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Perceptions, sources and the evolving role of long-chain Omega 3s in pet nutrition.

Julian Pietrzyk - Technical Product Manager

The consensus is that Omega 3s matter... but do we understand them?

Omega 3s are widely used for supporting:

- skin
- joints
- cognition
- brain
- heart
- inflammation

But:

- inconsistent understanding
- inconsistent delivery

We have adoption without precision

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Why this matters?

- Reliable delivery of functional nutrition, better health for pets
- Premiumisation of pet food
- Functional ingredients under scrutiny, meeting the consumer promise
- Sustainability pressure

Omega 3 is now a formulation-critical decision, not a marketing add-on

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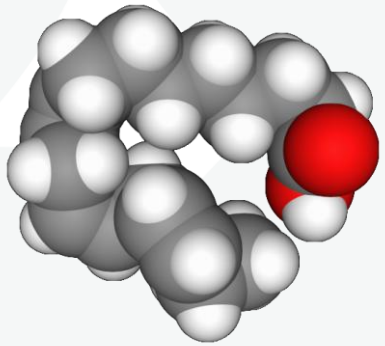
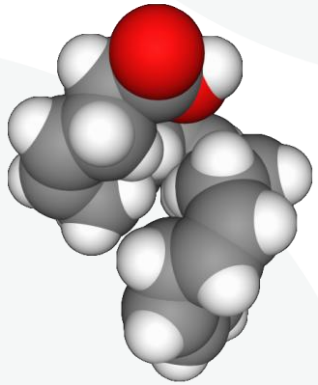
What are Omega-3 fatty acids?



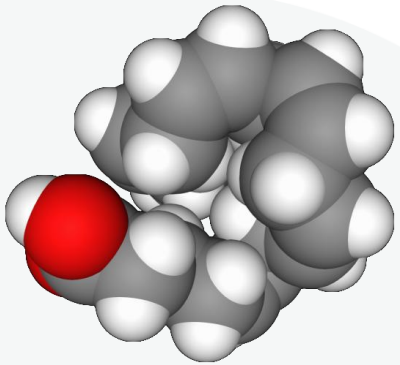
ALA

alpha-linolenic acid



DHA

docosahexaenoic acid



EPA

Eicosapentaenoic acid

- Polyunsaturated Fatty Acids (PUFAs) with a double bond at the n-3 (Omega 3) position
- Essential components of cell membranes
- Precursors to bioactive lipid mediators
- Play key roles in physiology

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Not all Omega 3s are equal - Functional roles

ALA	EPA & DHA	
Energy	Inflammation	Brain
Cell function	Immune signalling	Retina
	Joint health	Cognition

ALA is “essential” because animals cannot make Omega 3 fatty acids themselves.

However, being essential does not mean it is sufficient. The functional benefits we associate with Omega 3 nutrition come primarily from EPA and DHA.

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Not all Omega 3s are equal

ALA → EPA → DHA

Grouped together,

but functionally different

Conversion rates:

Dogs: ALA → EPA: <10%
Dogs: ALA → DHA: <1–2%
Cats: effectively negligible
*DPA → EPA: ~30%

