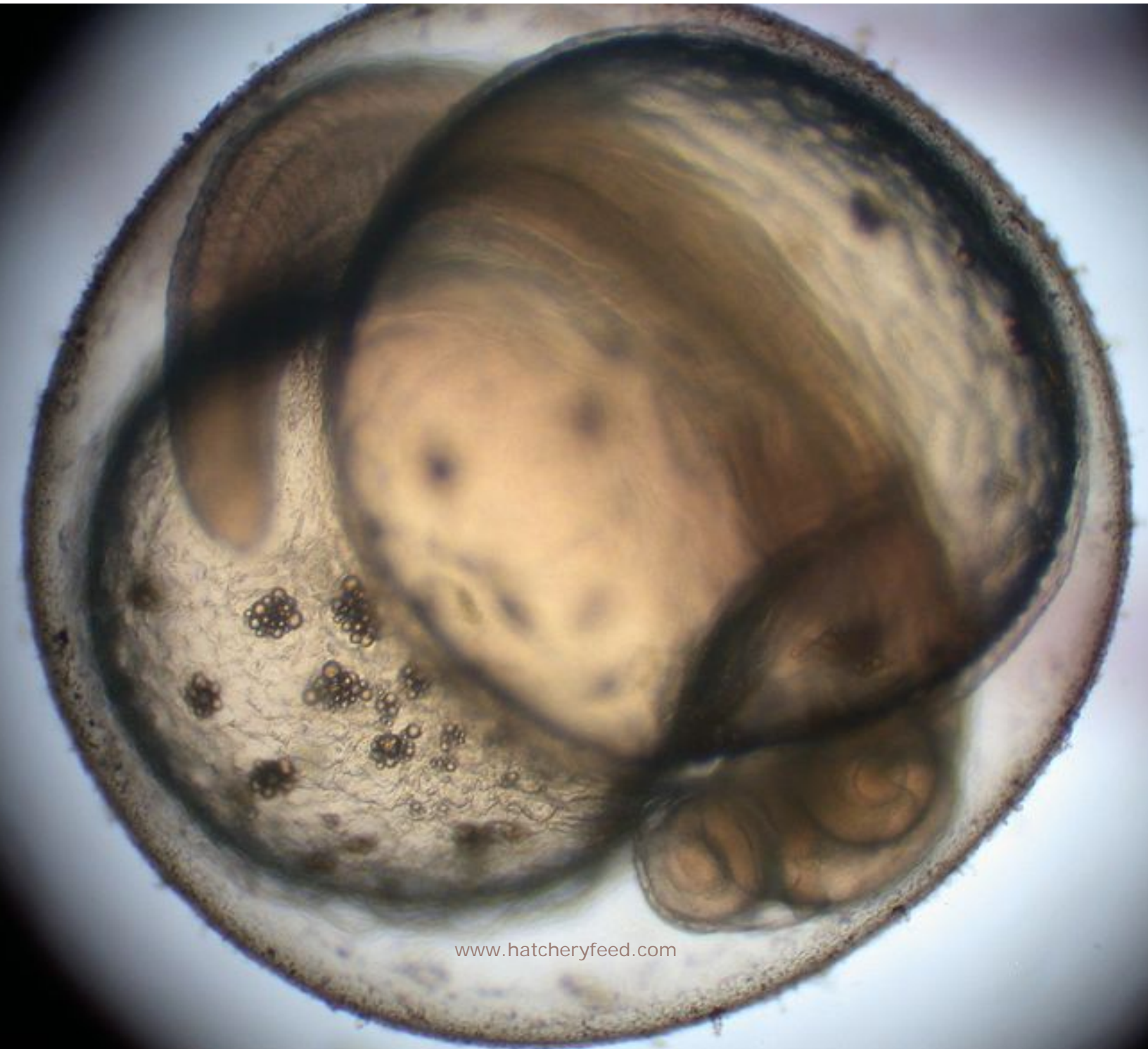


# HATCHERY FEED GUIDE & YEAR BOOK 2014

*from Hatcheryfeed*



# CONTENTS

Click on titles to go directly to the article

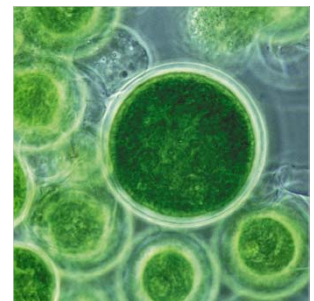
01

Contents  
Welcome



02

Reed Mariculture Inc: hatchery feeds pioneers  
New live food selco products from Inve Aquaculture  
Spectrum: Skretting's complete line of marine hatchery feeds  
Salem Microbes  
Zeigler Brothers  
Glossary  
The year in review  
Reading Room  
Events



## Manufactured feeds

Product listings  
Species look up

## Water conditioners, enrichments & additives

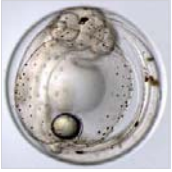
Product listings  
Species look up

## R&D Services

Service listings

03





## Welcome

Correct nutrition throughout aquaculture production — and especially in early life stages — is vital to success. Given their importance, hunting down feeds has been a surprisingly difficult and time consuming task for hatchery managers. In an effort to make this task easier, the Hatchery Feed Guide was launched in 2013. We brought together as many hatchery feeds and nutritional products that we could find available on the market and for which we could get reliable details. We didn't claim it to be comprehensive but it was a good start and proved immensely popular. The number of downloads encouraged us to persevere and this, the 2nd Hatchery Feed Guide, is the result. As you will see, we have details of considerably more products for you.



As with the first issue, we have relied entirely on information provided by suppliers in the compilation of the listings [See complete disclaimer information]. We appreciate the time these companies have taken and the encouragement they have given us.

If you supply hatchery feeds and your products are not included we apologize; please email me to make sure we contact you in time for the next issue. If you are using a product that isn't listed, please let us know so that we can include it next time— together we can make the Guide an even more valuable resource.

As with all Aquafeed.com's published materials, we offer the Guide to you completely free of charge, in support of aquaculture. Please feel free to share this publication: forward it to your friends and colleagues — but please keep in intact.

