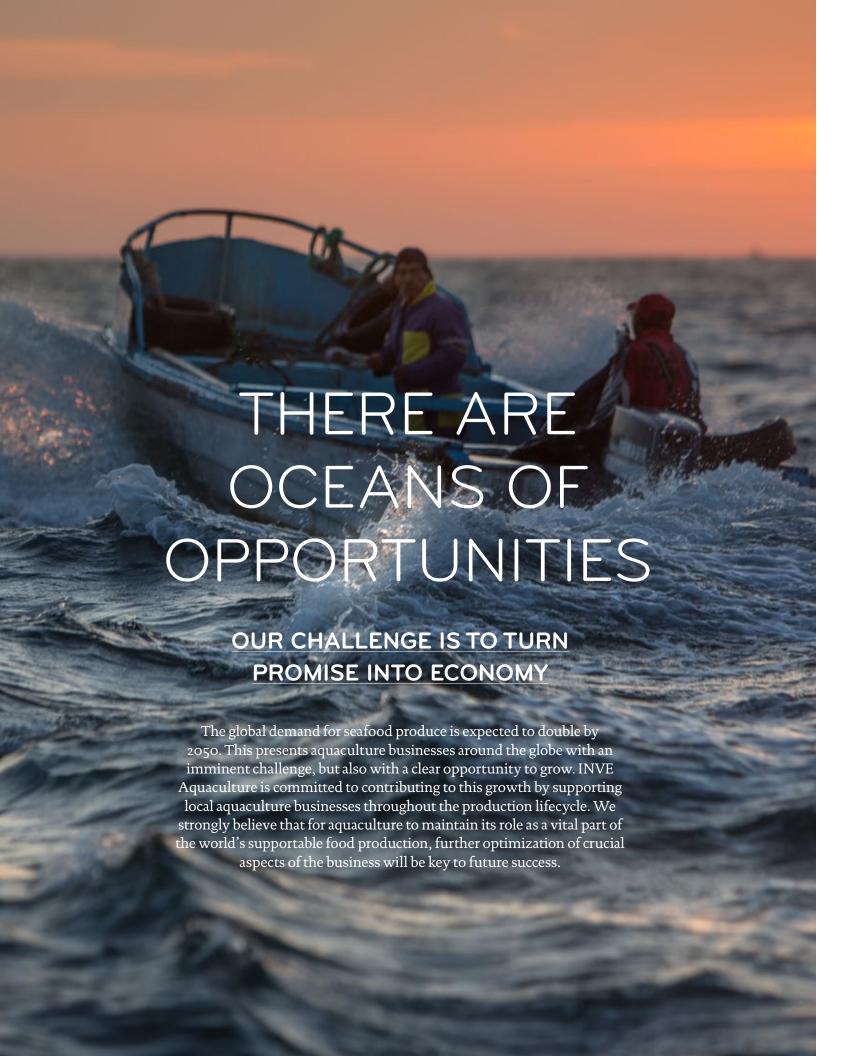




SHAPING AQUACULTURE TOGETHER

A Benchmark Company





35%

In aquaculture alone, a production growth of 35% can be achieved without physical expansion of the farming infrastructure. This can be achieved by optimizing the production of faster growing animals with a stronger resistance to pathogens.

> 230 **MILLION TONNES**

By the year 2050, aquaculture is expected to grow its global production capacity to a total of 230 million tonnes worldwide.

62%

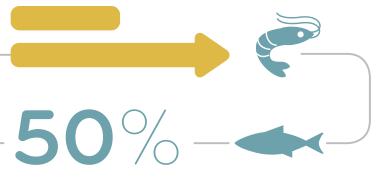
With capture fishery production reaching its limits, aquaculture is expected to increase its current contribution of 35% to an even higher share of 62% of global seafood production.

MILLION JOBS

According to an FAO report issued in 2016, global aquaculture employment is estimated between 27.7 and 56.7 million full- and part-time jobs.

IN THE OCEANS

Only two percent of the world's food supply comes from the ocean. It is clear that aquaculture has a huge potential – an obligation even – to grow.



MORE DEMAND

To meet the global demand, the world's food production needs to grow by 50% in the next 15 years. This challenge can be met only through higher production and improved production efficiency.

Infographic based on figures published in World Bank Report n° 83177-GLB: 'Fish to 2030, prospects for fisheries and aquaculture.

