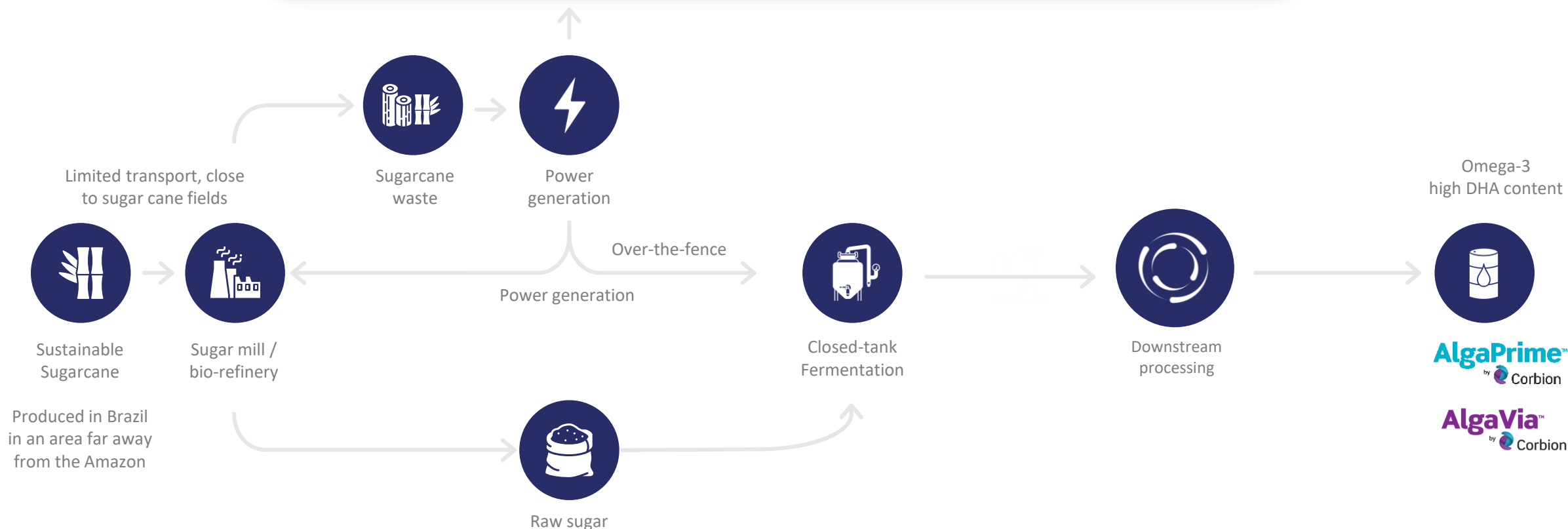
Life Cycle Analysis of AlgaPrime™ DHA

- Understand and quantify environmental footprint of AlgaPrime DHA Biomass and Liquid Suspension
- Compare 1 kg of omega-3s from AlgaPrime and fish oil
- Economic allocation (PEFCR)

**Cradle-to-gate LCA of AlgaPrime DHA according to ISO 14040/44
and ISO 14067 (2021)**

A revolutionary production process producing algae-derived Omega-3 DHA

Production algae omega-3 DHA: Corbion has created a process that is highly sustainable