Suzi Dominy

[editor@hatcheryfeed.com](mailto:editor@hatcheryfeed.com)

### Advertisers

The following companies make it possible to offer this publication free of charge. We appreciate their commitment to supporting our industry in this way — click on the links below to see their advertisements:

Inve Aquaculture

Skretting

Reed Mariculture

Wenger Manufacturing

Salem Microbes

Zeigler

# NEW LIVE FOOD SELCO® PRODUCTS FROM INVE AQUACULTURE

Marine fish farming as a whole has expanded tremendously over the past decade, while a continued optimization of the production processes is improving overall profitability. Taking this into account, fish fry quality today is considered more than ever one of the most important keys to a successful marine fish hatchery. It should not come as a surprise that hatcheries have made continuous efforts to make the fry maximize their potential during the on-growing phases. Hatcheries are therefore more and more shifting their attention towards fry quality rather than only quantity, trying to make sure they perform better in terms of resistance to stress or diseases and enable a more rapid growth.



Rotifers, as they have in the past, continue to be the best suited for the first feeding of most of the reared species and represent an important factor to the success of marine hatcheries. One could even say rotifers are currently the biggest key to the future quality of farmed marine fish. Reliably producing a sufficient amount of good quality rotifers is therefore one of the primary goals for properly rearing marine fish larvae. It is also the reason why almost all marine hatcheries continue to look for ways to boost this part of the

hatchery chain because despite all the efforts, rotifer production is today still often subject to problems in terms of stability, which decreases predictability and quality while increasing the overall costs.

Of course, not only the hatcheries themselves invest a lot of time and efforts into improving the rotifer culturing. Conscious and market-aware aquaculture suppliers are also devoting substantial research efforts to try and solve this bottleneck.

