



CIRCALGAE
Food - Feed - Cosmetics

Circular valorisation of industrial ALGAE waste streams into high value products to foster future sustainable blue biorefineries in Europe

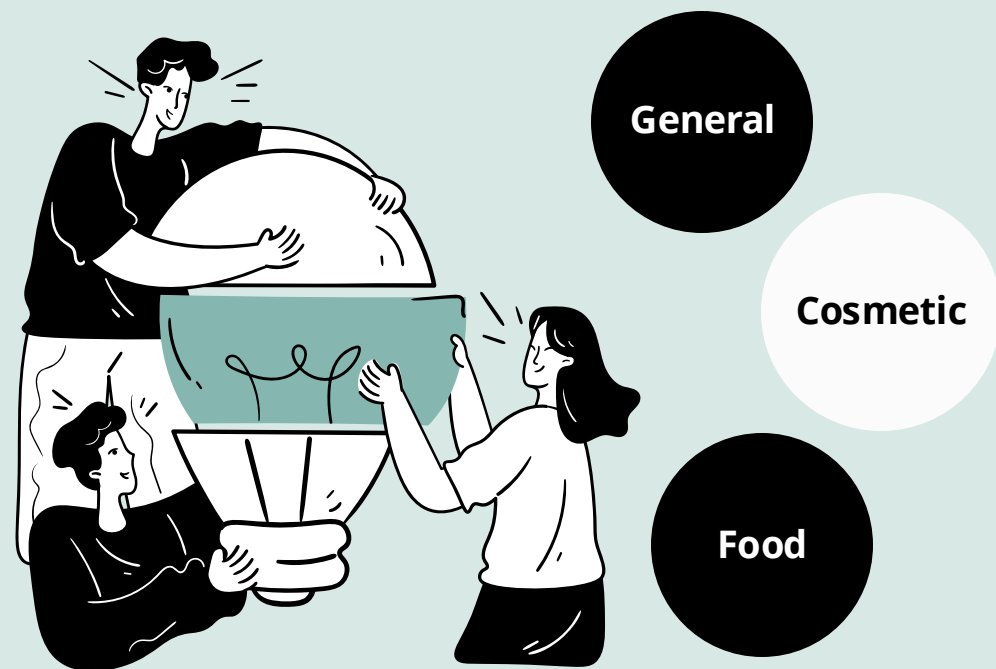
**Social acceptance results,
product testing &
recommendations**



Co-funded by the
European Union

What drives consumer acceptance of algae-based products?

A mixed-method approach: from spontaneous perceptions to real product experience



Co-design activities

- First impressions
- Objections
- Desired benefits
- Possible market positioning



65
Energy Balls
testers

83
Hand Cream
testers

Testing of 2 demonstrators

- Direct sensory experience
- Purchase intention
- Improvement priorities



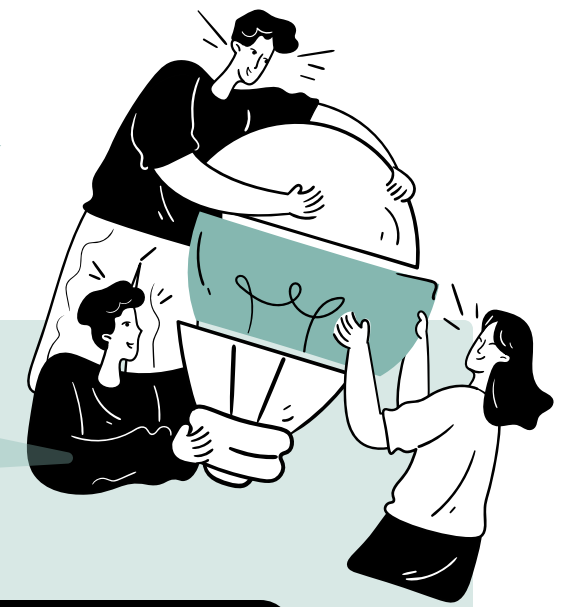
Consumer survey

- Willingness to adopt
- Barriers
- Reassurance factors
- Sustainability perceptions

think

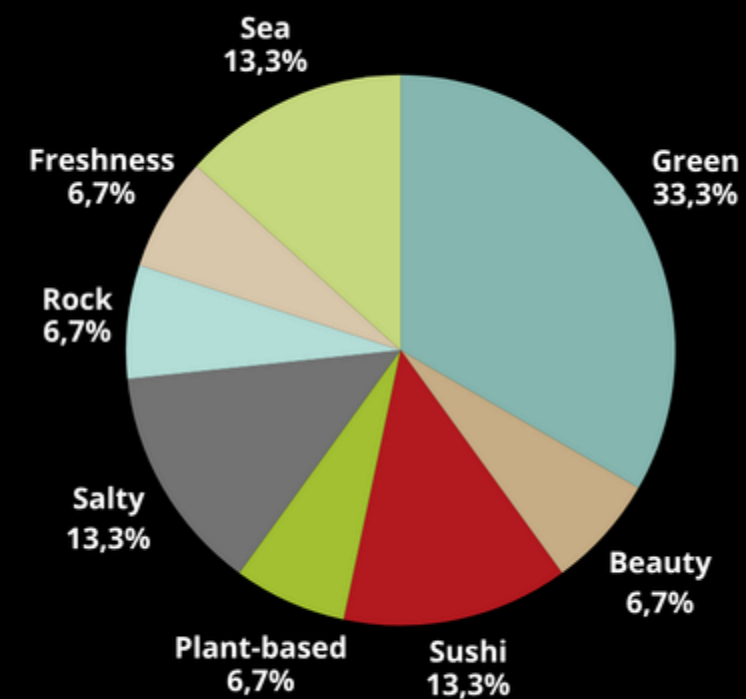
React

Co-design activities : the same message kept coming back



Algae can create interest - but the final product experience decides acceptance

From initial perceptions of algae to broader applications



Consumers can imagine algae beyond familiar food uses when given space to explore.

Effectiveness & pleasant sensory experience



Naturalness helps, but benefits must be clear, credible and relevant to the user.