CARE FOR GROWTH

SHAPING AQUACULTURE TOGETHER



Just over 30 years ago, INVE Aquaculture started as the idea of a group of people. Scientists and businessmen who believed in stimulating healthy growth and performance in aquaculture.

The healthy growth of fish and shrimp, the growth of our clients' local businesses and the growth of global aquaculture. Today, this is still the main driver of our company. We serve the industry with the most comprehensive portfolios, brought directly into practice by dedicated specialists that are always by the side

of our customers. By supporting better care throughout the culture lifecycle, we contribute to our clients' growth and long-term success.

Our scientists and technical advisors continuously travel the world, introducing a wide and ever-growing range of solutions varying from larval diets to probiotics, water and soil treatment.

With an infinite passion to maintain best practices in aquaculture, we rigorously seek to help our customers maximize their efficiency in all parts of their work, through state-of-the-art technologies and skillful advice on the newest farming methods.

"THE ESSENCE OF AQUACULTURE WILL ALWAYS REMAIN THE SAME: MASTERING **THE ABILITY TO** TURN FRAGILE LIFE INTO SOLID **GROWTH**. THE CIRCUMSTANCES IN WHICH WE HAVE TO DO THIS HAVE DECADES OF INNOVATION WE HAVE SEEN AQUACULTURE EVOLVE FROM SMALL-SCALE PIONEERING TO THE INDUSTRY IT IS TODAY: A VITAL PART OF THE WORLD'S SUPPORTABLE FOOD PRODUCTION.

WE AIM TO FURTHER SUPPORT THIS EVOLUTION AND **SHAPE** THE FUTURE OF AQUACULTURE TOGETHER WITH OUR CUSTOMERS BY CARING FOR THEIR LONG-TERM GROWTH!



All over the world, over 400 INVE Aquaculture employees help farms and hatcheries get the most out of their production cycle.



DOMAINS OF EXPERTISE







We specialize in providing state-of-theart solutions in three main domains that are essential to aquaculture production: optimization of animal nutrition, careful management of animal health and rigorous control of the culture environment.



different countries, we are always by the side of customers with expert advice and cutting-edge solutions.



Artemia Systems NV, started as a Spin-Off from University Ghent, was the first company to develop and market certified Artemia cysts

Acquisition of Artemia Systems NV by INVE and investment in international expansion with a complete larval nutrition portfolio

Further investment in diversification of Artemia resources, next to own sourcing at the Great Salt Lake since 1991

Intensified development of an innovative animal health product portfolio

Release of the revolutionary Sep-Art technology and several advanced animal health solutions

Launch of our Best Balance program, introducing a vision on progressive live feed replacement to the market

Celebration of our 30th anniversary

Integration of INVE Aquaculture into Benchmark Holdings

YEARS OF INNOVATION

Our scientific background leads back to the University of Ghent in the 1980s. We put 30 years of innovation at the disposal of our customers.

PART OF THE BENCHMARK GROUP





In December 2015 INVE Aquaculture became part of Benchmark Holdings, market leader in the supply of applied biotechnology and knowledge transfer to businesses in aquaculture and agriculture related industries.

Together we offer the most complete specialized aquaculture product portfolio in the industry covering Nutrition, Health, Environment and Genetics. This way we are supporting our customers in taking better care throughout the culture lifecycle. As a result, we can contribute more effectively than ever to our clients' growth and long-term success.



ADDING VALUE TO THE AQUACULTURE LIFECYCLE WITH ADVANCED SCIENTIFIC EXPERTISE

Benchmark Holdings serves its customers globally with the industry's most comprehensive portfolios of advanced solutions for sustainable and profitable aquaculture. Our activities can be roughly categorized in four advanced fields of expertise, that we selectively deploy in those specific stages of the aquaculture lifecycle where they can bring the highest added value. These are:

GENETICS

The effective use of selective breeding with genetically improved stocks is a key success factor for sustainable aquaculture. With the design and implementation of well-balanced breeding programs and a steady supply of genetically improved breeders, eggs and fry, we offer paths to genetic gain tailored to each of our clients' requirements.

NUTRITION

Our advanced fish and shrimp feed solutions balance the need for live feed with the reality of limited natural resources. By optimizing our clients' ability to find this balance while maintaining their productivity and profitability, we help them establish healthy businesses in today's bio-economy.