INVE Aquaculture, the world leader in hatchery products, has long been at the top of bringing new and research-based solutions to the aquaculture market. A clear-cut example of this status is their long track record in both enrichment and culture products: the well-known **selco**® products were the first commercially available enrichments on the aquaculture market back in 1983. Even after this successful history, INVE Aquaculture is still looking for ways to improve the overall live food quality and, in the context of the internal R&D program "Total Quality", is launching a new integrated line of selco products that are able to easily culture and enrich large amounts of rotifers at unprecedented quality and vitality levels.



Two new main products lead this live food line: **RoBoost selco** (rotifer booster selco) and "**easy DRY selco**".

**RoBoost selco** is a new revolutionary concept for rotifer culturing that has been designed to be used in combination with fresh yeast, which is currently the easiest, cleanest and cheapest ingredient used for rotifer culturing around the world. As it boosts the yeast, it enables clean and amazing results for all rotifers strains in almost every type of rearing environment.



Said Tania De Wolf (Project Team Leader INVE Aquaculture): "*We realized dry culture products are usually perceived as not practical to use and associated with certain difficulties, such as controlling the water quality, and we wanted to change that.*" The use of RoBoost results in a very clean culture (no more flocks or foam on the water surface) with a consistent and superior performance. An additional advantage is that the rotifers are also nutritionally boosted at the end of the culture, making the normally subsequent enrichment phase obsolete for most

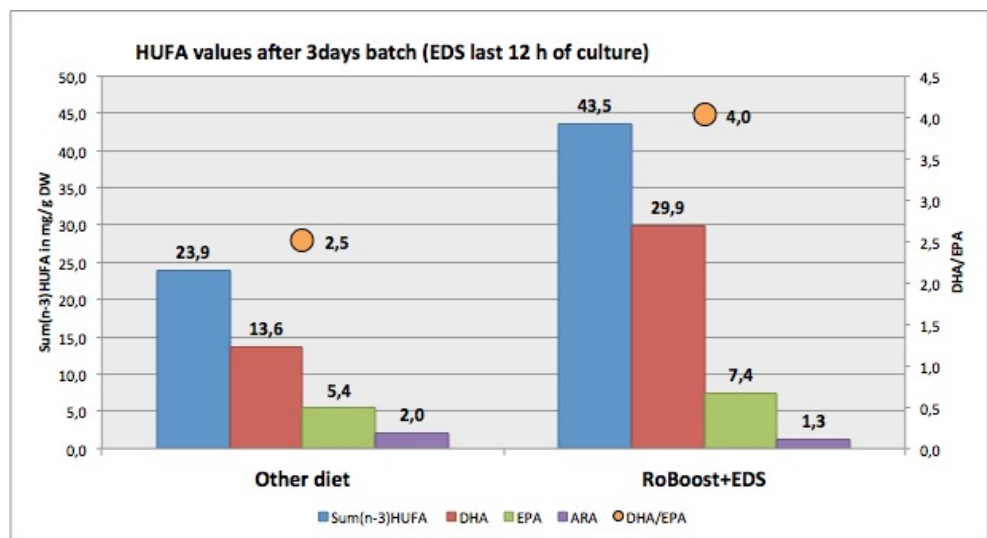
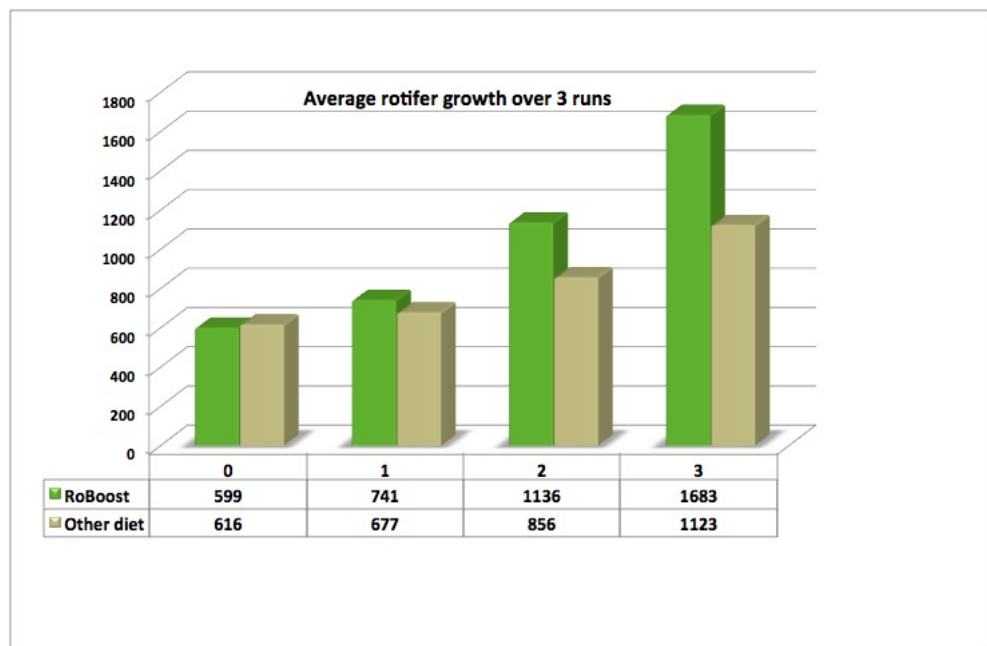
of the finfish species, saving the hatcheries a tremendous amount of time and money.