ALA is not a reliable source of DHA

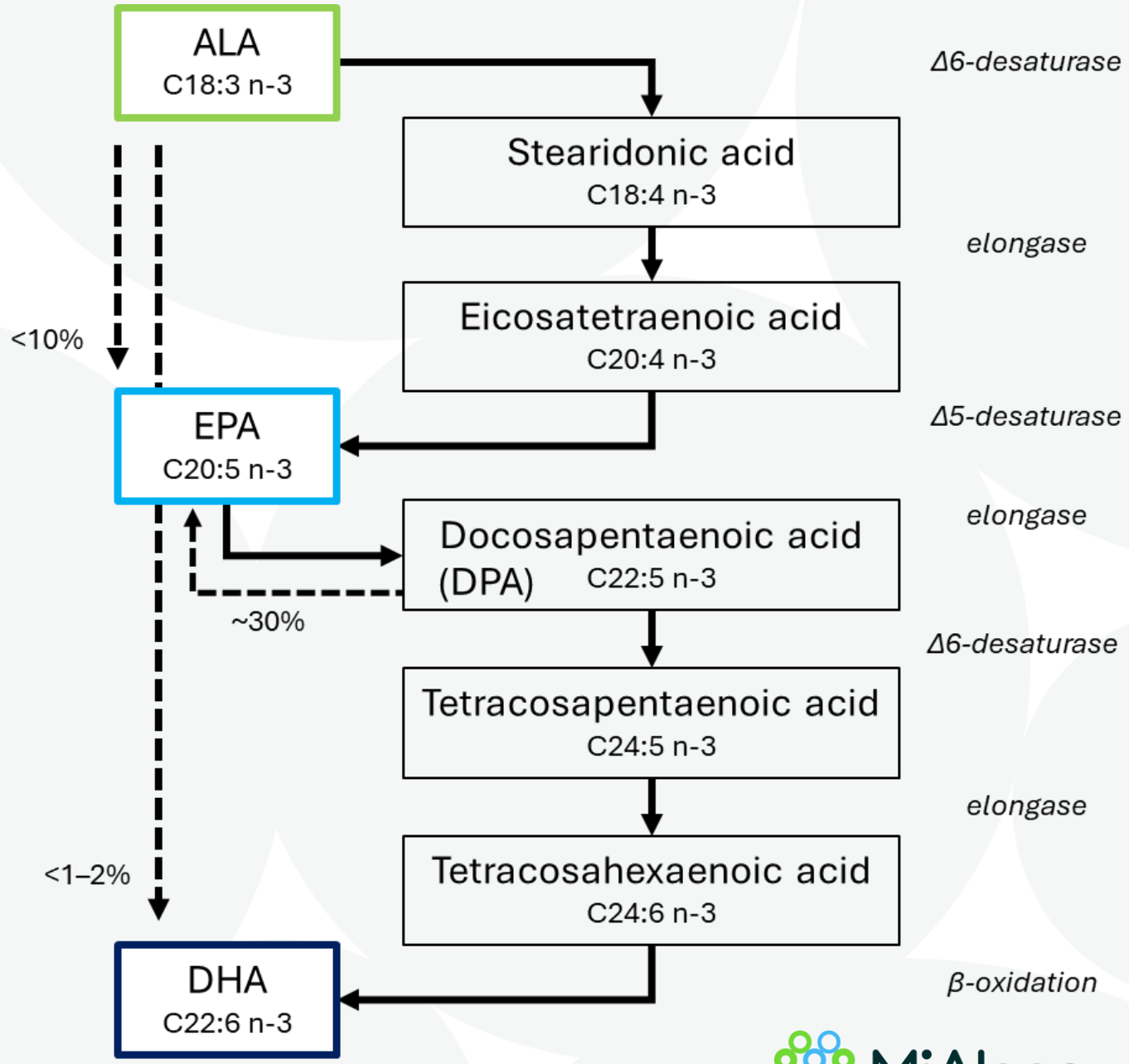

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Image modified from: Lenihan-Geels, G., Bishop, K. S., & Ferguson, L. R. (2013). *Alternative Sources of Omega-3 Fats: Can We Find a Sustainable Substitute for Fish?* Nutrients, 5(4), 1301-1315.

Total Omega 3 ≠ functional Omega 3

- Label is not reflective of the biological effect
- Omega 3 form matters more than total %

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London Vet Show 2025 survey

- 100 × vets
- 2 × days
- 14 × questions
- 1 × iPad

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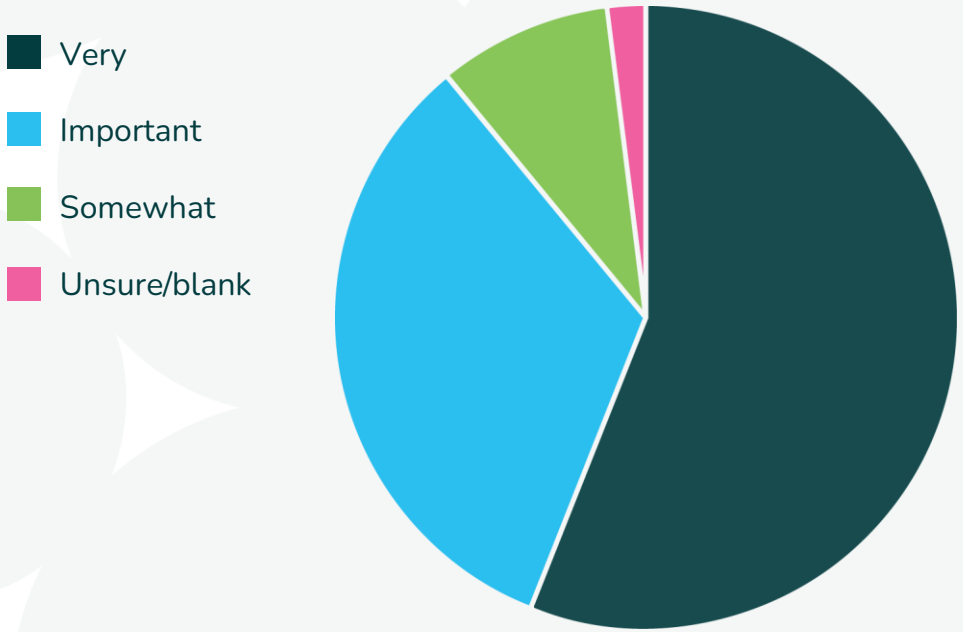
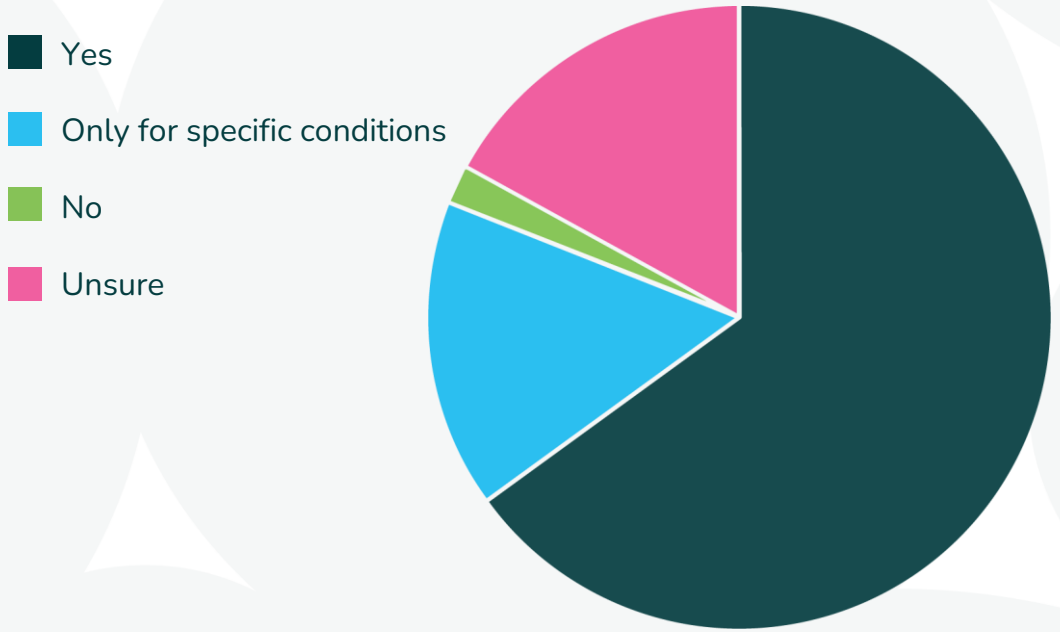
Strong clinical recognition of Omega 3 importance

How important do you consider Omega 3 supplementation in companion animal health?



