



# Alltech Aquaculture

Leading Innovation, Driving  
Change, Creating Advantage





# Overview



## About Alltech

Founded in 1980 by Irish entrepreneur and scientist Dr. Pearse Lyons, Alltech is a cutting-edge technology company in a traditional industry, agriculture. Our products improve the health and nutrition of plants and animals, resulting in more nutritious products for people as well as less impact on the environment.

With expertise in yeast fermentation, solid state fermentation and the sciences of nutrigenomics and metabolomics, Alltech is a leading producer of yeast additives, organic trace minerals, feed ingredients, premix and feed.

Together, with our more than 5,000 talented team members worldwide, we believe in “Working Together for a Planet of Plenty™.” With the adoption of new technologies, the adaptation of better farm management practices and the ingenuity inherent in the human spirit, we believe a world of abundance could be ours.

Alltech is a private, family-owned company, which allows us to adapt quickly to our customers’ needs and stay focused on advanced innovation. Headquartered just outside of Lexington, Kentucky, USA, Alltech has a strong presence in all regions of the world.

## Alltech Aquaculture

The aquaculture industry is changing rapidly, making it vital for the industry to meet the needs of the entire food production chain. Through a network of global strategic research alliances, doctorates and partnerships with leading producers and governmental bodies, Alltech develops and applies innovative scientific insight directly at the industrial level. We work with producers across the globe to address the issues most important to them, including feed efficiency, antibiotic-free production, food enrichment and the management of mycotoxins, gut health, protein, enzymes and minerals.

Alltech is invested in innovative research and development to enable our partners to meet these challenges. Our technological breakthroughs directly impact fish and shrimp performance for farmers around the world. We provide advanced feeds and feeding solutions that help improve survival and product quality, which is essential for maintaining competitiveness. Healthy, robust animals cope better with the rigors of the environment and with daily farming practices, promoting productivity, feed efficiency and profitability.



## WORKING TOGETHER FOR A Planet of Plenty™

Alltech founder Dr. Pearse Lyons had a vision to ensure that the business would have an impact on our industry and our planet far into the future. In 1989, he took the stage at our Symposium and shared our company’s commitment to a guiding ACE principle, emphasizing the importance of delivering benefit to Animals, Consumers and the Environment. He fervently believed that the well-being of each depended on maintaining harmony between all three. It was a radical idea at the time — so radical, that some customers walked out.

With diminishing natural resources, a changing climate and a growing population, sustainability is becoming a non-negotiable for businesses and for agriculture. Our Planet of Plenty vision propels our founding ACE principle into the future and into a new world of possibility.

We at Alltech, along with our partners, believe that leading innovation, driving change and providing benefits will allow the aquaculture industry to continue to flourish. We are committed to following this path in both our global development and our general goal of working toward creating a Planet of Plenty™ for all.

A planet of plenty? The choice is ours. Join us on our journey to create a world of abundance for the Animal, the Consumer and the Environment.





# Alltech Aquaculture



## Solutions for the aquaculture industry

Alltech provides nutritional technologies to overcome challenges faced by aquaculture species throughout the production process, from first feeding and juvenile development to proper growth and harvesting. Our solutions are tailored to provide customers with a competitive advantage throughout the entire production process.

The needs of the producer are Alltech's priority. Our five primary areas of expertise enable us to overcome the challenges faced by an aquaculture industry under increasing demand.



### 1. Science

Our nutritional technologies — created through the innovative study of nutrigenomics and metabolomics — help animals maximize the nutrients in their feed to achieve optimal well-being and performance.

### 2. Ingredients

Our nutrigenomics research is revolutionizing our understanding of the link between what we eat and our health and wellness. We have developed a range of technology to address dietary requirements at different life stages in aquaculture production. AQUATE™ provides a complete solution to improving the health, performance and filet quality in fish and shrimp is based on proprietary yeast, enzyme and mineral components, specifically designed to include in-feed formulation that can be delivered on-farm.

### 3. Feed

Through collaboration with Alltech Coppens and Guabi, we have a full understanding of the production chain, including feed formulation, applied research, production and on-farm support. Alltech Coppens builds upon years of recirculating aquaculture systems (RAS) expertise, and by applying AQUATE™ technologies in our aquatic feeds, producers can produce more with less.