Of course, most hatcheries nowadays also look at their bottom line, and that’s where RoBoost offers perhaps its greatest advantage as it costs up to 40% less than other rotifer diets. All things considered, it makes it a truly revolutionary product in the widest sense of the word and can be looked at as a groundbreaking achievement for the marine fish hatchery industry as a whole.

The second new product, easy DRY selco, is a dry enrichment product for both rotifers and *Artemia* that is, as the name suggests, extremely easy to use. It consists of a formulation that boosts the live food with balanced levels of HUFAs, proteins, vitamins and other key ingredients. What sets it apart from other live food enrichments is the inclusion of immunostimulants and a specific ingredient that is able to keep microbiological growth low during both the enrichment phase and during feeding of the larvae, which ultimately leads to stronger fry. Easy DRY selco is also suitable for tropical and fast growing species. If used for rotifers, it can be used as a traditional enrichment (after the culture cycle) or even directly into the enrichment tank during the last phase of culturing.

During a large scale test performed at MRS - Maricoltura di Rosignano Solvay (INVE Aquaculture’s commercial scale testing centre for marine fish species), Easy DRY selco was used as a rotifer enrichment and compared extensively to classical enrichment products. The results, both in terms of survival and growth, were unanimous: Easy DRY selco came out as the best product and limited the main deformities encountered during bream larval rearing, including the operculum.

As with all of their products, the two new selcos were tested extensively both in-house and in-the-market over the last couple of years. During and after the introduction phase, the company’s staff in the market will provide support to make sure the products are seamlessly integrated into the hatcheries.



**See our product listings in this guide. For more information visit: [www.inveaquaculture.com](http://www.inveaquaculture.com)**



# Reed Mariculture Inc

## Hatchery Feeds Pioneers

REED MARICULTURE (RMI) is the world's largest producer of marine microalgae concentrates. Our Instant Algae® larviculture feeds are used by over 500 hatcheries, universities, and marine ornamental operations in more than 80 countries around the world. We also produce and distribute clean, hatchery-scale rotifer and copepods starter cultures, Otohime and TDO weaning and juvenile feeds, and related supplies.

**Markets Served:** Commercial aquaculture; public aquariums; public and private researchers; breeders; and aquarium retailers and hobbyists.

**Cutting Edge Products:** Instant Algae products are clean, effective and closer to nature than other feeds on the market. We produce whole-cell, whole-food microalgae feeds and enrichments using proprietary processes. Our products provide fish, bivalve and shrimp hatcheries with clean, convenient, long shelf life feeds that can replace in-house microalgae. Our feeds ensure stable and productive cultures with excellent nutrition.