Natural & sustainable ≠ automatically desirable



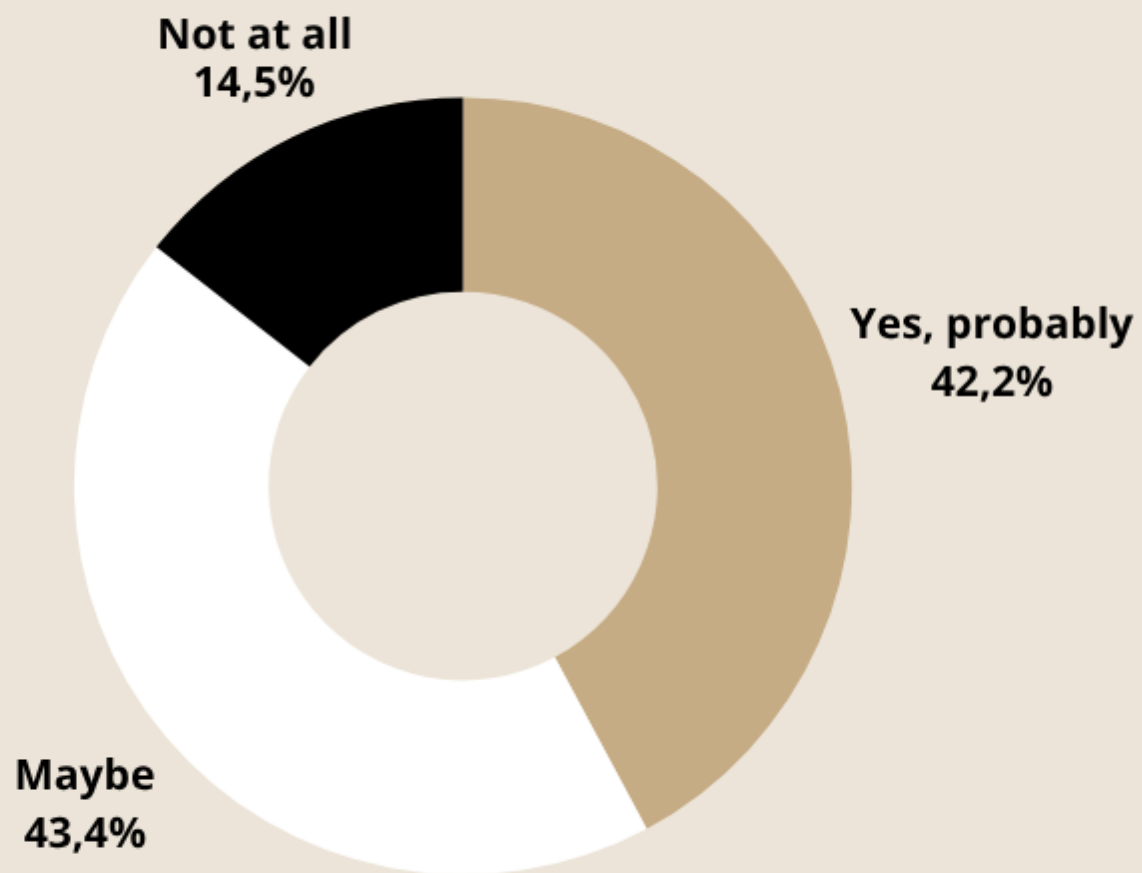
Taste, texture, appearance and familiar consumption occasions remain decisive.

Hand cream: promising interest, but the finish needs work



83
Hand
Cream
testers

Overall interest is promising, but sensory performance remains a key area for improvement.



Hand Cream Purchase Intention (n = 83)



**More than 60%
considered €5-10 the
ideal price range.**



**~80%
rated the fragrance pleasant**



Found the cream too greasy

Fragrance is a clear **strength** and is significantly associated with purchase intention.
Absorption speed is the second strongest product-level association with purchase intention.

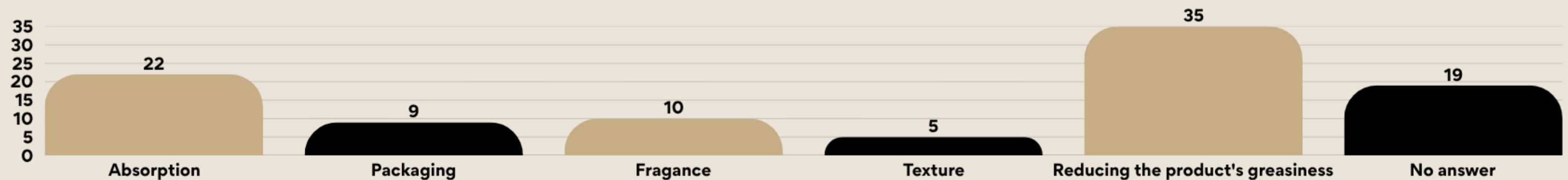
Hand cream: what should be improved?



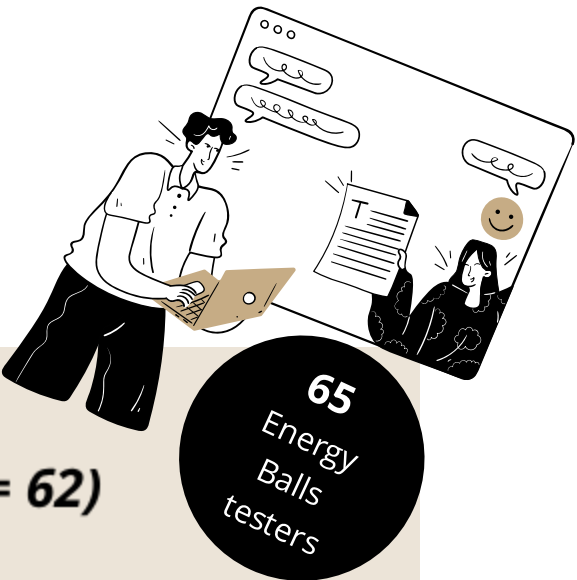
Focus on functional performance - not a complete redesign