### 4. On-Farm Support

Our global team of aquaculture experts, all of who have expertise in their local markets, regularly plan visits on-farm to provide nutritional advice. They can also conduct farm audits and tailor cost-effective diets, with no compromise to fish health and performance.

### 5. Consumer

At Alltech, we believe that adopting new technologies that contribute to healthier plants, animals and people throughout the food chain is the secret to achieving a more sustainable world. One way to foster consumer confidence is to encourage value chain transparency. We work closely with food safety institutions in developing strategies and policies to ensure traceability and safety, from farm to fork.

As thought leaders in the industry, we also educate consumers on aquaculture production, the future of farming and consumer trends.

## Alltech Coppens



Alltech Coppens develops and produces a wide portfolio of specialist fish feed. Originally established more than 25 years ago as Coppens International, the company is a well-known recirculating aquaculture system feeds specialist and a producer of a wide range of the highest quality fish feeds, special feeds, specifically tailored to the requirements of each individual fish species and sustainability, exporting to more than 60 countries worldwide.

Fish are increasingly becoming recognized as an essential part of a healthy diet. In the coming years, more fish will be produced in dedicated fish farms than will be caught in the sea. This makes the aquaculture sector a growing market; in fact, it is the fastest-growing area of the feed industry. We believe that a strong partnership between aquaculture farmers and feed suppliers is vital for ensuring the highest level of performance. Our fish feed specialists are constantly developing the best aqua feeds for optimal feed conversion, fish health and performance. Alltech Coppens ensure that fish farmers around the world can practice responsible and effective aquaculture. Together, we are making a sustainable contribution to food production for a rapidly growing global population.

## Alltech Coppens Aqua Centre (ACAC)

The Alltech Coppens Aqua Centre (ACAC) plays a central role in this process. The ACAC is located in Valkenswaard, the Netherlands, an area that has a rich history in fish farming that extends back to the 1800s. In 2017, Alltech invested heavily in the facility, which is now one of its global bioscience centres. This allows the ACAC to research and provide solutions to issues within the aquaculture industry in conjunction with Alltech's more than 20 research alliances, several of which work directly in aquaculture. The ACAC's four key focus areas are "performance," "palatability," "pollution" and "planet." The research is effectively integrated into its overall business operations. In the past 15 years, the ACAC has carried out hundreds of studies. In the ever-changing aquaculture industry, being adaptable to market trends and pursuing innovation in research positions Alltech Coppens with diets to fit every farming situation.



In addition to supporting and evaluating Alltech Coppens feed formulation initiatives, the ACAC actively focuses on beneficially altering fat digestion, optimizing mineral nutrition and developing novel nutritional approaches for reinforcing gut health and preserving product quality while minimizing the environmental impacts of aquaculture. The ACAC is the Netherlands' only research centre that carries out practical and applicable research within the field of aquaculture.



# Alltech Aquaculture



## Guabi

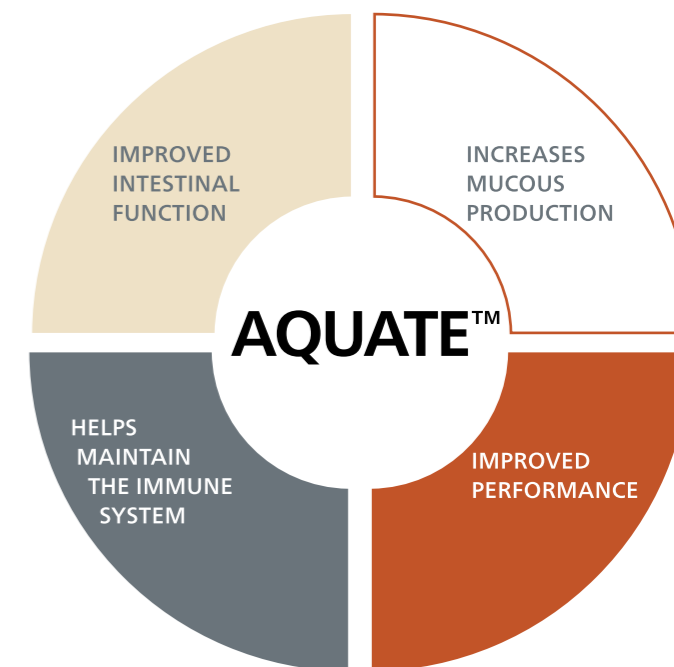


Founded in 1974, in Brazil, Guabi manufacturers annually three hundred thousand tons of innovative and high quality products for nutrition and health for fish, shrimp, horses, ruminant and backyard for all life stages, production systems or competition.