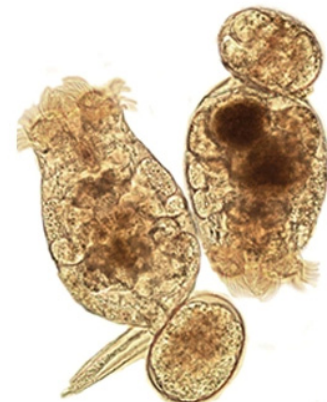
**Extraordinary Customer Service:** We pride ourselves on our customer service and technical support, and are also experts in world-wide shipping logistics.

**History of Innovation:** Reed Mariculture was founded in 1995 by Tim Reed to grow tank-raised "urban aquaculture" oysters that would be safe and harvestable year-round using new technologies for large scale grow out of marine microalgae, the feed for shellfish. In 1998 RMI changed its focus to selling the microalgae directly to other hatcheries. RMI's current core technology is a proprietary closed-system photobioreactor design that allows microalgae to be grown in clean, controlled conditions – a radically different technology than the open-pond technology used for most commercial algae production.

In 2003 RMI expanded its larviculture product with the introduction of live zooplankton (rotifers, copepods, and Mysid shrimp), and by distributing products such as ClorAm-X (for ammonia control) and Otohime Feeds (Japanese weaning and juvenile diets).

In 2004 RMI entered the home aquarium market with the introduction of the Phyto-Feast products, super concentrates of marine microalgae formulated for feeding coral, clams and other filter feeders popular in marine reef tanks. RMI has continued to expand into the Marine Ornamental industry with the Reef Nutrition product line, which includes marine microalgae, macroalgae, rotifers, copepods, mysis shrimp and other feeds.

In 2011 Reed Mariculture launched an exciting new product line APBreed™ – *Hatchery Solutions for Aquarists, Propagators and Breeders*. APBreed bridges commercial, ornamental and research hatchery technologies and provides researchers with feed solutions customized for their unique needs.



**See our product listings in this guide.**

**For more information, visit [www.reedmariculture.com](http://www.reedmariculture.com) or call us at: 1-877-732-3276.**

# SPECTRUM: SKRETTING'S COMPLETE RANGE OF MARINE HATCHERY FEEDS

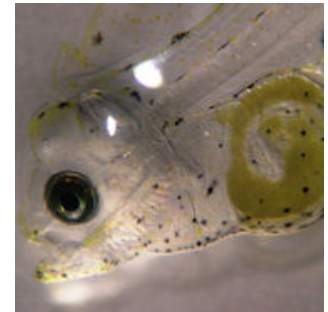


Established in 2006 to deliver specific products and services to marine fish and shrimp hatcheries, Skretting's Marine Hatchery Feeds (MHF) unit combines local market knowledge and experience to deliver the highest quality

products and services.

MHF's Spectrum product portfolio meets every aspect of the animals' early lifecycles, from feeds suited to the specific stages of conditioning, maturation, spawning and recovery of broodstocks through to green water application products, live feed components and early weaning, nursery, pre-ongrowing and transfer diets.

See our product listings in this guide.  
For more information visit [skretting.com/spectrum](http://skretting.com/spectrum)



[www.skretting.com/spectrum](http://www.skretting.com/spectrum)

- NEPTUNE
- VITALIS
- ORI-GO
- GEMMA
- PERLA
- PL





# SALEM MICROBES

Our Company was incorporated as Salem Microbes Private Limited on July 15, 1999.

We are a fast growing veterinary pharmaceutical company engaged in developing, manufacturing and marketing a broad range of products globally. Our core strength lies in developing and manufacturing differentiated products

in-house, which we commercialize through our marketing infrastructure across geographies and relationships with multi-national companies for OEM supplies. We do custom branding for leading players in the Animal Health Business.

We, a Company with a vision to exploit the goodness of science, have identified "Natural Microbes" as a means to serve the community with our alternative eco-friendly strategies.

