

SUMMARY

IRISH DOG SHELTERS

Demonstrating consistent positive impacts on the canine gut microbiome in a variable, challenging environment



BACKGROUND AND RATIONALE

The gut microbiome plays a central role in digestive health, nutrient utilisation, and overall physiological resilience in dogs. Increasingly, long-term gut health is understood to depend not on maximising individual microbial groups, but on supporting a stable, well-regulated microbial ecosystem capable of adapting to dietary and environmental variability.

Seaweeds are used in pet nutrition for their complex polysaccharides and bioactive compounds, which can interact directly with gut microbial communities. However, individual seaweeds differ substantially in composition and fermentation behaviour. **OceanFeed™** was developed as a blended seaweed ingredient intended to deliver a broader spectrum of fermentable substrates, enabling more distributed engagement of microbial pathways.

This exploratory feeding trial was designed to assess whether a blended seaweed formulation is associated with distinct patterns of microbiome response, compared with single-seaweed inclusion or a standard diet, under variable and challenging real-world conditions.

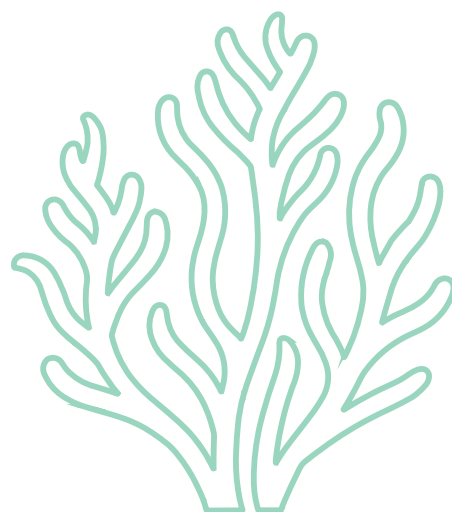
STUDY OVERVIEW

Dogs were fed either a standard diet (*control*), a diet supplemented with a single seaweed, or a diet supplemented with the blended seaweed (*OceanFeed™*). Faecal samples were collected before and after the feeding period and analysed using multiple complementary microbiome measures.

Rather than relying on a single outcome, the study examined:

-  Changes in fermentative bacterial groups,
-  Behaviour of taxa associated with short-chain fatty acid (SCFA) production,
-  Overall diversity and richness,
-  Inter-individual variability and convergence,
-  And movement toward or away from dominance-driven imbalance.

The study was exploratory and hypothesis-generating, intended to characterise response patterns and mechanisms rather than clinical effects.



REGULATED ENGAGEMENT OF FERMENTATION PATHWAYS

Fermentation is a central process in gut health, but its benefits depend on regulated engagement rather than excessive or uncoordinated stimulation.

Dogs receiving the blended seaweed showed modest, distributed changes across multiple fermentative bacterial groups. These responses were consistent with engagement of upstream fermentation and downstream metabolic networks without dominance of individual taxa.

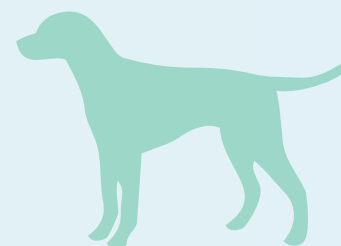
By contrast, responses observed under single-seaweed inclusion were more variable between individuals, with some dogs showing pronounced directional changes and others showing little response. **These patterns reflect differences in how narrowly or broadly microbial substrates are engaged, rather than evidence of benefit or deficiency.**



