



I will attempt to bring insights acquired through working at the interface of academic and commercial aquaculture nutrition and feed formulation for several years. There will be no promotion of products (isn't there enough of that already?). Instead, this column will focus on concepts, recent progress, potential solutions, and the gaps in our knowledge and R&D needs.

Please don't hesitate to send me ideas, suggestions, and questions that may help keep this column factual, informative and relevant to the needs of the aquaculture and feed industries.

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Rethinking fishmeal and fish oil replacement terminology and R&D efforts

High and rising fishmeal and fish oil prices represent significant challenges for aquaculture feed manufacturers and have a sizeable impact on the production costs of many aquaculture products. Larger and highly specialised aquaculture feed manufacturers may have the R&D capabilities to address this challenge but smaller ones or those working on a variety of species and production environments mainly rely on scientific and technical literature and focused R&D efforts.

Fishmeal and fish oil replacement in aquaculture feeds has been the focus of thousands of scientific studies and hundreds of papers have been published on this issue over the past four decades. Despite these decades of intensive research effort, both fishmeal and fish oil remain very important, quasi essential, components of most commercial aquaculture feeds. It is my belief that the state-of-the-art is less advanced than it should be and than what required by the aquaculture feed industry.

It is unfortunate that the results of a large proportion of the studies are very difficult to translate into practical solutions in the field. How meaningful is knowing that 'a protein source can replace 50 percent of the fish meal of the diet' if the experimental feeds contained at least 25 percent fishmeal whereas most commercial feeds now contain lower levels than this? A certain degree of fishmeal replacement (50 or 75% fishmeal replacement) is absolutely

meaningless without knowing the level of fishmeal in the control diet, the quality of the fish meal being replaced and careful characterisation of the nutritional composition and digestibility of nutrients in the 'alternative' ingredient studied. Moreover, feed formulation relies on a combination of numerous complementary ingredients (nutrient sources) and as such, the fishmeal replacement of a given protein source alone is largely irrelevant.

Aquaculture nutrition researchers often tend to forget that 'fishmeal (and fish oil) replacement' is not a true 'parameter' in itself. Ideally, this type of antiquated terminology should be abandoned. R&D efforts should ideally be a lot more pragmatic and focus on 'what the animal requires' and 'how can we cost-effectively and safely meet the requirements of the animals'. Progress is therefore highly dependent on a 'balanced' understanding of the nutritional requirements of the animals and nutritive value and limitations of different feed ingredients and feed additives available on the market.

Increasing collaboration between feed manufacturers, ingredient suppliers, fish producers, and research organisations has been instrumental in improving the quality and relevance of fish nutrition research in the past few decades.

Many aquaculture feed manufacturers are investing heavily in R&D activities and have established their own research facilities to test their commercial feed formulations, determine the effect of feed composition/nutritional specifications and feed ingredients on growth and feed efficiency of animals grown under commercial-like conditions. This has probably resulted in improvement of the cost-effectiveness of the feeds available to aquaculture producers. However, limited amount of information from these efforts trickles down to the global aquaculture nutrition community since the information generated is generally proprietary and is closely guarded from public disclosure for competitive advantage.

Nonetheless, a healthy, arm-length, relationship with different industry stakeholders can truly help commercial relevance of academic research efforts in aquaculture nutrition and help this field meaningfully progress to address current and future challenges, including those related to fishmeal and fish oil replacement.

Best Aquaculture Practices gains first two-star salmon operation in Southern Hemisphere

The global nature of the Best Aquaculture Practices program recently grew with the BAP certification of the first two-star salmon facility in the Southern Hemisphere. In combination with its previously certified farms, the July 23, 2012 BAP certification of Salmones Camanchacas salmon-processing plant in Tome, Chile, established the company's vanguard two-star status.

"Chile is a truly major salmon-producing region, so it is exciting for us to recognize Camanchaca's multiple certifications," BAP Vice President of Development Peter Redmond said. "This achievement represents its considerable continued efforts to comply with the BAP standards for environmental and social responsibility."

Camanchaca processes and distributes fresh and frozen salmon fillets and portions in a variety of sizes and specifications under the Camanchaca and Pier 33 brand names. With a monthly processing capacity of nearly 5,000 metric tons, its 8,200-square-meter plant is supported by over 9,600 square meters of freezer storage.

Camanchaca has four BAP-certified salmon farms located near Puerto Montt, Los Lagos Region, Chile. Its Licha, Chonos and Mañihueico Farms completed audits in July. The farm units typically harvest 4,000 metric tons of salmon per cycle.

Three additional farms are scheduled for certification in August in a plan to have all active farming sites certified before the end of 2012, Camanchaca Corporate Marketing and Planning Director Igal Neiman said. The company also plans to work with BAP-certified feed suppliers and to certify its own hatchery in Petrohue, Los Lagos Region.

"Camanchaca has a strong commitment to keep our quality standards at the highest possible level, while simultaneously caring for the sustainability of our activities," Neiman said. "The BAP standards are highly appreciated and valued by consumers, retailers and foodservice operators worldwide."

Commercial aquaculture nutrition and commercial feed formulation

by Dominique P Bureau, member of the IAF Editorial Panel

Introductory note

My favorite parts of scientific meetings or industry workshops are the coffee breaks! They are a great opportunity to interact with industry professionals and colleagues to discuss the different talks, exchange perspectives and gather information about emerging challenges. As an academic, I love getting honest feedback from professionals working in the real world to help shape my research programme and keep it in tune with the needs of the industry.

I am very glad to have been approached by the editorial team of International Aquafeed to develop a column on 'Commercial aquaculture nutrition and feed formulation' for each issue of the magazine. The main goal of this column will be to briefly discuss nutritional and feed formulation issues of importance to aquaculture feed manufacturers and aquaculture producers and hopefully initiate an informal dialogue between academic researchers and industry professionals.