In your opinion, should companion animal diets provide a defined daily intake of long-chain Omega 3 fatty acids (DHA and EPA)?



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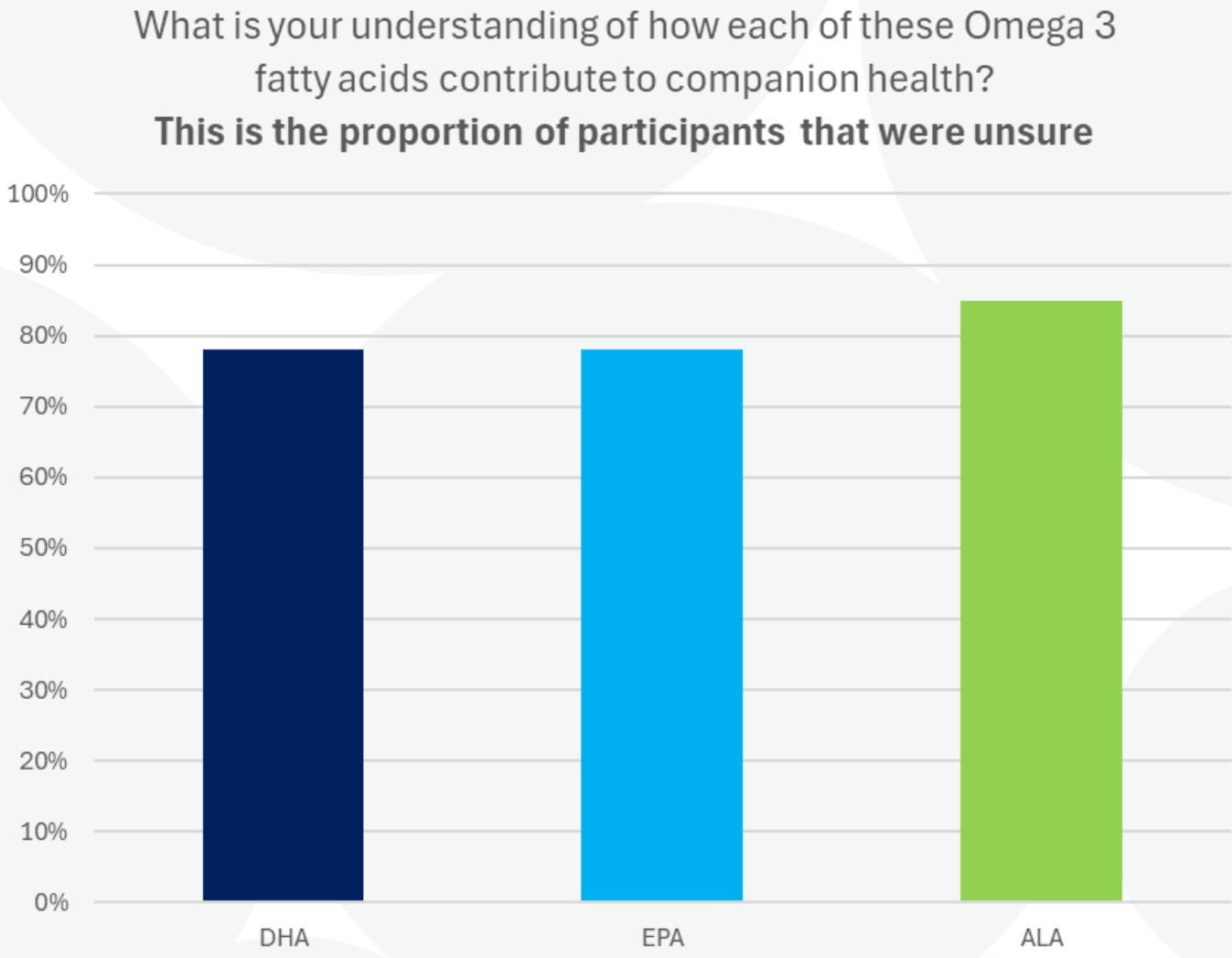
A clear knowledge gap

Despite 66% recognising the need for EPA/DHA ...

~80% are unsure of the difference



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Guideline uncertainty

Are current recommendations sufficient?

- minimum deficiency prevention
- optimal health, longevity, prevention of chronic conditions[1]