Science and innovation are at the heart of the research process at Guabi, which is the leader in the Brazilian market. The first company to produce extruded feed for shrimp and micro-extruded feed for fish, it is a pioneer in applying technologies, which offers natural protection for fish and shrimp that live under constant threat of contamination. Guabi also maintains critical research alliances to improve and develop new products.

## AQUATE™

Aquaculture species face many challenges throughout the production process, from first feeding and juvenile development to growth and harvesting. These obstacles range from stressors associated with daily operations, environmental threats and nutritional challenges from the increasing use of plant proteins, contaminants in raw materials and nutrient availability. AQUATE™ provides a complete solution to improving the health, performance and filet quality in fish and shrimp, focusing on three key aspects:



### 1. Gut function:

Optimal gut function is necessary for optimal animal performance. The role of the gastrointestinal tract is to process and digest feed into a form that can be easily absorbed by the animal.

### 2. Efficiency:

The interactions between the intestinal microflora, gut morphology, the immune system and nutrient uptake can have a major influence on the animal's health and performance. Understanding the structure and function of the intestine enables the deployment of technologies that can protect and nurture a healthy gut environment.

### 3. Mucous production:

Components of mucous have been shown to play a role in the innate immune defenses of animals. Improving the external and internal production of mucous plays a vital role in the defense mechanisms of each species and plays an integral part of the immune system response.

Benefits	
	- Supports improved intestinal function
	- Helps to maintain the immune system
	- Maximizes growth potential
	- Supports feed efficiency
	- Contributes to improved filet quality and composition





# Alltech Management Programmes



*Our experts will work with you to implement a program to monitor your success and performance on-farm*

## Alltech MYCOTOXIN MANAGEMENT

Mycotoxins seldom occur in isolation. Given the fact that one mold can produce several mycotoxins, several molds can contaminate one feed ingredient, and several ingredients make up a feed ration. Therefore, it is not uncommon to find multiple mycotoxins in finished feed. This allows for interactions among mycotoxins, which leads to synergistic or additive effects on the animal. Mycotoxin interactions result in unexpected animal toxicity and make diagnosis difficult. To operate a successful mycotoxin management program, we look at the whole challenge, from the farm to the feed mill and from risk assessment to feed management.

The Alltech Mycotoxin Management Program provides a number of solutions to help mitigate the threat of mycotoxins.

### Products:

#### MYCOSORB A+®

Mycosorb A+® is one of the most advanced mycotoxin binders available. It reduces mycotoxin absorption, negating the damaging effects of mycotoxins on the health and performance of fish and shrimp. This sets it apart from other competitor products.

Mycosorb A+® has been approved by the Carbon Trust. The Carbon Trust is a powerful endorsement, which enables us to further help farmers reduce their on-farm carbon footprint, while increasing their profitability.

#### Benefits

- A proven, broad-spectrum mycotoxin binder, which tackles mycotoxin challenges as a whole rather than dealing with individual mycotoxins
- Fast-acting, interacts with mycotoxins within 10 minutes
- Effective at a low inclusion level
- Proven by scientific research: 150 peer-reviewed published studies; 102 animal trials; 21 *in vitro* mode of action trials.

## Alltech GUT HEALTH MANAGEMENT

The gut is the first line of defense for optimal animal health and plays a major role in immune function. The Alltech® Gut Health Management program is designed to ensure a healthy foundation for performance and profitability in aquaculture. It supports animal performance by promoting favorable bacterial communities, building natural defenses and maximizing growth, enabling the animal to overcome both environmental and physical challenges.

### Products:

#### BIO-MOS® and ACTIGEN®

Bio-Mos® and Actigen® are unique products developed from a selected strain of *Saccharomyces cerevisiae*, selected by Alltech and isolated to create a more effective product in order to optimize gut health. Actigen®, a second-generation strain, was developed to be a traceable form of yeast carbohydrate.

Bio-Mos® and Actigen® are nutritional solutions to enhance feed efficiency and contribute to immunity development and improving performance and profitability.