HEALTH

Continuity in performance requires solid risk prevention and control from hatchery to harvest. Threats to the yield such as disease, deformities, reduced growth rate and mortality can be alleviated or even eliminated with preventive and curative solutions such as accurate diagnostics, vaccines, feed additives and probiotics.

ENVIRONMENT

Animals are most likely to thrive when their living conditions are stable, healthy and uncompromised by harmful substances and germs. We offer the right solutions for pond bottom management, water cleansing, microbial and algal management, biofilm control... All of our products come with expert advice to ensure the correct application.

[&]quot;Setting a new benchmark for sustainable living — starting with food production."



SHARING KNOWLEDGE

WITH A GLOBAL COMMUNITY OF AQUACULTURE ENTREPRENEURS AND STAKEHOLDERS

Aquaculture can only prosper where knowledge and entrepreneurship meet. That has always been our philosophy. We see a thorough understanding of the fundamental biology of animals and their culture environments as core to our work. But as well as creating and applying knowledge, we believe in sharing it. Because sharing knowledge about how to care for growth is the first step towards making it happen.

To make this vision come true, INVE Aquaculture builds its activities on two main pillars: high-level research with partners to create new culture technologies, and close relations with our customers and stakeholders to turn these innovations into reality. This is what we mean with our slogan: 'Shaping Aquaculture Together'.

APPLYING KNOWLEDGE WHERE IT MATTERS MOST

With a scientific background that leads back to the University of Ghent in the 1980s, we are ideally placed to support our customers with expert advice. Because we can only achieve lasting improvement if the innovations and knowledge we create are embedded in everyday practice.

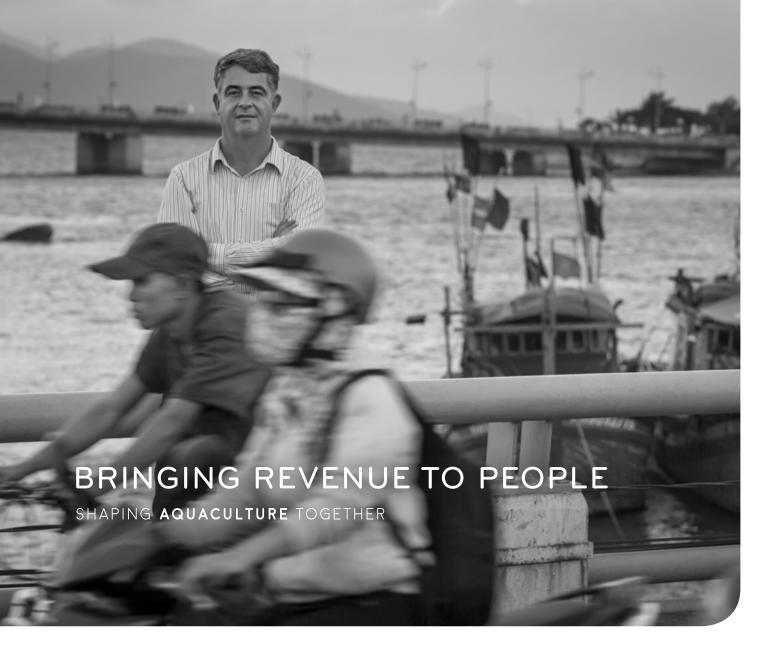
Working closely together with ambitious aquaculture entrepreneurs worldwide, INVE Aquaculture is a privileged witness to many successes, innovations and breakthroughs with regards to products, techniques, species and developments that help to improve breeding results.

COMMITTED TO THE FUTURE OF AQUACULTURE

Throughout the history of aquaculture, INVE Aquaculture has been there whenever a new idea or concept changed the face of our industry. We will continue to be a recognized innovator based on our knowledge of aquatic life and our understanding of our clients' needs. With field teams in the four corners of the world we stay up to speed with what is going on in the market, monitoring all important trends, innovations and breakthroughs.

PARTICIPATION

Our strong commitment to the future development of the aquaculture industry is also the reason why we actively participate in leading aquaculture events around the world and we are proud to be a founding member of important organizations such as the World Aquaculture Society, the Global Aquaculture Alliance and the European and Asian Aquaculture Technology and Innovation platforms (EATiP/EURASTIP).



INVE AQUACULTURE IN ASIA

The rapid growth of aquaculture in Asia has been a direct result of diversifying farming practices and adapting to the production of exportable species. The local production of shrimp and catfish, but also of commercially interesting new species such as grouper and barramundi are done on an increasingly professional level, showing great promise on both the domestic and the export market.