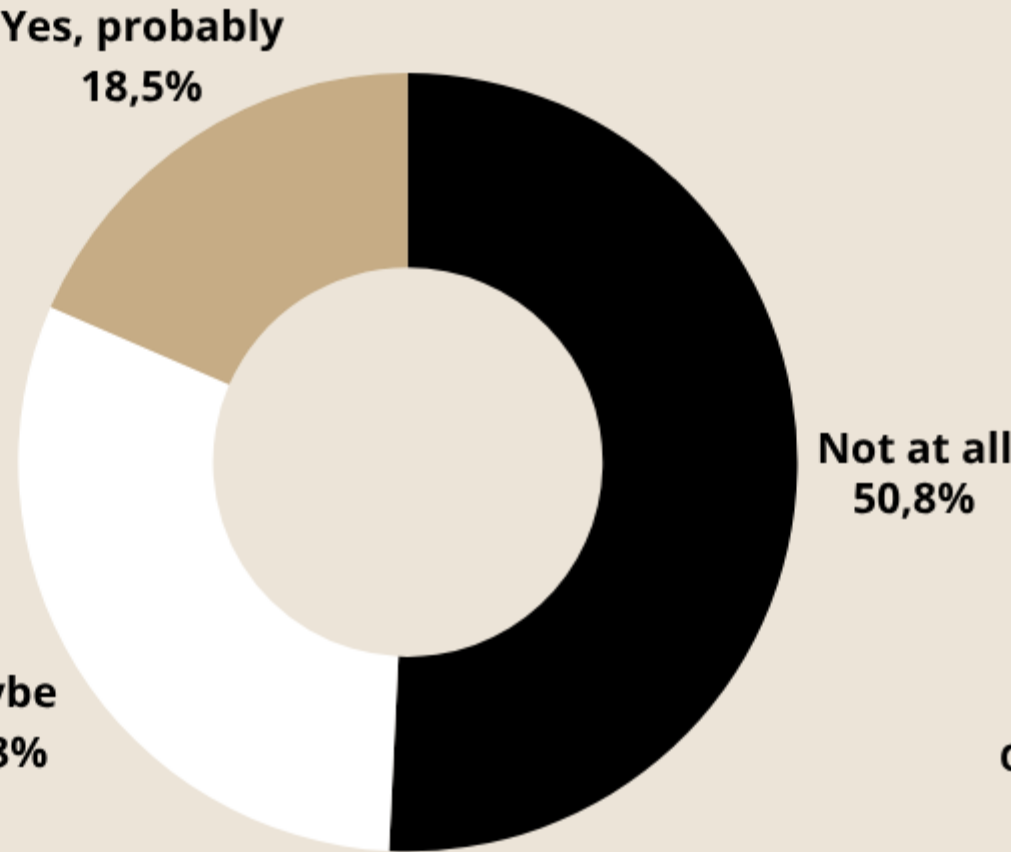
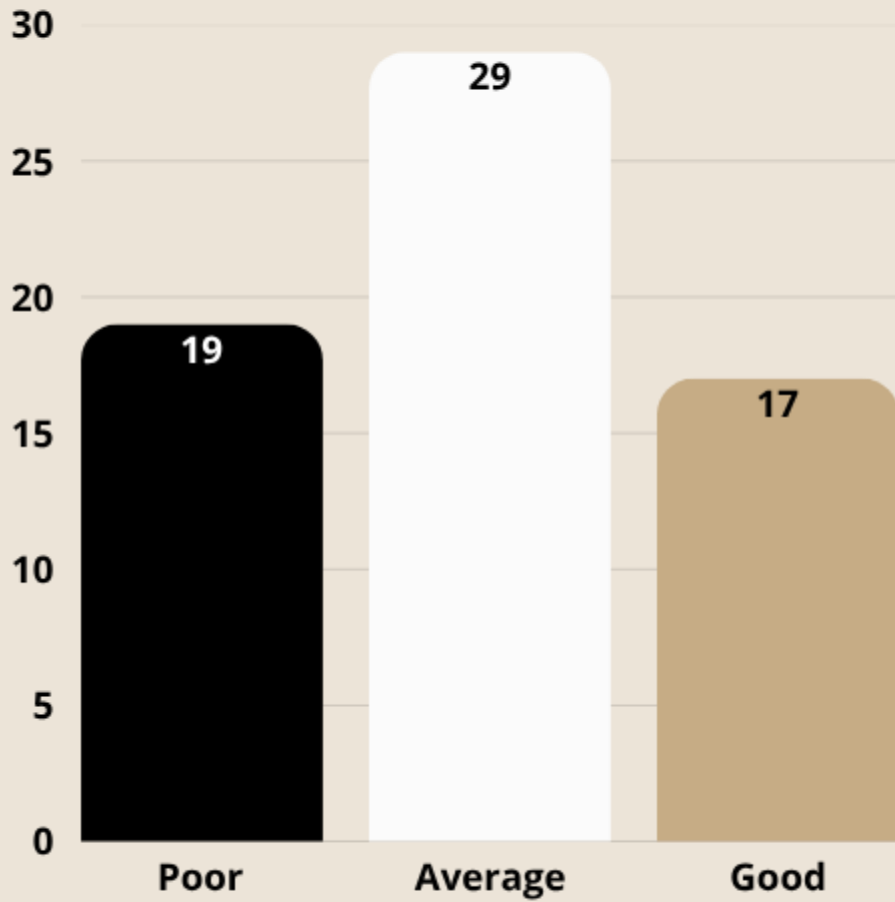
- Reduce greasiness
- Improve absorption speed
- Preserve the fragrance
- Use algae as added value
- Treat packaging optimisation as a secondary development priority



Energy Balls: sensory experience drives purchase



Global impression of the product (n = 65)