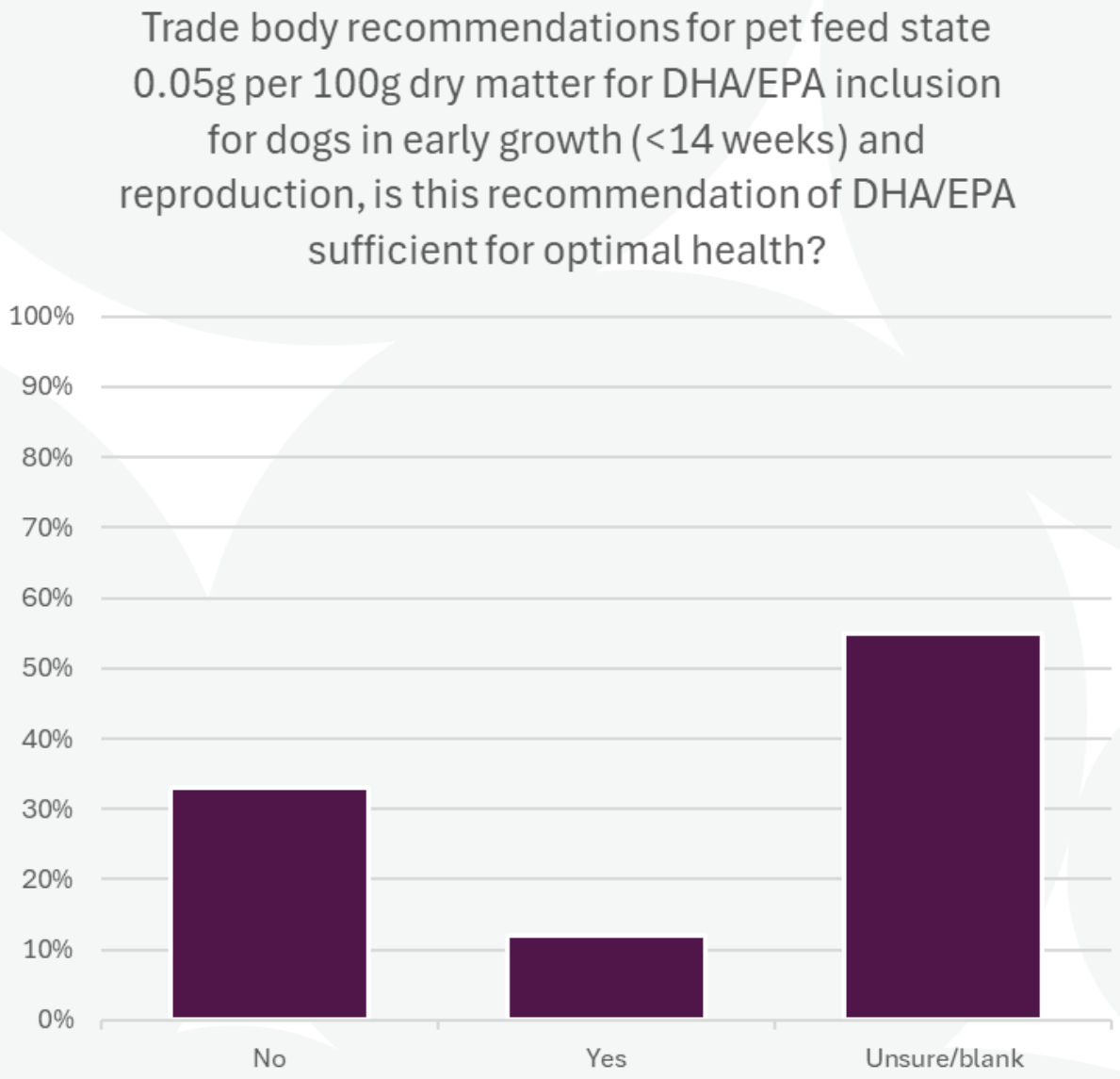
Scientific literature:

~0.28 to 0.56 g per 100g DM

For therapeutic uses[2]

Gap between guidelines and research

Opportunity for "better than minimum" positioning



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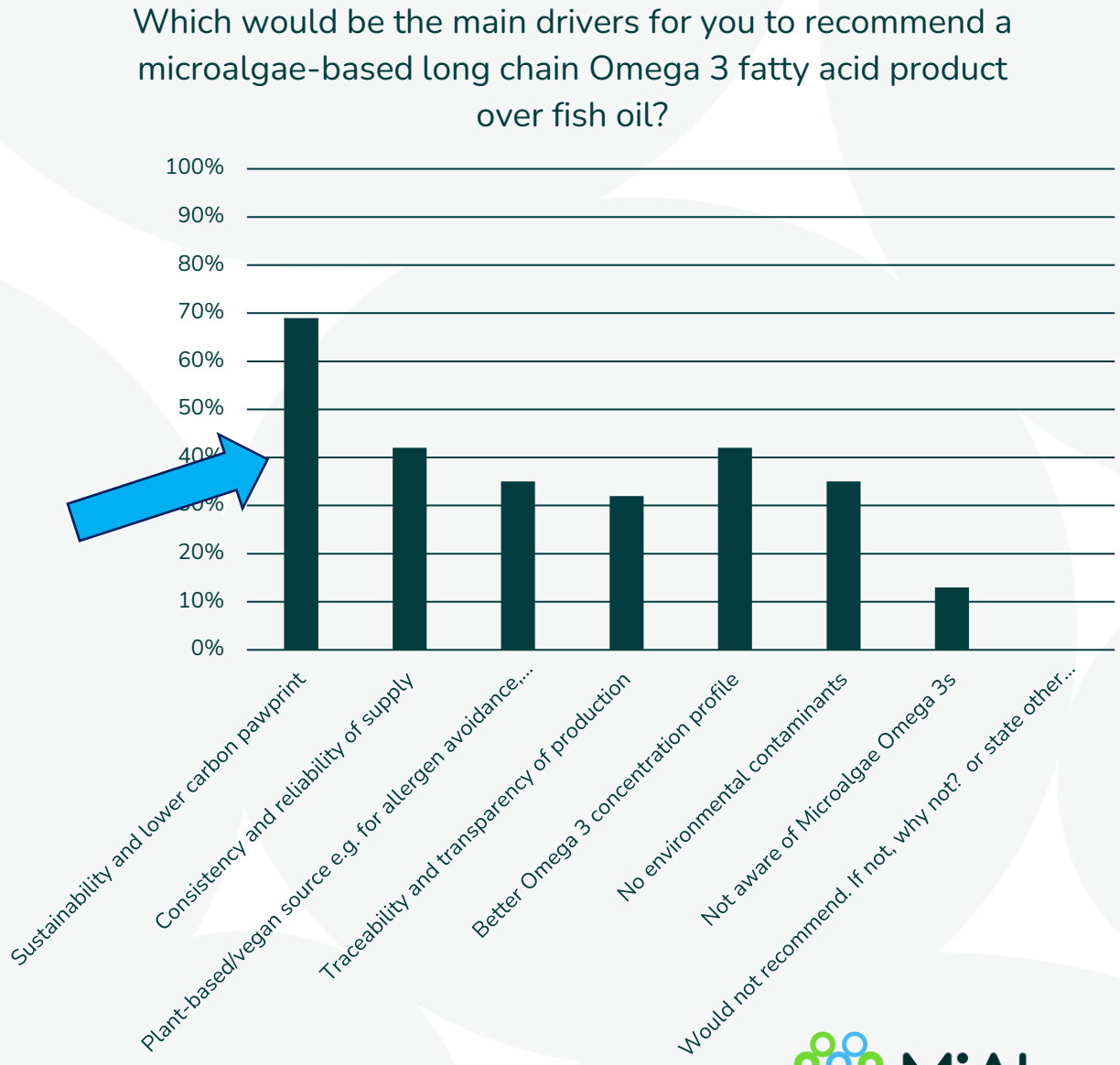
1. Bauer J. E. (2016). *The essential nature of dietary omega-3 fatty acids in dogs*. Journal of the American Veterinary Medical Association, 249(11), 1267–1272.
2. Vendramini, T.H.A., Marchi, P.H., Olivindo, R.F.G., Pedrinelli, V., Amaral, A.R., Miranda, M.S., Príncipe, L.A., Cesar, C.G.L., Zafalon, R.V.A., Perini, M.P., Lima, L.O.C., Balieiro, J.C.C. and Brunetto, M.A., 2025. *Exploring the efficacy and optimal dosages of omega-3 supplementation for companion animals.* Nutrition Research Reviews, 38(2), pp.859–874.

