

Millennial Salmon project maximizes inclusion of AlgaPrime DHA keeping performance in feed production

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Corbion, the global market leader in algae-based ingredients, announced preliminary results of a new study from the Millennial Salmon Project, a strategic partnership among organisations along the value chain of salmon production. Conducted by Nofima and recently published in *Aquaculture*, the study confirms that AlgaPrime® DHA can be added at varying levels without negatively impacting feed quality and promoting a more stable process and pellet quality.

Primarily funded by the Research Council of Norway and made up of leading organisations Nofima, InnovaFeed, Corbion, Cargill, MOWI, Labeyrie Fine Foods, SINTEF Ocean and Auchan, the Millennial Salmon Project aims to create the world's most sustainable farmed salmon using novel ingredients with a low carbon footprint and a focus on the circular economy.

The first round of research sought to determine optimal inclusion levels of AlgaPrime® DHA LS in Corbion's algae-based omega-3 DHA-rich ingredient in liquid suspension in feed for Atlantic salmon, evaluating the ingredient's effect on the feed production process. Variables examined included: physical pellet quality, expansion parameters and microstructure and later its digestibility. AlgaPrime® DHA can be incorporated at two different moments in the feed production process: into the mix before extrusion and during pellet coating. Therefore, the maximum levels of AlgaPrime® DHA inclusion in both moments were studied.

An array of diets was produced and tested, from a control feed using fish meal and soy protein concentrate to feeds with high inclusion levels of AlgaPrime® DHA LS. Applying a method that enables numerous comparisons, researchers determined

that the inclusion of 100 g/kg AlgaPrime® DHA LS in the mixture was commercially interesting, considering the levels of lipids mostly used in the feed mix.

Based on the industry standard practices, researchers tested AlgaPrime® DHA LS in the pellet coating process and were able to add up to 14 per cent inclusion in a final feed with 36 per cent lipids, which is far above the relevant industrial application levels of omega-3.

In an uncommon study design that combines the technical application and nutrition science and after the feed production trials, the research group then looked at four diets containing AlgaPrime® DHA in the mix, the coating, and a combination of the two, using AlgaPrime® DHA LS at 10 per cent and 20 per cent inclusions. All four diets showed high nutrient digestibility in Atlantic salmon. For reference, with the inclusion of 8 per cent of AlgaPrime® DHA LS is possible to replace a 10 per cent inclusion of fish oil in diets with the same omega-3 levels.

These findings represent an important step for fish nutrition, illustrating the viability of sustainability gains by increasing the use of ingredients with high concentrations of omega-3, something a reliance on fish oil alone could not accomplish. At the same time, it is great news to the aquaculture industry, enabling the strategic management of omega-3 levels in feed to facilitate production growth, a much-needed tool because of increasing pressure on our oceans and the supply gap of traditional marine resources.