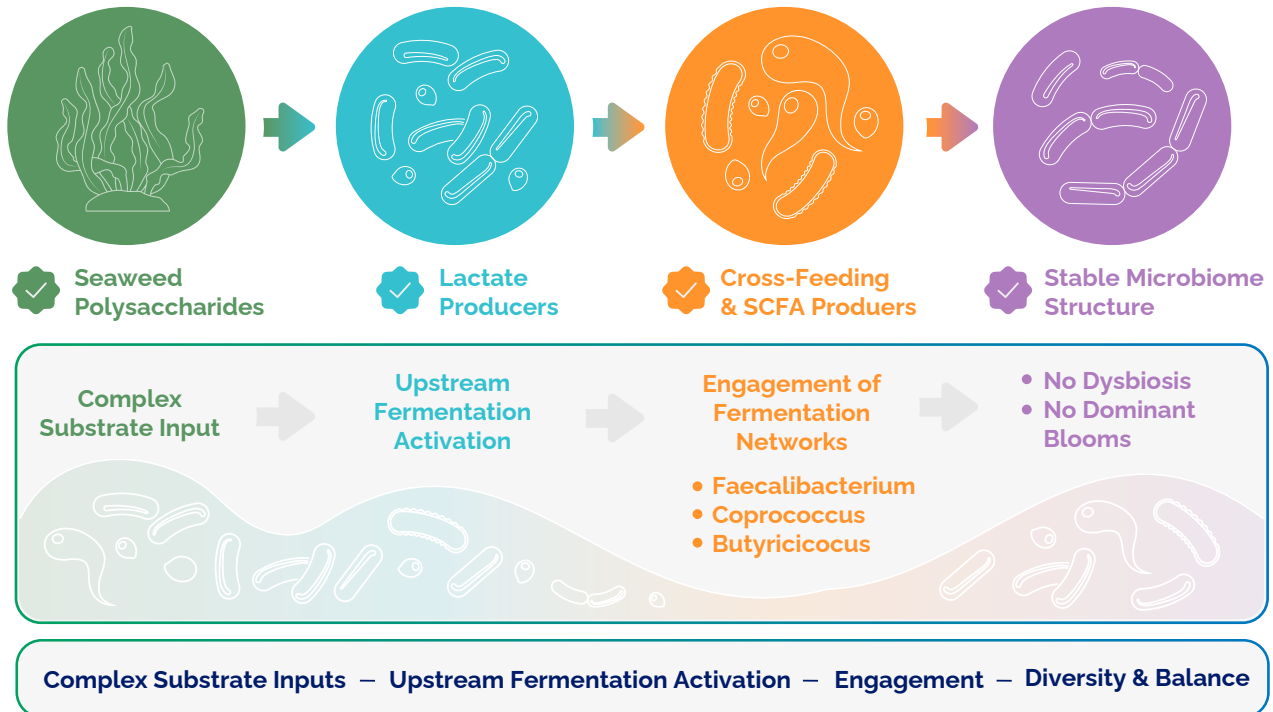
PRESERVATION OF ECOSYSTEM STRUCTURE

Microbiome resilience depends on maintaining **diversity, evenness, and structural balance**. Across the study, dogs receiving the blended seaweed generally maintained or showed modest improvements in diversity and richness metrics, particularly among animals with lower baseline values.

Importantly, these changes occurred without evidence of microbial suppression or loss of ecosystem breadth. Other dietary contexts showed greater variability, with some dogs exhibiting reductions or asymmetric shifts driven by individual taxa. These observations highlight the importance of balance when engaging the microbiome.



PATHWAY TO A STABLE MICROBIOME STRUCTURE



Infographic 1: Mode of action of OceanFeed™ and the way it impacts and stabilises the gut microbiome.

CONSISTENCY ACROSS INDIVIDUALS

One of the most notable observations was the consistency of response patterns across dogs receiving the blended seaweed. When assessed using measures of convergence and dispersion, these dogs tended to move toward a more similar microbiome state over time.

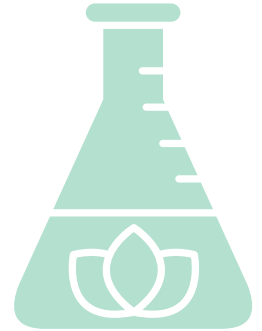
In contrast, **dogs in the control and single-seaweed groups showed greater divergence**, often driven by strong responses in a subset of individuals. From a practical perspective, this suggests that blended seaweed inclusion may support more predictable population-level behaviour in heterogeneous dog populations.



MODERATION OF BLOOM-PRONE TAXA

Certain bacterial groups are known to expand opportunistically under dietary or environmental stress. Exploratory analysis of selected bloom-prone taxa showed that, when considered jointly, dogs receiving the blended seaweed more frequently exhibited movement away from dominance of individual taxa, rather than substitution between them.

These patterns are consistent with buffered microbial engagement, in which extremes are moderated rather than displaced. No conclusions regarding oral or dental outcomes are drawn from these data.



COMPOSITION RATHER THAN DOSE

Although the blended **seaweed was included at a higher dietary level than the single seaweeds**, the observed microbiome responses were not consistent with simple dose-driven amplification. There was no evidence of increased microbial biomass, exaggerated dominance, or loss of diversity.

Instead, the response patterns are consistent with substrate diversity and structural complexity enabling progressive fermentation flow and cross-feeding, rather than increased exposure to a single fermentable input.

INTERPRETATION AND NEXT STEPS

Taken together, the findings support interpretation of **OceanFeed™** as a gut-centred, system-level prebiotic input, associated with balanced fermentation, preserved ecosystem structure, and reduced inter-individual variability under challenging conditions.

This study was exploratory and not designed to assess clinical outcomes. The results provide a mechanistic foundation for progression to structured in-home feeding trials, where owner-relevant outcomes such as stool consistency, tolerance to dietary change, and gut comfort can be evaluated alongside microbiome markers.

Please request the full trial report if you wish to see the data analysed in more detail.