Sustainability concern

~70% concerned about fish oil sustainability



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Pet Food Manufacturing Questionnaire 2025

- 25 respondents across pet food manufacturing
- Combined interviews, talks, and survey data
- Designed to inform value proposition and market direction for algae-based ingredients

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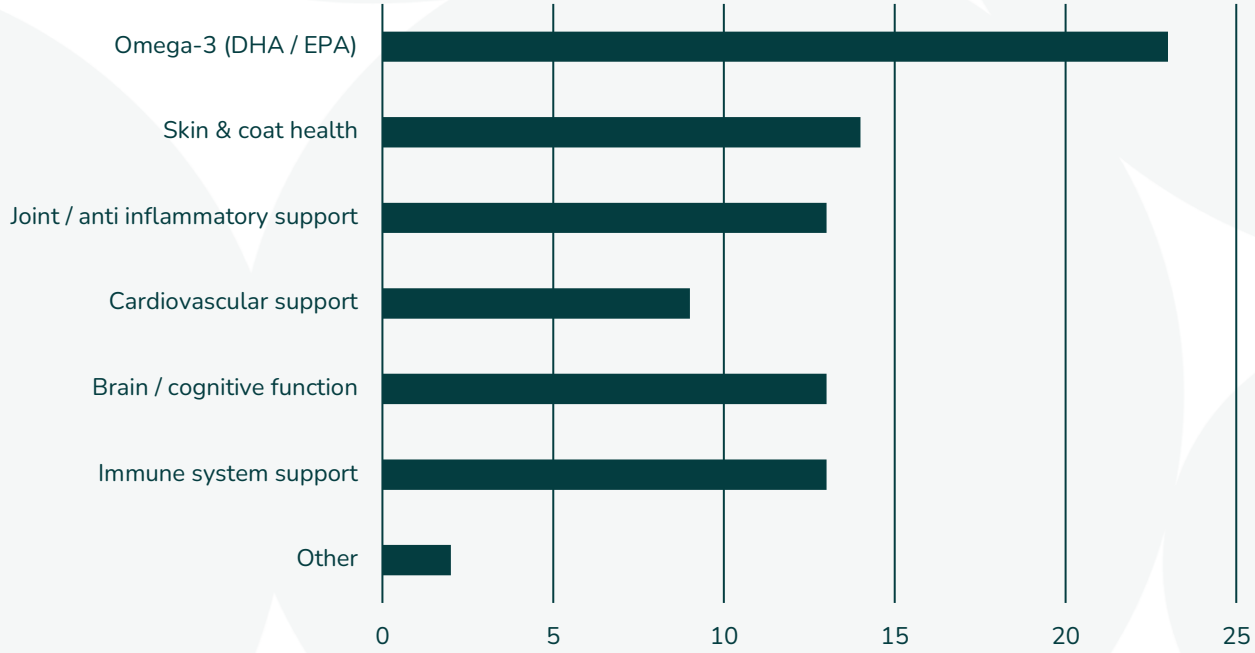
Awareness of health benefits

- All respondents familiar with the health benefits of algae-based ingredients*, associated them with DHA/EPA
- Algae-based ingredients were also widely linked to condition-specific support

Health benefits associated with algae-derived omega 3 ingredients (Select all that apply)