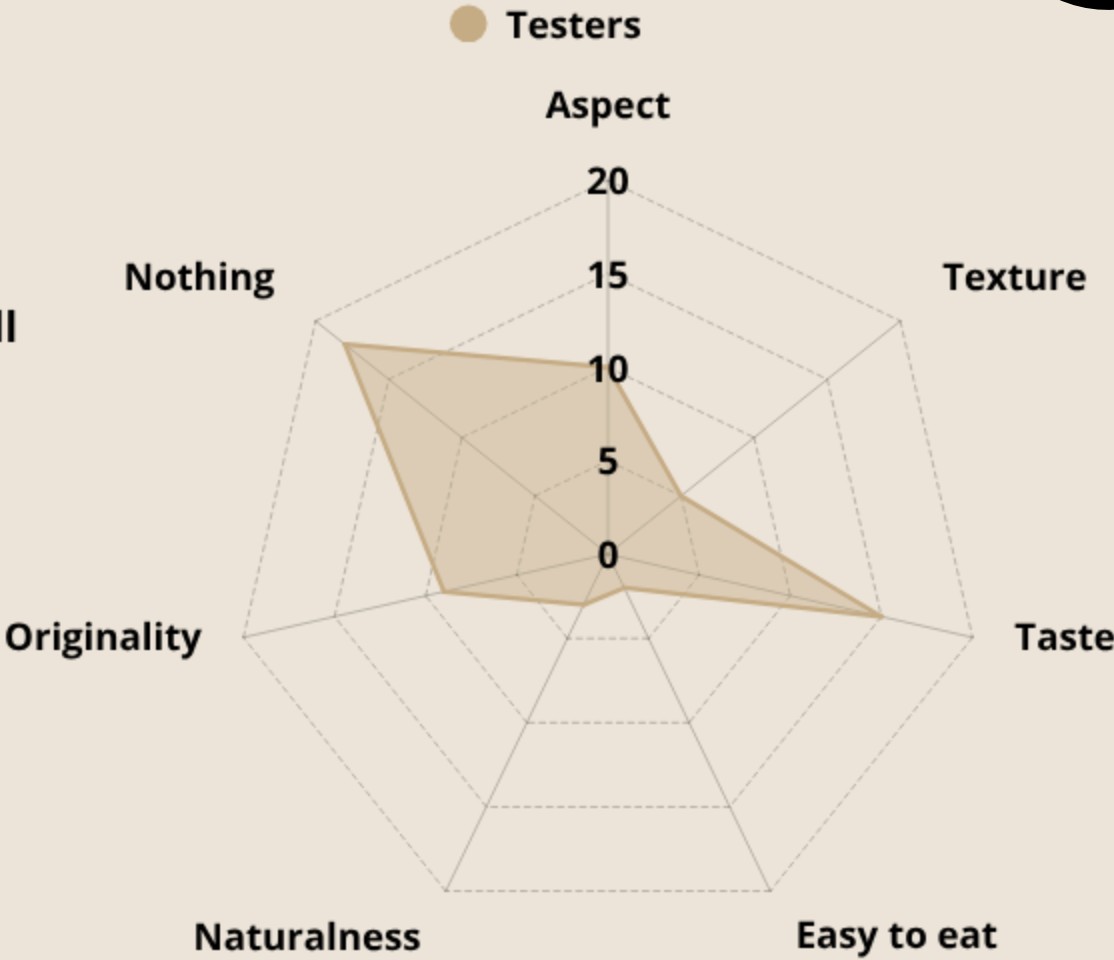
Energy Balls Purchase Intention (n = 65)

Sweetness balance and naturalness were positively perceived.

Appearance was the weakest descriptive attribute, while taste and texture were the strongest statistically demonstrated sensory drivers.

Main occasions: snacking, before physical activity and work breaks.

Testers's preference (n = 62)



Appreciated the flavour balance

Energy Balls: from sustainable concept to desirable snack



The concept is not the main issue - sensory optimisation is



01 Taste first

Optimise the taste profile to achieve broader consumer acceptance, while preserving the flavour characteristics already appreciated by part of the sample.

02 Texture matters

Improve the texture to provide a more pleasant and consistent eating experience.

03 Balance the algae identity

Refine the algae flavour and aroma balance, ensuring that the algae-based identity of the product remains perceptible without negatively affecting overall sensory acceptance.

04 Improve visual appearance

To make the product more appealing and consistent with its natural and healthy positioning.

05 Clarify the occasion

Position the product around relevant consumption occasions, particularly as a snack, before physical activity or during work breaks.