By developing balanced feed and health formulas and educating farmers in their optimal use, we can offer them the reassurance of feeding solutions with proven results.

We show our clients that reducing both health challenges and feed cost can be achieved by using more expensive but higher performing products and solutions that yield higher survivals, larger and more robust fry.







INVE AQUACULTURE IN EUROPE

Quality, food safety and traceability have become critical success factors for anyone who want to market food produce in Europe. For this apparent reason, simply increasing production volumes alone is not enough to increase business revenue.

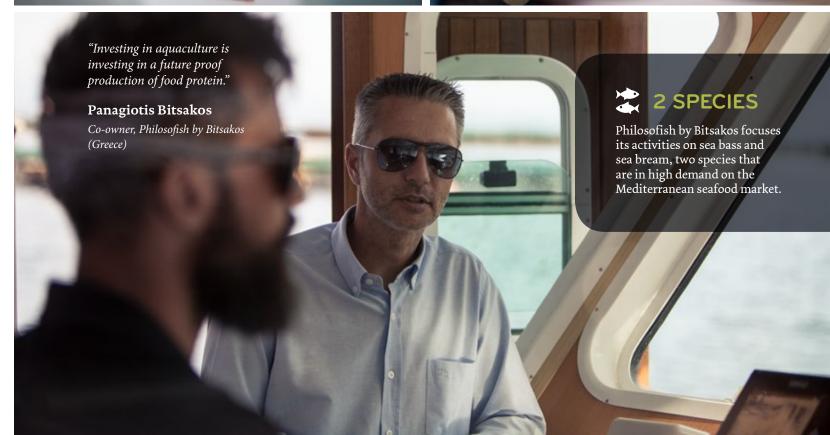
An additional challenge is adding value to the product to obtain adequate price margins. At the same time an environmentally-friendly approach to

aquaculture is no longer just an ideological standard. It has become mandatory to maintain production licenses and commercial viability.

INVE Aquaculture's extensive knowhow as a pioneer and innovator makes us the ideal partner to come up with blue-green solutions for clean and responsible aquaculture.







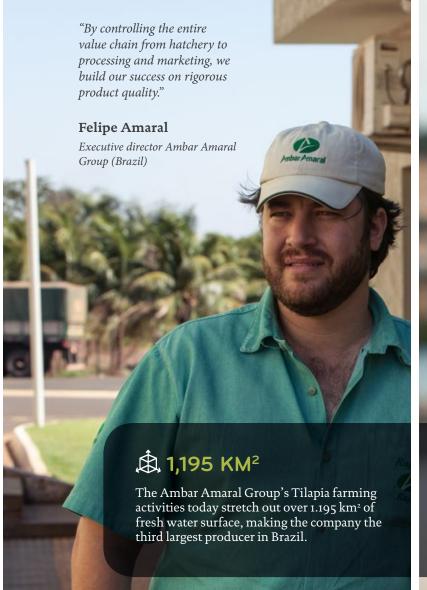




Having overcome a temporary increase of phenomenon like white spot and EMS, Latin America has regained a strong reputation for quality shrimp farming. Still, local entrepreneurs have realized the need to diversify and spread the risks for their business.

Benefiting from the enormous freshwater availability on their continent, an entirely new generation of skilled aquaculture specialists has developed the production of tilapia fish.

Helping these ambitious entrepreneurs set up a rigorous approach to microbial management, INVE Aquaculture gives them back the confidence and continuity they need to keep on developing their business. Eliminating common risk factors throughout the culture lifecycle is one of INVE Aquaculture's main added values.



"Aquaculture is a people's business, based on knowledge and best practices."

Lucas Cunha

Operations manager Bomar Pescados (Brazil)



communities surrounding the farms, Bomar

220 more in the industry.

generates approximately 320 jobs on farms and





OUR COLLECTIVE GOAL: PRODUCING BETTER FOOD FOR MORE PEOPLE

Quality and attractiveness of the product, together with food safety and traceability, have become critical factors for anyone who wants to successfully market any kind of food produce. The continuous improvement of key activities within the seafood production cycle is the only way to leverage a first-rate final seafood product in today's consumer driven market. Our collective goal is to produce quality seafood that consumers are confident to buy and serve to their families.

