



## A Revolutionary Type of Feathermeal for Fish Feed



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### Abstract

As costs for fishmeal have skyrocketed and the supply-demand has widened, the interest in alternative proteins in aquaculture has increased. Reducing fishmeal dependence has become important for the profitability and sustainability of the aquaculture industry. An ingredient that has not received its fair share of attention by fish nutritionists in recent years is feather meal.

Feathers are by-products of the poultry meat processing which become the raw material for production of feather meal. Annually large quantities of feathers are available. The whole EU is producing about 1.000.000 tons of crude feathers equivalent to 320.000 tons of feather meal.

State-of-the-art technology allows drying of processed feathers under optimal conditions using low temperature (LT) drying technology. The beneficial effect of such an LT technology can be attributed to less degree in damage of protein quality during LT drying, due to a significantly shorter drying time as compared to the drying process involving a horizontal rotary disc dryer, a more common process.

Although feather meal in general is considered to be an inferior source of protein for fish and shrimps because of its poor digestibility and

essential amino acid (EAA) content, results will be presented showing quite the contrary. In order to assess the quality of LT feather meal versus regular feather meal, several in-vitro and in-vivo tests on protein digestibility have been conducted.

In contrast to the pepsin assay, which is the most common method used by the industry, a combination of both pepsin and pancreatin (Boisen digestibility) seems to be more suitable for the determination of feather protein quality. Feeding trials in situ were carried out in Thailand and Israel with White Pacific Shrimps (*Pennaeus vannamei*), Hybrid Tilapia (*Oreochromis niloticus x Oreochromis aurea*) and Nile Tilapia (*Oreochromis niloticus*).

All diets were based on a fishmeal reference (as control); treatments were designed to be iso-nitrogenous and iso-caloric, but with varying amounts of LT feather meal as a replacement of fishmeal. All formulations were set to satisfy the nutritional requirements of the targeted test species. During the experiments, fish weight and feed intake were monitored to establish indices for growth and performance.

Our results clearly show that LT feather meal is indeed suitable to replace fishmeal at least to levels up to an inclusion of 10 percent in fish and shrimp formulations.

As a consequence, depending on the costs for fishmeal, a relatively significant reduction in formulation costs can be expected.

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