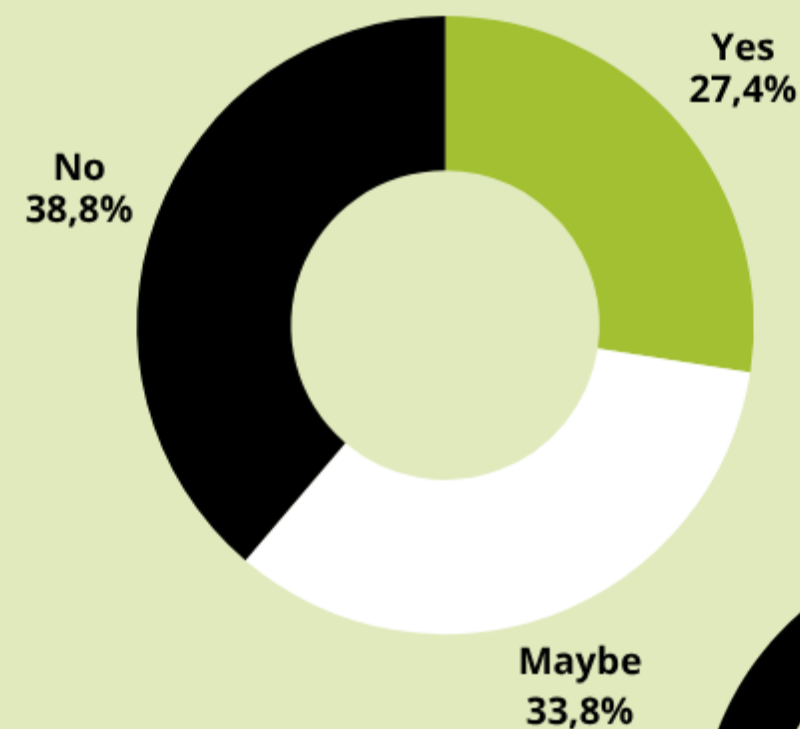


Large-scale survey: consumers are open to algae

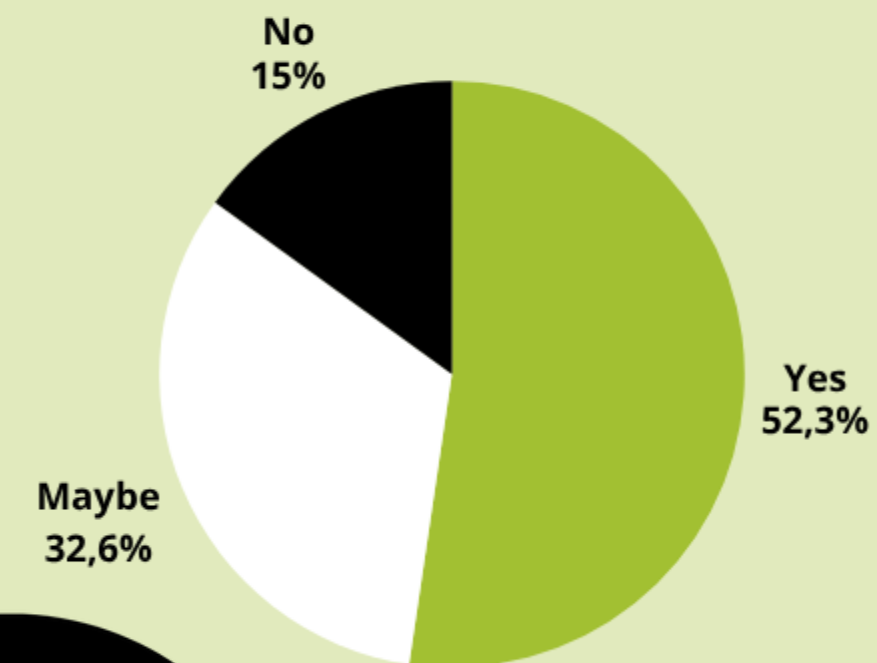
5,766 total responses; detailed analysis focused on 3,262 respondents aged 14+



Previous experience with algae-based products (n = 3,262)

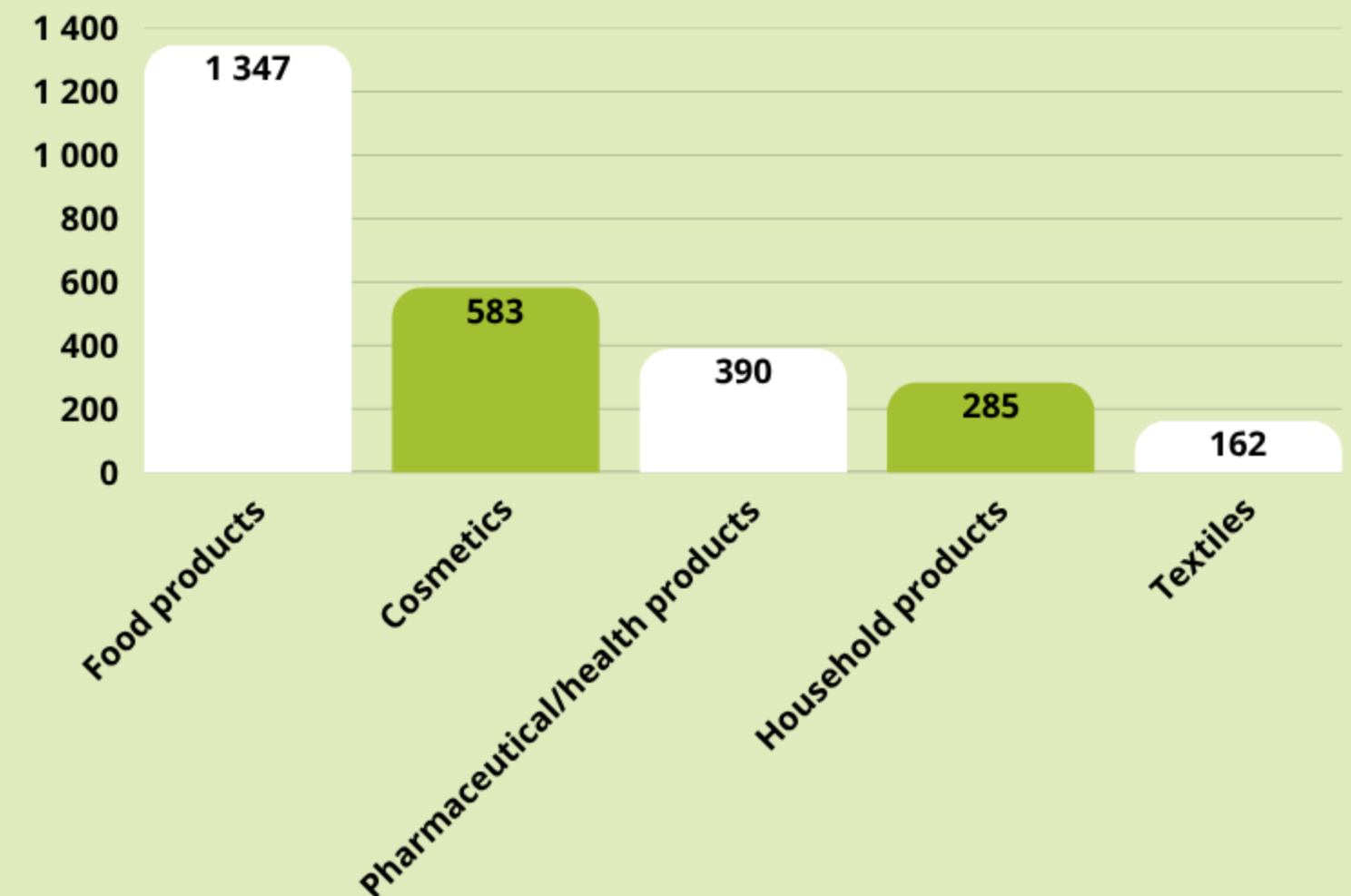


Willingness to use algae-based products (n = 2,331)