To achieve this goal INVE Aquaculture wants to be the preferred nutrition and health specialist for aquaculture businesses around the world. We provide high-tech, cost-effective tools that integrate the best of both practice and science. Combined with our passion for science, we aim to create unique solutions that effectively support farmers in realizing a profitable, blue-green production of high quality seafood.

WE DEVELOP

Innovation has always played a key role in our company. Substantial resources are allocated every year to develop new specialty products and optimizations.

WE PRODUCE

Through our relentless drive for continuous improvement we can deliver under total quality guarantee and at affordable cost to our customers globally.

WE IMPLEMENT

Our technology is at the forefront of our industry and our people right next to the farmers. With enthusiasm and inventive thinking we always strive for the best results.



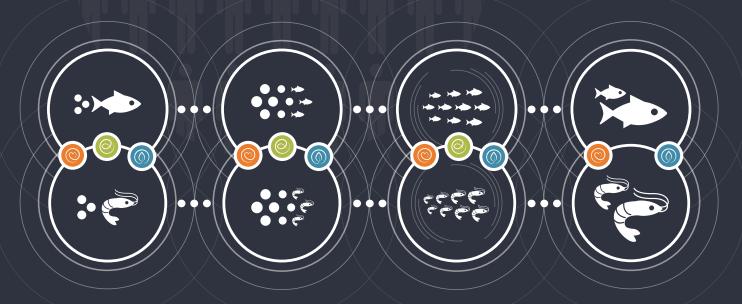
Innovation has always played a key role in our company. Substantial resources are allocated every year to develop new specialty products and to further optimize our existing portfolio.

To maintain our global image as prime innovators in aquaculture, we rely on a skilled team of more than 35 researchers and staff based in our Innovation headquarters in Belgium and in our 2 testing centers in Italy and Thailand.

A close link to the Innovation Centers of the Benchmark Group allows us to develop holistic solutions for securing the balanced growth of the cultured species.

OUR FOCUS: ADDED VALUE AT KEY POINTS IN YOUR CULTURE LIFECYCLE

INVE has developed a rigorous approach to caring for marine life capital. However, we deliberately choose not to enter the market of bulk feed or commodity products. On the contrary, we only invest in specialized activities in which we can actually be the best.



BROODSTOCK

Effective nutrition and health management in a secure culture environment beneficially effects spawning, egg production and larval quality.

HATCHERY

Adequate care in the first life stages optimizes the animal's health and robustness, resulting in maximized yield and optimal fry quality for best performance in the later farming stages.

NURSERY

After weaning, fish fry need to be optimally guided onto the farming stage, preparing them for healthy, well-balanced and costeffective growth.

GROW-OUT

Continuity in performance from hatchery to harvest requires solid risk prevention to eliminate threats such as disease, reduced growth rate and mortality.

INVE AQUACULTURE'S DEVELOPMENT LIFECYCLE

To guarantee that our innovations will work under commercial conditions, every new development follows a standardized elaboration path before it is introduced to the market.



IDEATION & INNOVATION

A continuous follow-up of what is going in the market leads us to new ideas, each of which is explored through an intensive research programme.



DEVELOPMENT & LAB TESTING

Through scientific testing in our research labs in Dendermonde (Belgium) and our research facilities in Italy and Thailand.



FIELD VERIFICATION

Verification and operational testing in semicommercial circumstances in our dedicated test centers in Italy (for marine fish) and Thailand (for crustaceans).



MARKET PREPARATION

Full operational testing and analysis in commercial circumstances at the production facilities of selected clients.



LAUNCH

Commercial deployment and field monitoring of proven results in the market.

KEY POINTS OF INTEREST

As a leading innovator in the aquaculture industry, INVE concentrates its development pipeline on addressing the most pressing issues in modern aquaculture.



Biologist, nutritionists and digestibility experts are continuously working on new and improved diet formulations to optimize performance, robustness and quality of the fry.

LIVE FOOD REPLACEMENT

Advanced studies and technologies allow us to produce seafood with a reduced dependence on live feeds and fresh ingredients, without compromizing on performance and quality.

STRESS AND DISEASE RESISTANCE

An in-depth understanding of microbiology in animals and their culture environment, together with oral delivery of bio-active compounds allows us to produce more robust animals that show a better resistance to stress and common pathogens.

OPERATIONAL EFFICIENCY

Our extensive experience with day-to-day work in hatcheries and farms enables us to develop technologies that support operational efficiency. Our Sep-Art technology for Artemia cysts is a good example.