Since 2019,

100%

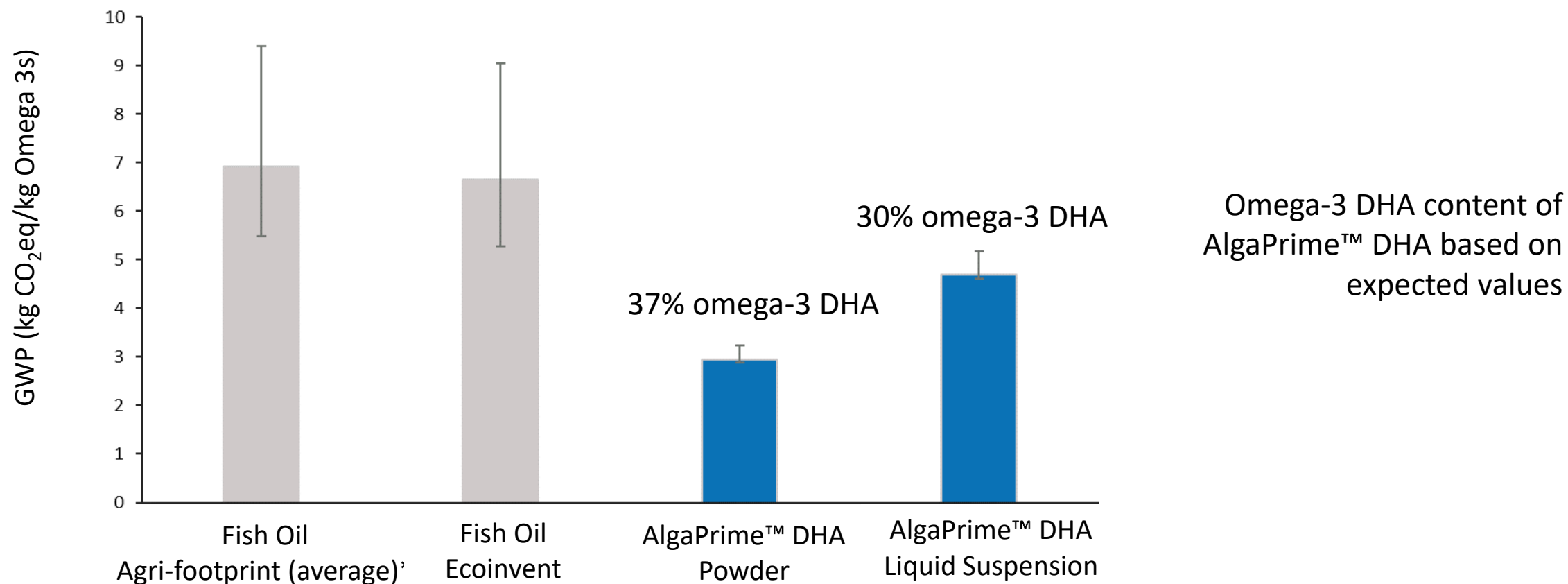
of our cane sugar supply
is covered by the code
or is Bonsucro certified.

The sugar used to produce AlgaPrime™ DHA is responsibly sourced according to the Corbion Cane Sugar Code

- Extension of Corbion supplier code including additional principles and criteria around land rights, good agricultural practices and biodiversity.
- Based on the definitions for sustainable sugar cane and derived products as set out by Bonsucro.
- If our direct suppliers are not involved in sugar cane farming, we expect them to implement farming-related principles with farmers they source from.