#### Benefits

- Maintains gastrointestinal integrity and stability
- Stabilizing the intestinal microflora
- Effective absorption of nutrients in the body
- Strengthening of immune system
- Supports growth
- Participates in normalizing gut microflora and promoting microbiome diversity

#### NUPRO®

NuPro is a consistent, easily digestible and traceable high-quality protein source with essential nutrients to support the overall health and performance of fish and crustaceans. Due to its high concentration of glutamic acid, specific amino acids such as arginine and nucleotides, it enables a chemical reaction that promotes palatability enhancement

NuPro provides beneficial effects to gut health, supporting intestinal mucosal cell replacement and organic defenses due to nucleotides and increasing tissue DHA concentrations.

#### Benefits

- Aids gut development
- Supports uniformity
- Promotes profitability
- Maximizes growth potential
- Supports immune system response



# Alltech Management Programmes



## Alltech® MINERAL MANAGEMENT

Fish and shrimp have essential requirements for trace minerals, which must be met through the diet. The Alltech® Mineral Management program uses Total Replacement Technology™ (TRT), which focuses on feeding organic trace minerals that are better absorbed, stored and utilized by the animal than minerals provided in traditional inorganic forms. Alltech has proven that this approach can optimize performance at significantly lower inclusion levels.

### Products:

#### BIOPLEX®

Bioplex® offers a range of organic trace minerals that are organically bound to amino acids and a range of peptides to mimic nature as close as possible. They are easily absorbed and readily metabolized, optimizing animal performance. The BIOPLEX® organic mineral line is composed of copper, zinc, iron and manganese, which are peptide-bound minerals. Its production process follows strict quality control, avoiding contamination by heavy metals, dioxins, PCBs and other contaminants.

#### Benefits

- Offers higher bioavailability than inorganic minerals
- Reduces concerns about negative mineral interactions
- Supports mineral retention and tissue reserves
- Reinforces mineral status, which leads to optimal overall health, immune status and reproductive function in the animal
- Is readily absorbed, stored and utilized by the animal
- Is supported by more than 21 years of research
- Faster growth
- Optimum fertility
- Increase in meat quality
- Natural improvement in colour scores
- Increased mineralisation in the tissues
- Improvement in enzyme function

#### SEL-PLEX®

Sel-Plex® is Alltech's proprietary organic form of selenium yeast. It is an excellent dietary source of selenium and is manufactured to be as close to nature as possible. That is, the selenium in Sel-Plex is in the same form that is found naturally in plants. Sel-Plex is the first European Union-approved and only U.S. Food and Drug Administration-reviewed form of selenium-enriched yeast. Supported by more than 19 years of research, Sel-Plex is also the most proven form of selenium-enriched yeast. Alltech is currently the world's largest producer of natural selenium.

Selenium plays an essential role in metabolism, orchestrating normal growth, supporting normal reproduction, neutralizing free radicals and supporting the body's normal defense mechanisms against infection. Selenium allows animals to optimize health status during periods of increased demand. Sel-Plex delivers a superior source of selenium offering great potential to increase the efficiency of fish and shrimp production through selenium nutrition.

#### Benefits

- Better meat quality
- Improved pigmentation
- Higher Supports growth rate
- Reduced filet gaping
- Increased selenium muscle content
- Supports feed conversion ratio (FCR)
- Optimized immune performance

### Support Tools

#### ALLTECH Q+™

Alltech developed the Alltech Q+ (Quality Plus) program, unique to the Bioplex® range of trace minerals, to guarantee quality, safety and performance in every batch. Its production process follows strict quality control, avoiding contamination by heavy metals, dioxins, PCBs and other contaminants.



## Alltech® FEED EFFICIENCY

Getting the most from your feed can make all the difference in profitability in your operation. The Alltech® Feed Efficiency program is designed to maximize nutrient release and reduce overall feed costs. Understanding dietary fractions present in feed ingredients and the complex interactions between enzymes, substrates and the gut can improve the digestibility of all nutrients.

### Products:

#### ALLZYME® SSF

Allzyme® SSF is a complex that improves profitability by maximizing nutrient release. Utilizing solid state fermentation (SSF) through an innovative production system, ALLZYME® SSF is a unique enzyme complex that works in synergy with the animal's digestive system to break down layers of feed that were previously inaccessible through digestion.

#### Benefits

- Promotes nutrient release
- Supports raw material flexibility
- Support feed efficiency
- Assists in improving animal performance

For further information, please email [aquasolutions@alltech.com](mailto:aquasolutions@alltech.com)



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