SHAPING AQUACULTURE TOGETHER

Collaboration with key researchers and institutions, key customers and commercial partners worldwide is a continuous driver for successful innovation.

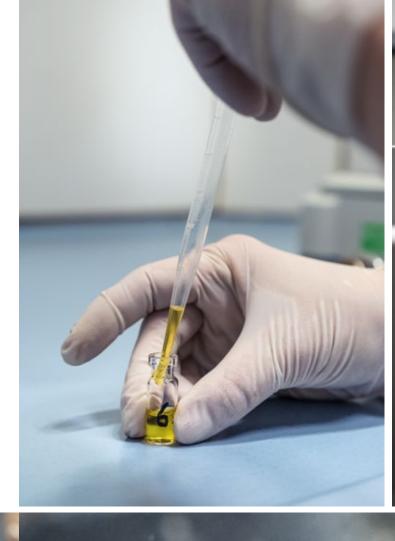


INVETECHNOLOGIES (BELGIUM)

THE EPICENTER OF NEW DEVELOPMENTS

At our facilities in Belgium, nutrition and health engineers specialized in Artemia, larval fish, larval shrimp, microbiology, immunology, aquatic diseases and diet processing technology are coordinating research projects using state-of-the-art analytical labs, small-scale test facilities and pilot-scale feed processing equipment.

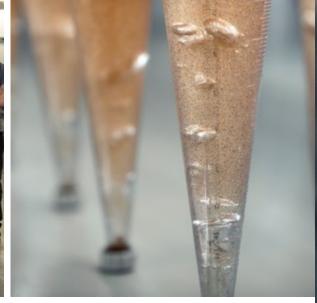
A skilled team of more than 20 researchers, scientific and technical staff dedicate themselves to in-depth studies and development in various fields, such as feed digestibility, robustness, stress and disease resistance and optimization of the culture environment. All developments are set up within a market oriented context: fully compliant with all current regulations, sustainable with regards to the environment and cost-effective for the farmer.







Our solid reputation as a scientific leader enables us to attract both established professionals and high potentials to keep our team at the forefront of the industry.



Hatchery nutrition remains one of our core specialties.



INVE AQUACULTURE RESEARCH CENTER (ITALY)

BREAKING NEW GROUND IN MARINE FISH CULTURE

To guarantee our products will work under commercial conditions, our testing centers operate real-life hatchery production cycles for fish and shrimp. INVE Aquaculture Research Center (IARC, formerly known as MRS) is our research and testing center for marine fish, located in Tuscany, Italy. It has capacity for running trials in replicate smaller tanks as well as in commercial-scale facilities

In a separate mini hatchery, we run test on new feed trials, optimized protocols and innovative applications that can improve the production of commercial species.

In the broodstock department we investigate the impact of feeds protocols and microbial tank management on animal health, spawning efficiency and egg production.







The IARC center is located on the coast of Rosignano Solvay near Pisa, Italy.



Novel techniques for optimized live food production (algae, rotifers, artemia) are one of the core activities of the team.



Green water stage operations are carefully monitored and optimized.





The center has been set-up to operate as a commercial hatchery. New and existing feeds are applied and tested in real-life circumstances to get results that are relevant to the market.

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INVETROPICAL AQUACULTURE RESEARCH CENTER (THAILAND)

DEVELOPING THE FUTURE OF SHRIMP PRODUCTION

INVE Tropical Aquaculture Research Center (ITARC, formerly known as SCRD) is our testing center in Asia, located South-East of Bangkok (Thailand). The site used to be a commercial shrimp hatchery and is now adjusted to facilitate shrimp (larvae) culture trials. Both centers are also used for demonstrations of our products and protocols to customers. We also have test facilities for ongrowing trials with shrimp and tilapia.



Our Thai technicians combine their expertise in local farms and hatcheries with the advanced technological knowhow they gain from working in our company.



We are a team, scientists from INVE Dendermonde closely collaborate with their colleagues in our Thai testing facilities to run integrated research programmes on e.g. feed digestibility and pathogen resistance.



By applying best practices in shrimp hatchery operations, we can prove that optimized protocols effectively stimulate continuous growth, even for smaller-scale businesses.



Thanks to the early adoption of new technologies such as digital larvae counting and analysis and the first ever automated shrimp feeding system, we achieve highly accurate test results.



In addition to our extensive set-up for shrimp hatchery research, we also run trials with other commercially interesting

species such as Nile Tilapia.