Salem Microbes Pvt. Ltd., has engaged itself in the isolation of these "Natural Microbes" in its state of art plant situated in the cool valley of Salem. Our strength lies in commitment towards delivering quality hi-tech products from the point of raw material selection to finished product, to assist our customers in fulfilling their purpose. We are always working towards to bring in new technologies and practices to improve the profitability of our customers and at the same time, we are constantly improving established products.

## CORE BUSINESS

Salem Microbes Pvt. Ltd., has developed a range of microbial pond ecosystem sustainers and competitive exclusion cocktail for aquaculture, fishery, ornamental fish and poultry.

We cater to the needs of the Shrimp hatchery with our specialised Microbial and Nutritional supplements as **SeedOne**, a first of its kind in the segment. It stands alone in the group of other products by its special characteristics of 100% solubility, devoid of turbidity and instant action. **Encon**, a liquid microbial additive for taking control of Ammonia and Nitrate generated during different stages of the cycle, **StressBeat** a nutritional supplement to support the vital function of Host defence mechanism, **GutAct Premium** a Growth promoter with Microbes producing digestive enzymes to enhance and catalyze feed digestion and conversion.

See our product listings in this guide.  
For more information Contact [D.Vijay Anand](mailto:D.Vijay.Anand@saalemicrobes.com),  
Director-Business Development.  
HP: +91+94432 46447

## PREDICT PROTECT PERFORM

### SEEDONE

#### PROBIOTIC FOR HATCHERY APPLICATION

An instantly soluble, super-concentrated probiotic blend for use in Aquaculture Hatcheries, recommended for use in Broodstock and Nauplii, Zoea, Mysis and Post Larval stages

- ✦ Seeds Water with beneficial Bacteria
- ✦ Removes Bacterial Bioluminescence by Vibrio Sp
- ✦ Degrades Waste and removes slime
- ✦ Controls Toxic Ammonia and H<sub>2</sub>S
- ✦ Ensures Better Water Quality for Higher Survival and Faster Growth
- ✦ Ensures smooth transition of moulting from Mysis to PL stage
- ✦ Improves Digestion
- ✦ Increases Disease Resistance



### STRESSBEAT

#### IMMUNOSTIMULANT FOR SHRIMP HATCHERY

Contains proven Bacteria and its components as Immunostimulant. This combination counteract the stressful conditions of hatcheries and improve health and survival of the crustacean larvae.

- ✦ Production of primed phagocytes
- ✦ Increased SOD and CAT activity in stimulated shrimp
- ✦ Better Hepatopancreas health and digestive fluid production
- ✦ Better recovery of damaged shrimp
- ✦ Least stressed and immune enhanced shrimp
- ✦ Algae-safe
- ✦ Ensures Robust, Healthy and Uniform larvae.



### GUT ACT PREMIUM

#### GROWTH PROMOTER FOR HATCHERY

Colonizes the digestive tract of the larvae and the tank water with favorable bacteria and competitively excludes pathogenic and opportunistic bacteria.

- ✦ Implants beneficial Bacteria in the Shrimp Gut
- ✦ Increases the survival of PL's
- ✦ Increases Feed Consumption and Growth Rate
- ✦ Strengthens Host defense mechanism by increasing resistance to stress
- ✦ Improves digestion within the gut
- ✦ Improves the culture water quality by breaking down waste



### ENCON

#### PROBIOTIC FOR AMMONIA AND NITRITE CONTROL LIQUID FORMULA-READY TO USE

ENCON is a liquid blend of consortium of microbes capable of reducing Ammonia and Nitrite accumulation in hatchery and brood stock tanks.

- ✦ Seeds water with beneficial bacteria
- ✦ Removes toxic Ammonia and Nitrite
- ✦ Avoids frequent water exchange
- ✦ Direct liquid application.



Manufactured by :

**SALEM MICROBES PRIVATE LIMITED**

Regd. Off : No. 21/10 C, Bajajai Madam Street, Gugal, Salem - 636 006, Tamilnadu, INDIA. Customer Care : 91 + 94432 46447.