84.9%
Yes + Maybe: open to using
algae-based products

Product categories in which algae would be most accepted (n = 2,767)

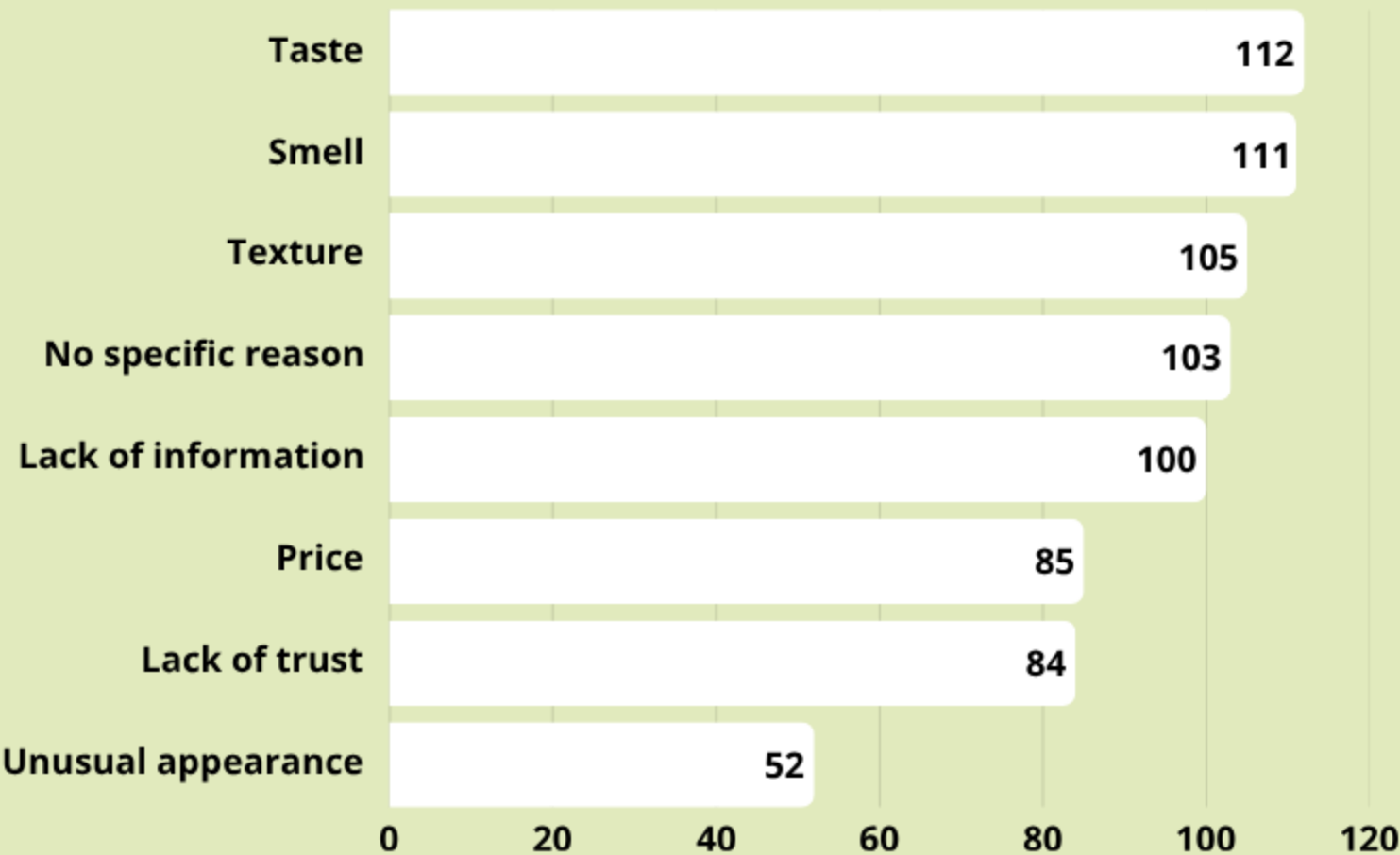


What blocks adoption - and what can unlock it?