Our researchers are closely involved in trial studies for shrimp and tilapia that are set up in collaboration with local universities and institutes.

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WE PRODUCE

To ensure consistent product quality and total control over the production process, we operate fully owned production facilities in the USA, China and Thailand. Our largest production facility houses all process technologies required for manufacturing our specialized feed and health products. Through our relentless drive for improvement we can deliver the highest quality products at the best possible cost to our customers globally.



QUALITY CONTROL & CERTIFICATION

From raw materials to the finished product, we want to ensure that the highest quality standards are met consistently. A dedicated Quality Control team makes sure that the whole production cycle is continuously monitored in-line. INVE (THAILAND) Ltd. is GMP and HACCP certified for the production of its compound feeds, Artemia products and probiotics and it has achieved GLOBAL GAP (Good Agricultural Practices) certification for compound feeds.

WE PRODUCE

TURNING OPERATIONAL EXCELLENCE INTO CONSISTENT QUALITY

Although our distribution network is set up to directly serve all major aquaculture markets, we have deliberately chosen to centralize our global production in one facility in Phichit, Thailand to stay in touch with the major and fastest growing markets in aquaculture. The fact that we own and manage our own facilities guarantees complete control of the entire process and allows for a flawless quality control.



All products are produced using only top quality raw materials and every product batch is formulated based on the raw materials' specifications to guarantee the best nutritional value performance and cost every time.





All raw and packaging materials are inspected and analyzed. Only if they meet the required specifications they will be passed on to the production line.



Quality control checks are carried out every day on our ingredient stocks in cool storage.



A skilled and motivated workforce not only produces the products rigorously according to the standard operating procedures but also works together in teams to propose improvements to the production process throughout the plant to enable ever increasing product quality and performance.



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WE PRODUCE

WORKING IN THE FOOD SUPPLY CHAIN, WE LEAVE NOTHING TO CHANCE

Just like in hatchery or farm operations, advanced knowhow and strict operational discipline are key to delivering a flawless product. Our processes are rigorously applied and monitored to guarantee food safety and compliance with all modern quality standards.









All work processes are set out in detail and must be followed up by the production staff. Important production data is recorded and verified. All finished goods are inspected and analyzed and must meet the required product specifications before they are packed and sent to our customers.

Our main manufacturing plant has a fully equipped lab on site where all required physical, chemical and microbial analysis can be performed to evaluate the quality of our ingredients, packaging material and finished goods.

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It is our ambition to be the preferred nutrition and health specialist for aquaculture businesses around the world. This means that we aim to make knowledge and economics meet. We provide high-tech, cost-effective products and tools that integrate the best of both practice and science. By translating scientific progress into practical tools and protocols, our expertise can add tangible value to any aquaculture business.



Doing business in a rapidly changing world and industry, INVE Aquaculture responds swiftly to new trends and opportunities. An advanced strategy management approach empowers our people to align their activities with the overall strategy and focus on its most important projects.

In all this, being close to the customer is the key behind our commercial network with:

- INVE Service Centers in every major aquaculture market in Europe, Latin America and Asia
- dedicated commercial and technical staff
- local warehousing facilities to guarantee a steady supply and high levels of service
- a vast network of handpicked local distributors who bring our solutions to the doorstep of customers in local markets
- over 100 INVE shops in key locations in Thailand, Vietnam and India.

OUR PEOPLE MORE THAN 3.000 YEARS OF COLLECTIVE SENIORITY IN AQUACULTURE

Aquaculture being a people's business, a skilled and motivated workforce is key to our success. We want to persuade our people to look beyond their own horizons, encouraging them to give the very best of themselves in support of our company's philosophy. These efforts are supported on group level by Benchmark's vision on creating a stimulating and rewarding working environment.

Based on these values, our people all around the world find themselves working in impassioned teams, thriving on autonomy within a solid organizational structure. Their efforts are supported with opportunities for lifelong learning and development, clear recognition for everyone's role and attractive rewards for a job well done.

The appeal we build this way as a global employer results in a loyal and ever-growing family of true INVE Aquaculture ambassadors who accumulate a collective total of over 3.000 years of professional aquaculture experience.











OUR PEOPLE THE HUMAN SIDE OF 'CARE FOR GROWTH'

INVE Aquaculture's strength comes from the passion and expertise of its people. This is why we strive to create an environment where learning is ongoing, entrepreneurship is encouraged and creativity can flourish.