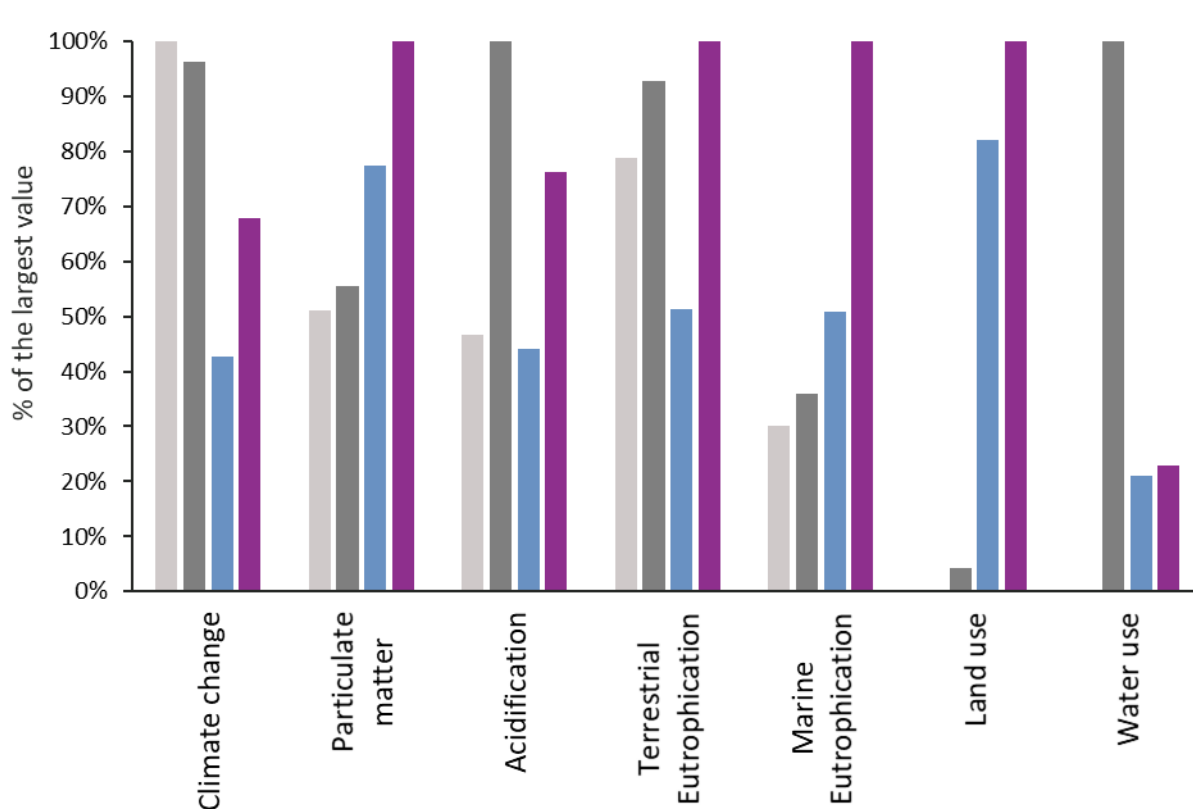
Omega-3 DHA from AlgaPrime™ DHA has a lower GWP than average fish oil

Fish oil: large uncertainty related to omega-3s content (average 19%), and fuel used in FMFO plant