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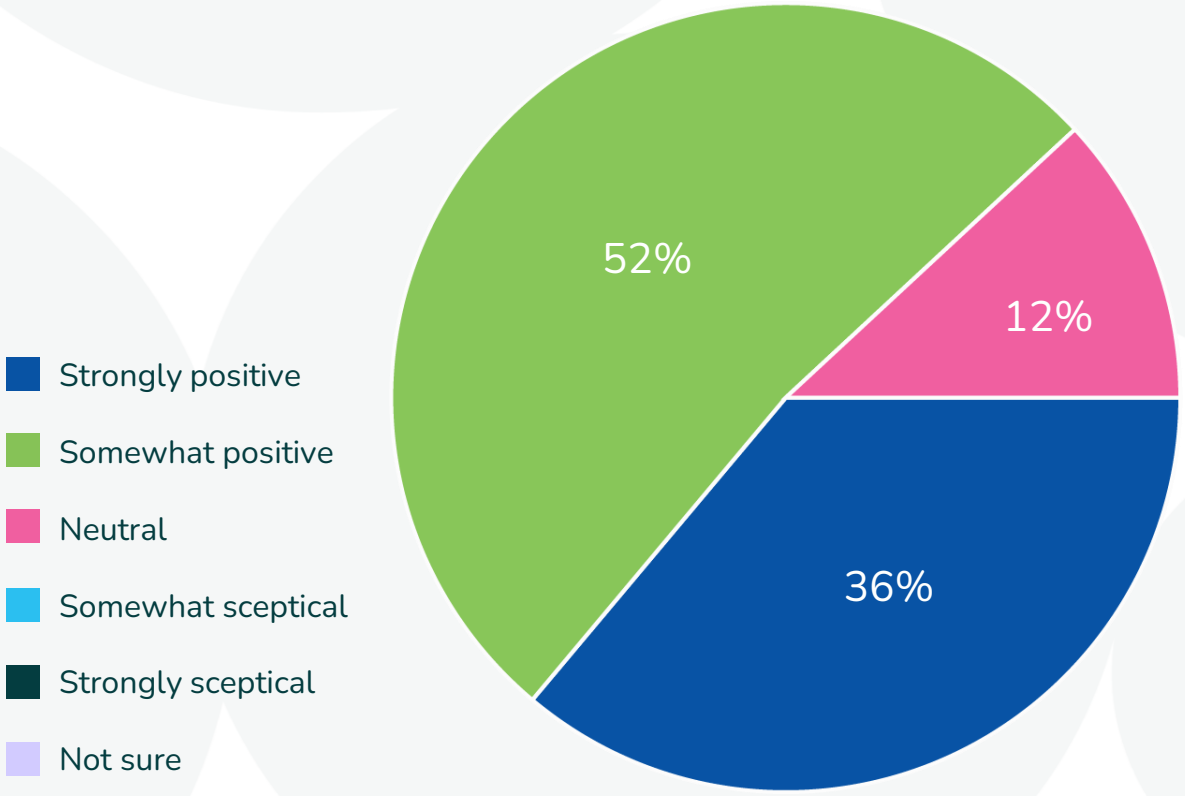
*n=23

Industry is shifting

- Perception of algae-derived omega-3 ingredients was overwhelmingly positive
- 88% of respondents expressed positive sentiment, with no negative responses recorded

What do you think about the usage of algae applications in petfood?



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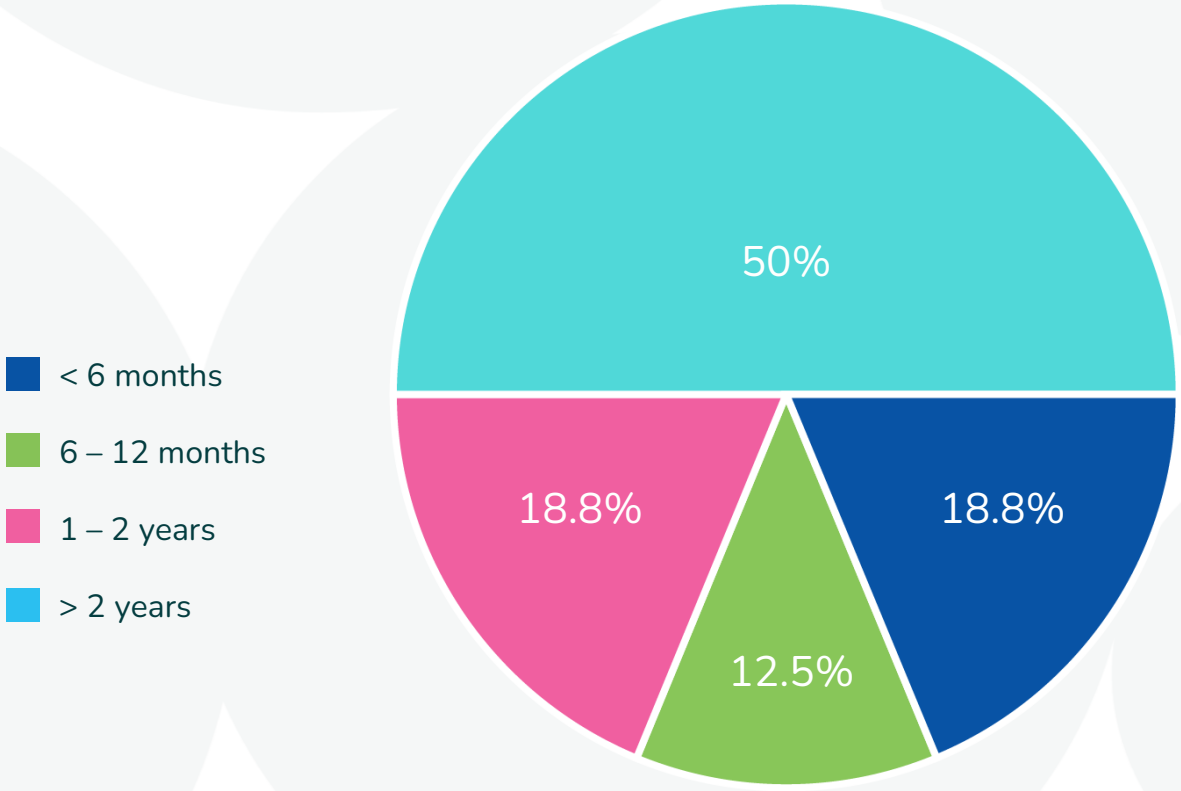
Familiarity with algae

- Respondents demonstrated high familiarity with algae-based ingredients
- 50% reported already using algae-derived ingredients as a replacement for fish oil

How long have you been using algae-based ingredients?