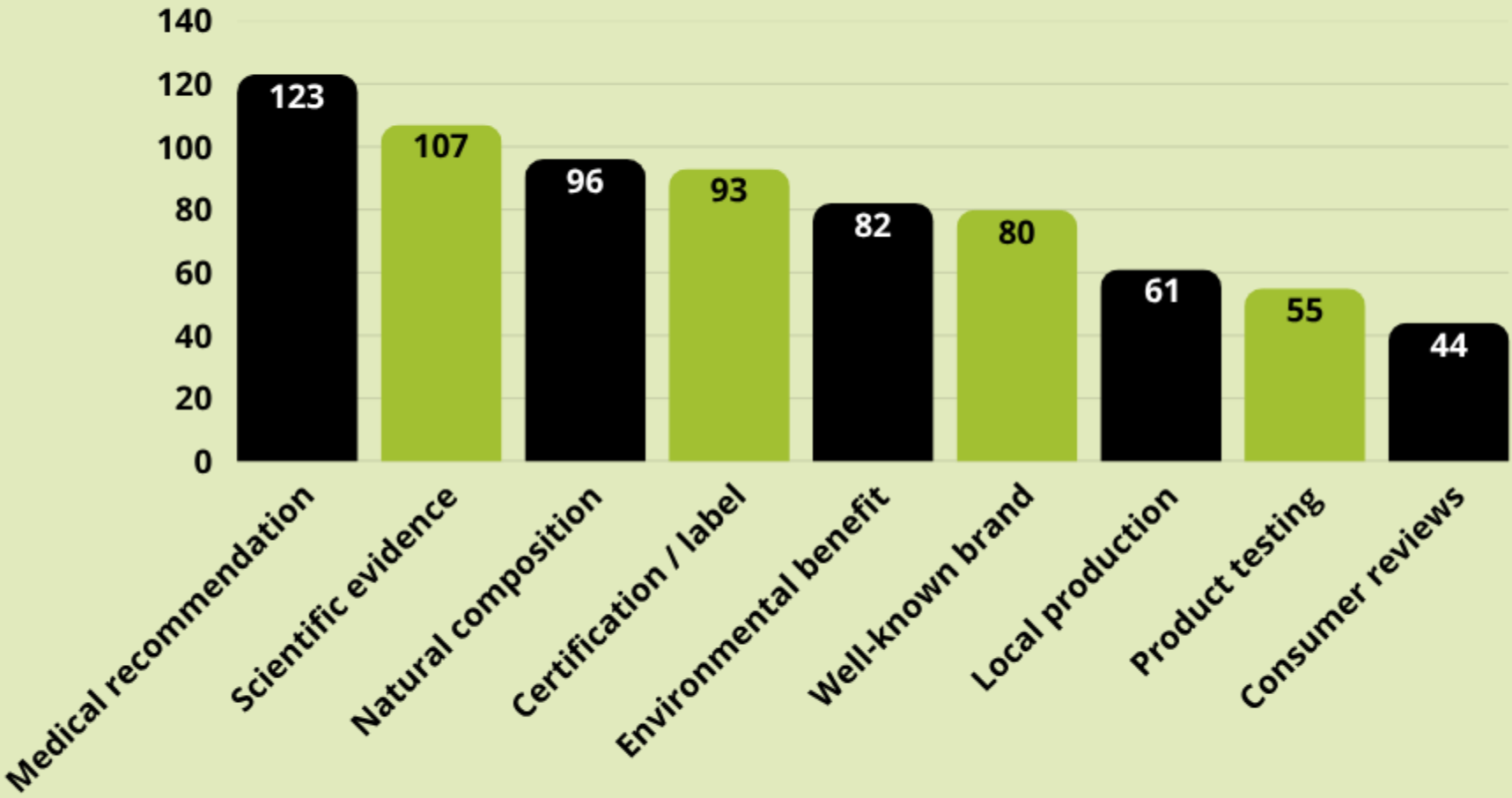


Barriers and reassurance factors among the relevant survey subgroups

Main barriers among reluctant respondents (n = 330)



Key drivers for trying algae-based products (n = 317)



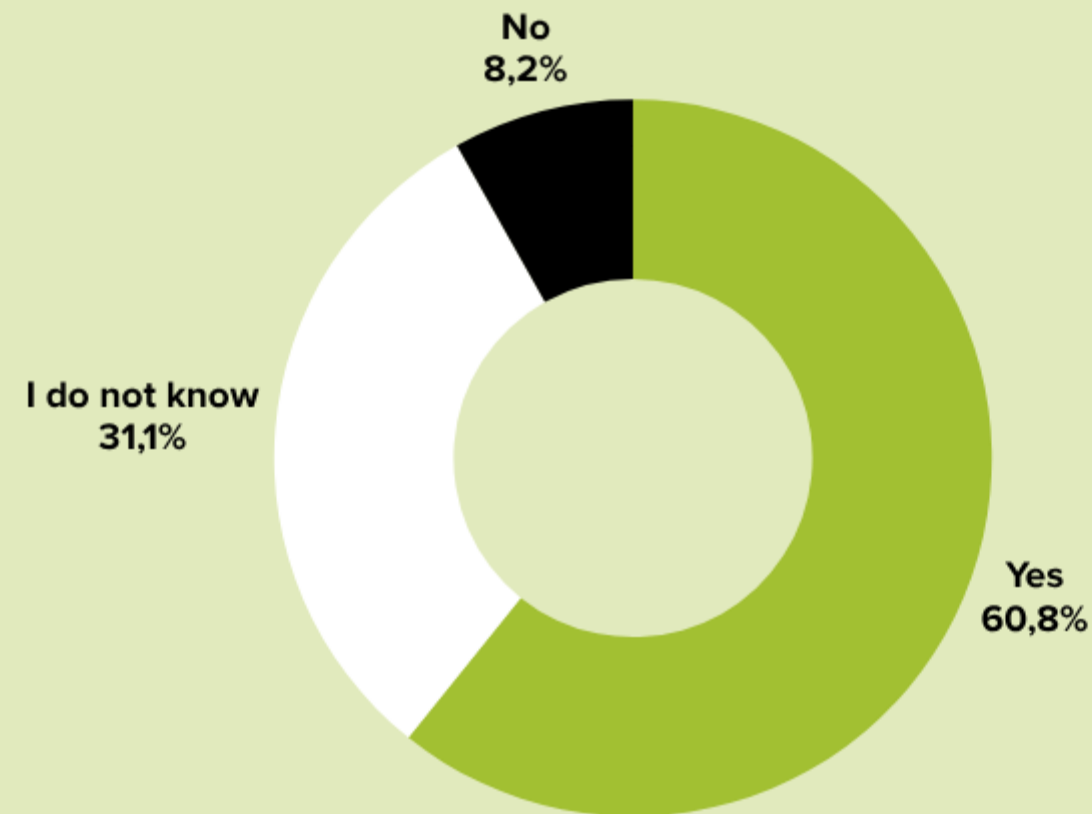
Key implication: consumer hesitation is both sensory and informational - trust must be built alongside product quality.