Other environmental impact categories

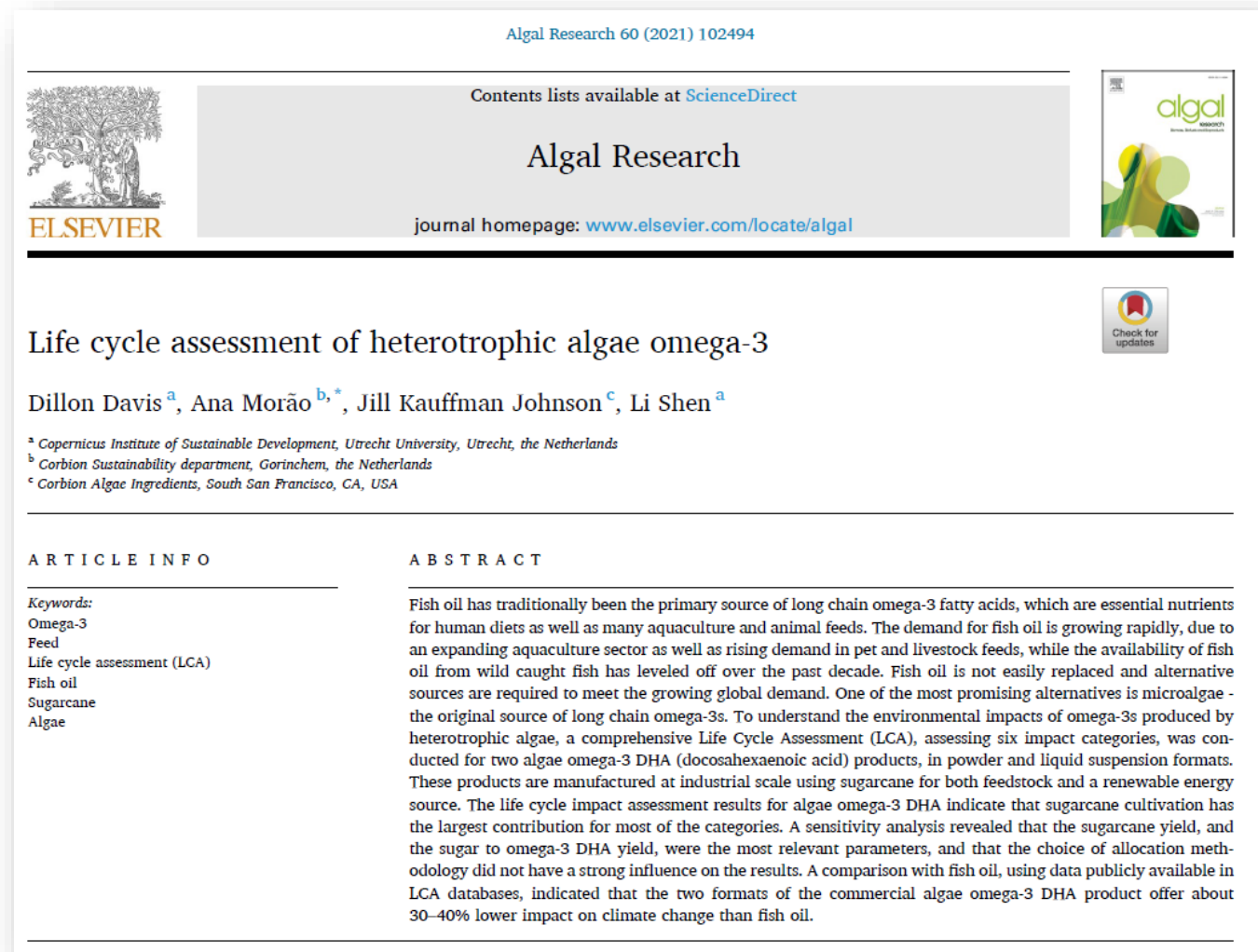
Trade-offs in agricultural related impacts: land use, eutrophication, particulate matter



- Fish Oil Ecoinvent
- Fish Oil Agri-footprint (average)
- AlgaPrime Powders
- AlgaPrime DHA Liquid Suspension

Impact categories based on Feed PEFCR
Depletion of marine resources is not included in any LCA impact category

The AlgaPrime™ DHA life cycle assessment is ISO 14044/44 compliant and was published in Algal Research in Sept. 2021



Summary and what's next

Summary

- Corbion is a global sustainable specialty ingredients company and market leader in Omega-3 DHA
- Omega-3 DHA from AlgaPrime™ DHA has a lower carbon footprint than alternative sources
- Trade-offs in agricultural related impacts
- The allocation choices do not affect the overall conclusion

What's next?

- Continuous improvement in process efficiency and new strains with higher omega-3 yield
- Include marine and terrestrial biodiversity aspects in comparison
- Update LCA planned for 2025

Let's work together to build sustainable and resilient supply chains

LCA Data sources and main assumptions

AlgaPrime	Fish oil
Primary data, based on calculations for full production	Secondary data: average from fish oil datasets from database Agri-footprint v5 and the global market for fish oil from anchovy from database Ecoinvent v3.6**
Sugar from sugarcane, steam and electricity from bagasse: primary data from the sugar mill, data gaps based on Agri-footprint v5	
DLUC*: assume zero based on satellite imagery (cut-off 1999), see next slide	
Sugar mill co-products: economic allocation	Fish meal Fish oil plant (FMFO) co-products: economic allocation
Vegetable oil: Agri-footprint v5	

*DLUC – Direct land use change

** Based on Fréon et al (2017) <https://doi.org/10.1016/j.jclepro.2017.01.036>



—• Ana Morão



a.morao@corbion.com



Corbion.com



Agenda

Next Committee Calls

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 - Guest: [The Global Feed Lifecycle Assessment Institute](#) (GFLI)
 - Topic: GFLI as a database of LCA data for crude fish and other oils

Thanks for joining us.