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What manufacturers want

Top Priorities:

- Consistency
- Oxidative stability
- Supply reliability

- 48% state price to be of moderate importance
- 56% state availability / lead-time to be important
- 76% state shelf life / oxidative stability to be important to very important
- 84% state product quality / consistency to be important to very important

This is a supply chain issue, as much as a nutritional one

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Salmon Oil testing - 2025

- 11 commercially available salmon oil products analysed
- Comparison of labelled vs measured fatty acid composition
- Assessment of Omega 3 profile and additive content

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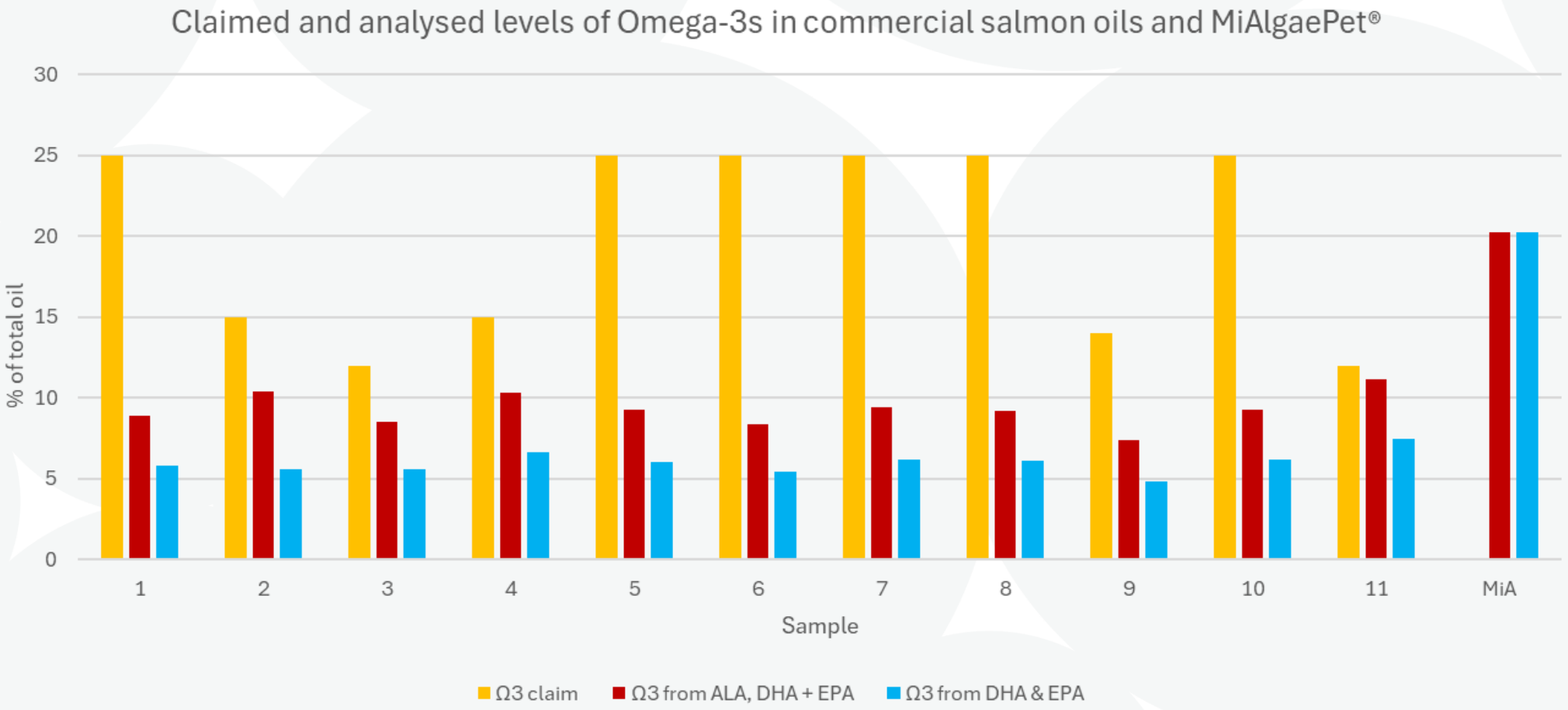
Label vs reality +48% average overestimation of Omega 3



Declared Omega 3 ≠ delivered Omega 3

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Composition reality of salmon oils