A major communication opportunity: broaden the algae story

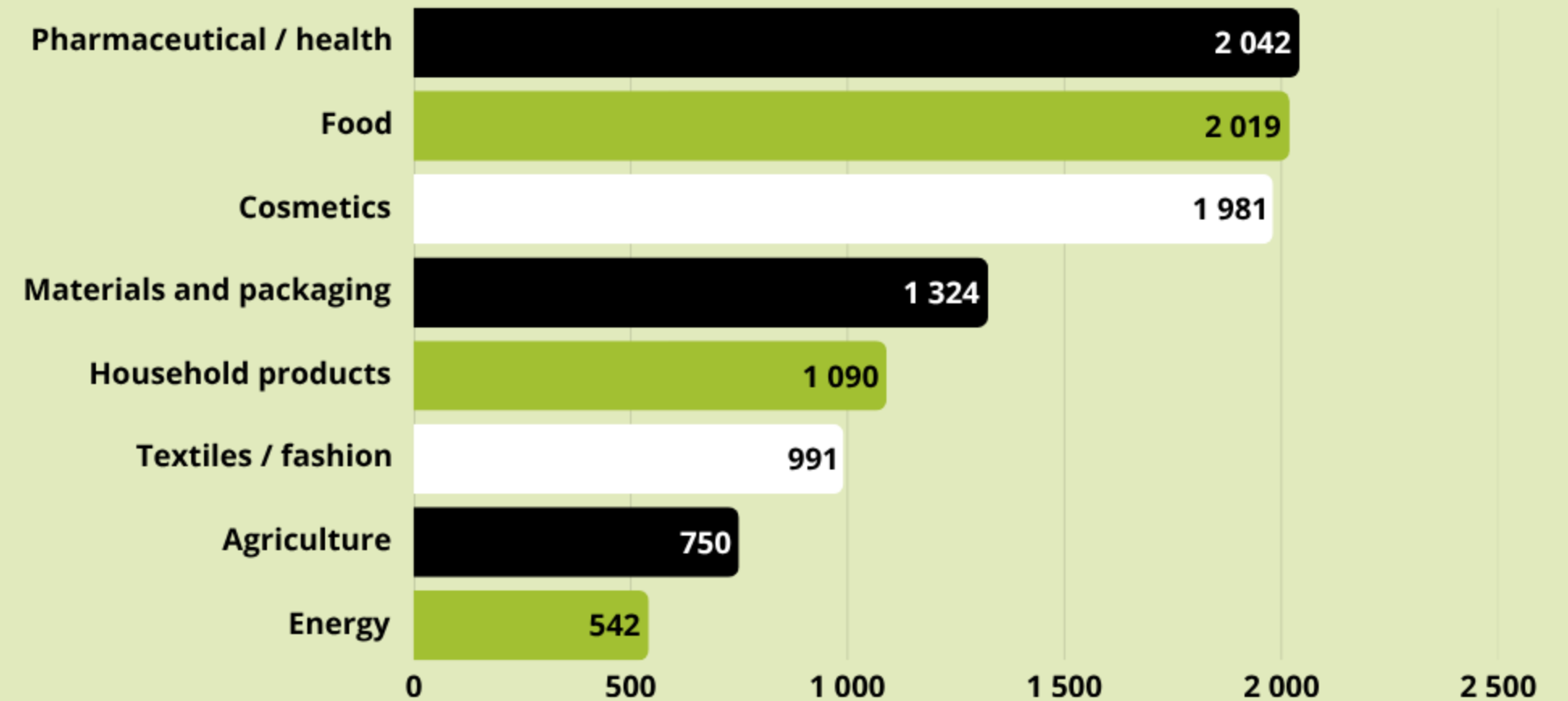


Awareness remains concentrated around health, food and cosmetics

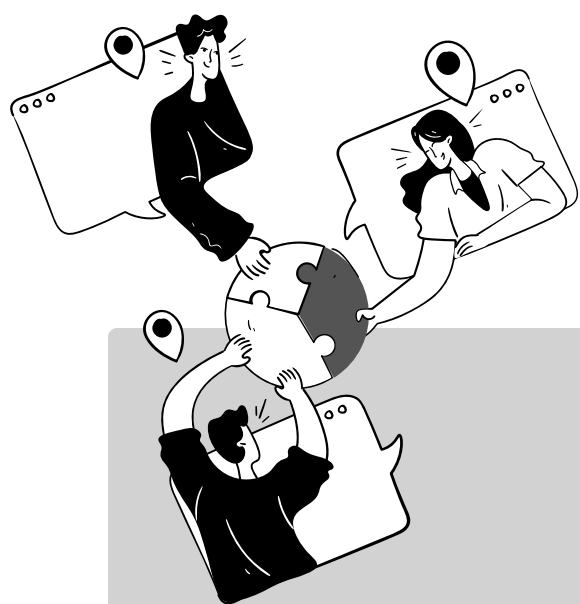
Perception of algae as a solution for more sustainable products (n = 3,063)



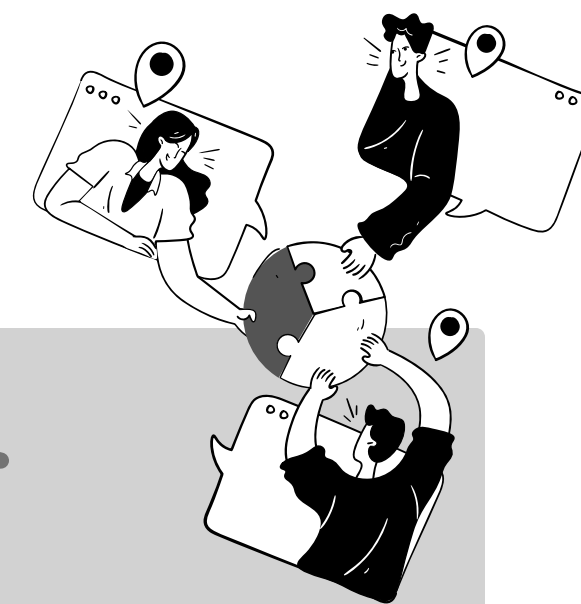
Awareness of algae applications (n = 3,009)



Communication should make the wider range of algae applications tangible and understandable - without losing the link to concrete consumer benefits.



What should CIRCALGAE take forward?

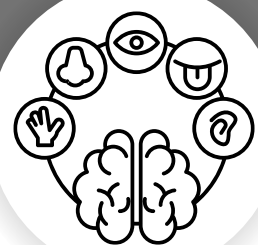


Cross-cutting recommendations



Performance before novelty

Consumers do not buy “algae” alone; the product must work and feel right.



Sensory quality is non-negotiable

Taste, texture, smell, absorption and post-use feel repeatedly shape acceptance.



Make benefits credible

Scientific evidence, trusted recommendations and transparent information can reduce hesitation.



Use sustainability as reinforcement

Sustainability is a strong positive association, but it does not compensate for weak product experience.



Test again after optimisation

Reformulated products should be re-tested to assess whether improvements translate into stronger acceptance.



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THANK
YOU!

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