We continuously apply the 'Care for Growth' way of thinking with which we approach the aquaculture business to our people policies as well.

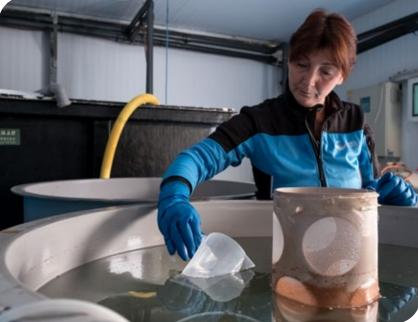
Just like we care about our customers, we also care about our people. We believe that people need to be fed and nurtured with intelligent career plans, exciting challenges and appealing rewards. We create a working environment where people feel motivated and inspired. We strive to be best-in-class with respect to health, safety and environment policies.

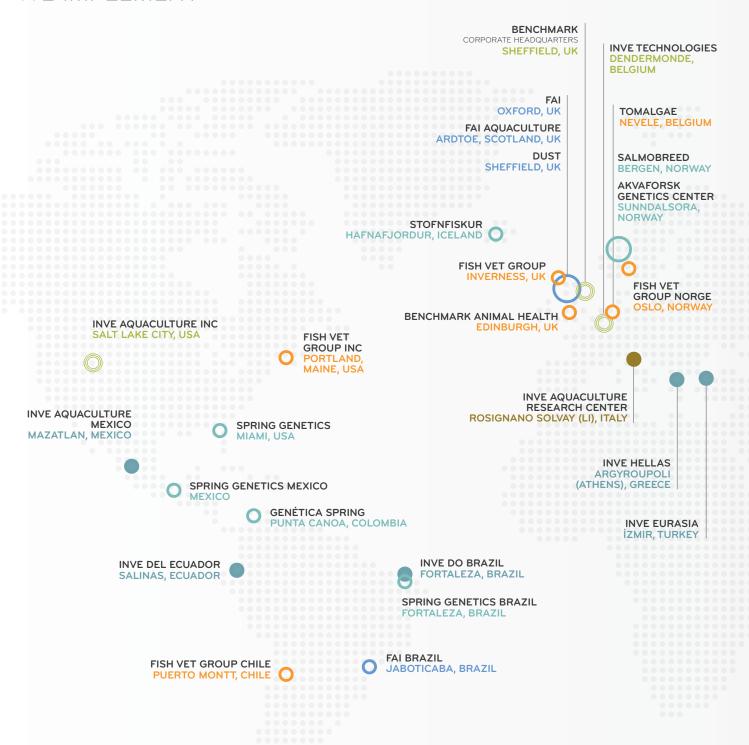












ALWAYS AN EXPERT CLOSE TO YOU

WITHIN THE GLOBAL BENCHMARK NETWORK



- Commercial headquarters in all major aquaculture markets: Europe, Latin America and Asia
 - Local companies and service centers in different countries
- Fully operational hatchery and farm testing centers in Mediterranean and Asian territories
 - State-of-the-art production facilities in the US and Asia to guarantee consistent quality
 - Animal Health
 - Breeding & Genetics
 - Sustainability Science

HEALTHY FINANCE AND GROWTH PERSPECTIVE

As the market leader in nutrition, health and environment solutions for fish and shrimp hatcheries and a growing impact in the market of ongrowing fish and shrimp, the feed market volumes in the aquaculture industry are a solid indicator of our company's growth potential. According to reports of the World Bank these volumes are expected to experience a considerable growth.

The aquaculture feed ingredients market in which INVE Aquaculture participates is expected to grow at 4.6% per year in volume for the next five years (Source: FAO, Global Aquaculture outlook in the next decades). The global production of marine fin fish and crustaceans - our core market - is estimated to represent approximately 17% of total aquaculture production.

FIRMLY COMPLIANT

INVE Aquaculture's global operations are supported by a fully integrated ERP system and managed through 3 Shared Financial Services Centers located in Belgium, Thailand and Mexico. These centers provide relevant and timely financial information, ensure effective internal controls and risk management, safeguard our long-term financial structure and monitor compliance with all applicable laws and regulations.

FUTURE PROOF

The group generates a strong operating cashflow allowing further investments in R&D activities and production facilities every year. In December 2015, INVE Group was acquired by Benchmark Holdings PLC, which further consolidated our financial position and created the ideal context for sustained and future proof business development.





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