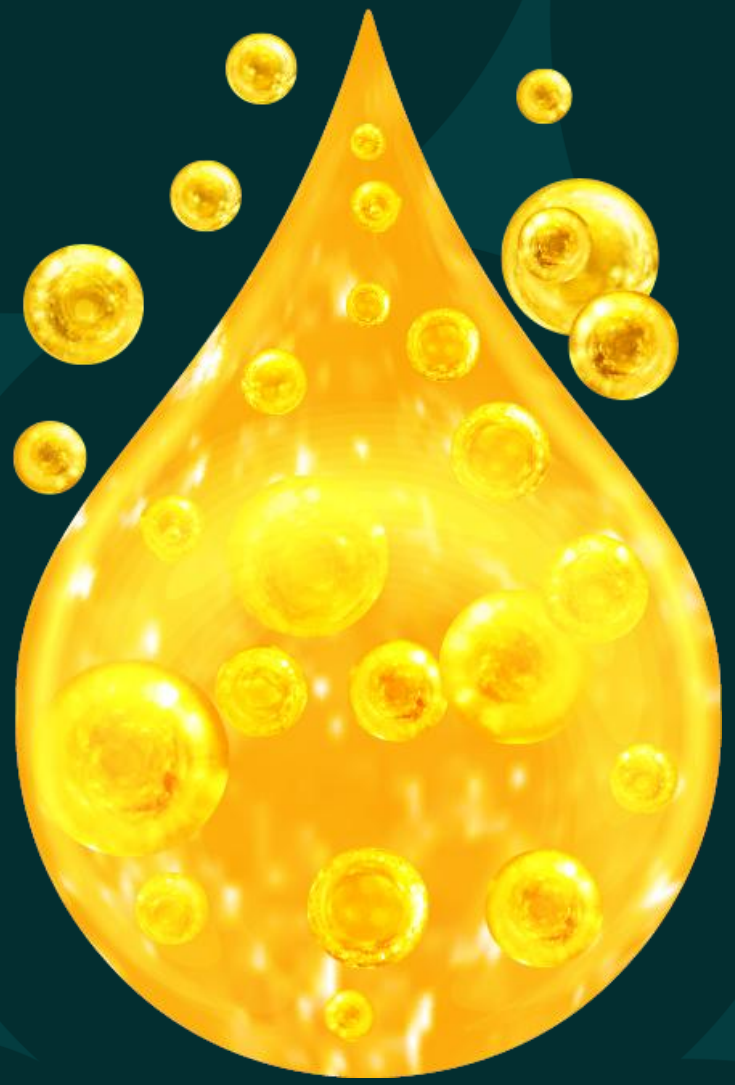
Total Omega 3 ≈ 9% of product

Composition:

- 3% ALA
- 6% EPA+DHA

A real concern for the industry:

- *Do you need to check your inclusion rate?*
- *The consumer is not providing the pet with the care they think they are*
- *The pet is not receiving what they need*



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Additives Finding

BHA

1000 - 1370 mg/kg

BHT

280 - 447 mg/kg

- Synthetic antioxidant levels strongly indicate direct addition during processing
- Highlights wider challenges around supply chain transparency and traceability

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Market Trends

Consumer shift

- Humanisation of pets
- Towards premiumisation
- Sustainability credentials
- Functional claims scrutiny

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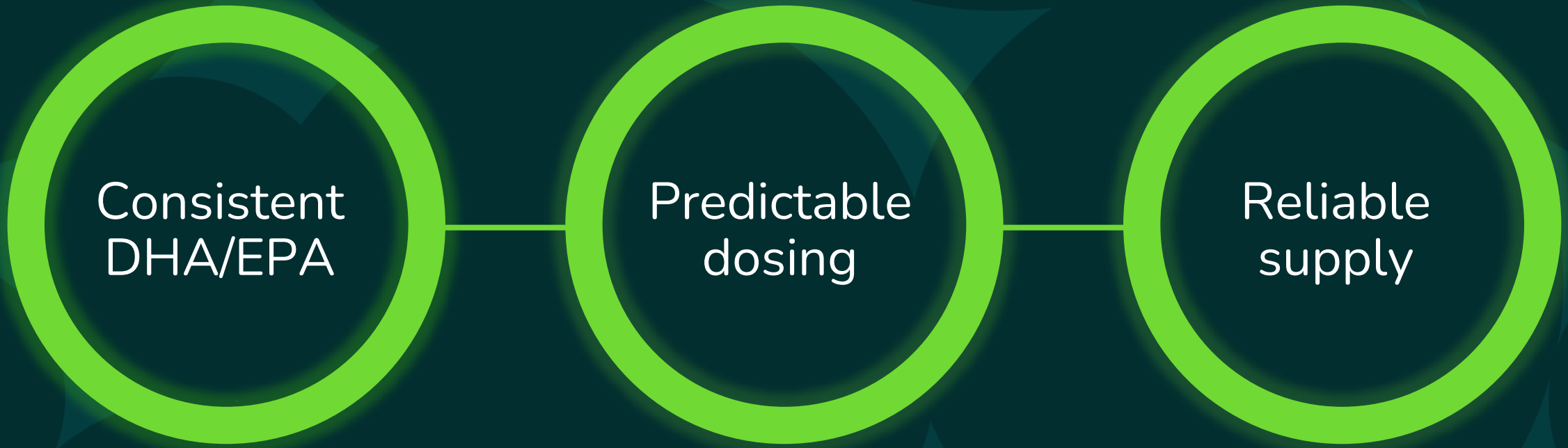
Formulator reality - What formulators actually need



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The Solution - Microalgae

- Original source of functional Omega 3s
- By-pass fish variability
- Controlled production
- Long term commercial stability
- Made in Europe

Traditional Extractive Model

Microalgae
Base of ocean food chain

Zooplankton
eat the microalgae

Small fish eat the
plankton

Millions of tonnes
of small fish
caught every year

The fish are crushed to
produce fishmeal and
fish oil as ingredients

MiAlgae taking out the middle-fish

Scottish whisky by-products

Fermentation and processing of DHA rich
microalgae using by-products and
renewable energy in Scotland

MiAlgaePet®
A clean, sustainable
Ω3 ingredient

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Formulation advantages

- Consistent composition
- Precision formulation
- Improved traceability
- Lower environmental impact

Summary

This is about the next generation of functional ingredients

We have a responsibility to improve transparency, consistency, and trust for the consumer

Knowledge is key:

- Industry leaders, including vets and nutritionists, agree this is the next step
- Manufacturers and formulators need a more efficient route, as recognised
- MiAlgae aims to support navigating this transition

Microalgae offer precision

- Not just sustainability: predictability, reliability

My dog, Fitz

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Get in touch:

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Why haven’t you considered MiAlgae yet?

Get in touch:

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