

the interview

Dr Sergio Nates, Executive Vice President of Prairie Aquatech, USA

Dr Sergio Nates started his career in Aquaculture when he joined Cartagenera de Acuicultura, Colombia, after completing a BSc in Marine Biology in 1985. The next eight years were spent working in different aquaculture operations.

In 1996, he then went on to complete a PhD in Environmental Biology at the University of Louisiana in Lafayette, LA, USA. He was then awarded a National Science Foundation post-doctoral fellowship to work at the US Environmental Protection Agency (EPA) NHEERL lab in Gulf Breeze, Florida in 1997.

In 2000, he joined Zeigler Bros Inc as Research Director and later was promoted to the position of Vice President of Research and Technology. In 2005, he was appointed President of the Fats and Proteins Research Foundation in Washington DC, USA.

Over the last 25 years of his career, Dr Nates has specialised in assisting the development of responsible fishing and aquaculture practices. He has developed and implemented comprehensive management and research programs worldwide, including new product development, ingredient value models, formulation standards, and quality assurance programs. He was also a member of the Board of Directors of the Global Aquaculture Alliance for over 15 years.

The author of several book chapters and more than 100 publications, Dr Nates is the current Editor of "Aquafeed Formulation" and the Executive Vice President of Prairie Aquatech.

How did you become the Executive Vice-President of Prairie Aquatech, did your career automatically lead you to this role or did you have to make a deliberate choice?

I met our CEO, Mark Luecke at a coffee shop in Brookings, South Dakota, and was initially asked to put together a business plan to market ME-PRO into the aquaculture industry. I was offered the chance to lead the sales, marketing, and R&D efforts within Prairie Aquatech, an opportunity that was impossible to decline.

My hands-on expertise in aquaculture, graduate studies, research and new product development know-how, executive proficiency, and without a doubt the friends and network that I built over the years are the reasons why I believe I have my current role.

Seeing a start-up company grow the way we have over the past two years and having the opportunity to expand our technology and presence worldwide is a challenge that I look forward to being a part of.

Is Latin American aquaculture in good health and growing, and if so, what has bought this about?

The access to new markets has driven the growth of the LA aquaculture industry. The adoption of new production technologies and practices, including improved genetics, "better" feed, and changes in production systems toward more intensive crop-systems has fostered production efficiency gains across all aquaculture species in the LA region.

What are the challenges facing Latin American aquaculture?

Sustainable production, traceability, price of raw materials and finished goods, market accessibility and government support are some of the major challenges faced by LA aquaculture. The central limitations to the continued growth of the aquaculture industry are lagging production efficiency, and the availability and incentives to adopt technologies, management techniques, and disease outbreaks.

What are the challenges that your company faces, given the restrictions due to Covid-19?

Growing market competition will continue to press prices down and the industry will be forced into a permanent process to improve competitiveness. At Prairie we see this as an opportunity, as we can support the application of good management practices across the production and distribution feed and food chains. Feed demand will remain dynamic and uncertain.

Our biggest challenge has been how to minimise the logistics cost. This is in essence the combination of transportation and inventory costs, subject to demand satisfaction, inventory,

transportation and production constraints. As a team we work diligently to produce a consistent product and to have an exceptional service delivery.

Your company is highly focused on plant-based proteins and nutrition for all aquatic species. What has brought about this specific development into alternative nutritional ingredients to traditional raw materials?

The demand for plant-based protein alternatives that are sustainable and complete has been growing over the past two decades. The development of our proprietary fermentation technology offers aquaculture and feed producers a novel approach that supports the enhancement of functional properties in traditional plant-proteins hence cost control associated with increased high productivity and yields.

The opportunity that we have is to "engineer" novel plant-based ingredients that are competitive in their nutritional composition and cost-effective when included in feed rations.

As our industry begins to focus on more sustainable ingredient sources, can these alternatives be justified on an economic basis or will consumers be expected to pay more for their aqua foodstuffs?

A long time ago I learned from a wise man that "good feeds come from good ingredients." Over the years I learned that feeds drive the management and outcome of the production systems regardless of the geographic location, species, stocking density and type: from semi-open or recirculating ponds to open net cages, RAS, bio-floc, etc.

From pellet stability to nutrient assimilation, feed ingredients will play a major role in driving the growth of the aquaculture industry. The successful stories in the fish and shrimp industries have in large part been driven by "good" feeds (management plays a significant role), even more so today when the focus has been placed on sustainable and traceable ingredients.

We are in a "new" world of certification programs, transparency, artificial intelligence, robotics, functional ingredients and nutritional benefits. It will be challenging not to expect to pay more for aqua foodstuffs in the near future. At the end of the day, it is all about cost efficiencies and ROI (return on investment).

What in your view is the longer-term goals of aquatic industries when addressing protein food supplies?

Most aquaculture species are far more efficient feeders than land-based livestock; aquaculture production also generates fewer carbon emissions and utilizes less fresh water and arable land per pound of production than their land-based counterparts.

These efficiencies are particularly important not only to address

the unprecedented stresses on food supply chains but also food security. The question remains if we can take advantage of how much water exists to produce "protein food" and if we can do it in a way that we can preserve the quality of the surrounding environment.

We can't forget that global climate change, which is impacting metabolic rates of all species, photosynthesis, water physico-chemical parameters, etc. will drive the food production systems and how we approach the production of foods in general.

Do you see consumers coming to rely more on fish and other aquatic foodstuffs in their normal diets?

It is well known that protein consumption is directly tied to health and the demand for animal protein will rise significantly as more of the world increases wealth over the coming decades. Without a doubt, the shift towards proteins produced in a more sustainable way that will support the production of foodstuffs and the growing demand for seafood.

We expect the world's population to grow to over nine billion by 2050. How will aquaculture rank against other land-based food animals when it comes to the supply of plant-based proteins and nutrients in their diets?

Cereals and other vegetal sources dominate the major portion of dietary protein intake globally. On the other hand, plant-derived alternatives to meat are being developed with many products already on the market including fishless fish products.

The increased consumption of plant-based proteins will be driven by economic and sensory factors, environmental, and social issues.