E-Mail : saalemicrobes@yahoo.co.in www.saalemicrobes.com

## ZEIGLER BROTHERS

Zeigler Bros., Inc. is a family owned business making premium quality animal feeds since 1935. Over years of continuous operation Zeigler has accumulated considerable expertise in every aspect of feed milling and formulation for the aquaculture industry. Zeigler maintains a culture of innovation and commitment to challenge what is known to find opportunities in problems and challenges. This company culture led to building and maintaining a strong R & D department to direct new product development and continued improvement of our existing feeds.

# ZEIGLER®

nutrition through innovation

Nutritional immunology has been one area of special focus for Zeigler. It has long been proven that shrimp have the ability to ward off disease and overcome environmental stressors with proper nutrition and good husbandry practices. Zeigler developed V-Pak to boost shrimp health and better respond to disease challenges. V-Pak is a unique blend of nutrients and natural bioactive agents when given in the correct dosage works as an activator of the shrimp immune function. Commercial success with this product has led Zeigler to include it in all shrimp hatchery feeds.

Zeigler produces a complete line of feeds for shrimp; from hatchery to harvest our nutritional products are available for all life stages and husbandry systems.

See our product listings in this guide.

For more information visit : [www.zeiglerfeed.com](http://www.zeiglerfeed.com)

## EZArtemia

### A Proven Alternative to Natural *Artemia*

"EZ Artemia has demonstrated higher survivals and animals having well-marked digestive tracts...we have replaced 100% *Artemia* in 2011." – Mexico

"We just conducted trials replacing live *Artemia* in PL transport...we intend to start using it in our larval rearing." – Brazil

"EZ Artemia can replace 100% *Artemia*..." – Vietnam

"With the use of EZ Artemia, overall survivability greatly improved, water quality is good as we observed minimal leaching. Also, molting was early. EZ Artemia performed well." – Philippines



**ZEIGLER®**  
  
 nutrition through innovation

717-677-6181 phone  
[www.zeiglerfeed.com](http://www.zeiglerfeed.com)  
[info@zeiglerfeed.com](mailto:info@zeiglerfeed.com)



Product of  
**USA**

global aquaculture  
**alliance**  
 founding member



# Glossary of Hatchery Feed Terms

*Terms you may encounter in this publication or elsewhere, relating to hatchery feed and nutrition*

## A

**Additive** — An ingredient or combination of ingredients added to the basic feed mix or parts thereof to fulfil a specific need.

**Aflatoxins** — A group of extremely heat-stable mycotoxins, produced by strains of *Aspergillus flavus* and *A. parasiticus*, which exhibit fluorescence on UV radiation. Aflatoxins are toxic to a wide range of eukaryotes.

**Agglomeration** — A process that produces a cluster of finely ground ingredients or microcapsules. For larval feed production, two methods are often used: (a) Microextrusion Marumerization (MEM): in this two-step process the ingredients are pressed through a die or screen with very small holes using either a cold extruder or a cooking extruder to produce long noodles; these are then broken into lengths approximately the same as the diameter with a marumerizer (b) PARA - Particle-Assisted Rotational Agglomeration: a lower pressure method which uses a marumerizer but not an extruder. It is capable of producing shaped feed particles of less than 400 µm in diameter.

**Alevin** — The larval stage of fish from hatching to the end of dependence on endogenous yolk as a source of nutrition. This term is often restricted to salmonids and related fish before they emerge from the spawning gravel or incubation substrate, to begin swimming freely.

**Alga (plural: algae)** — Primitive chlorophyll-containing mainly aquatic eukaryotic organisms lacking true stems and roots and leaves.

**Alginates** — Industrial product derived from brown algae (seaweeds).

**Amphihaline** — Aquatic species, which passes periodically at well defined stages of its life cycle, from salt water to freshwater and vice versa.

**Androgen** — (a) A fish that has only a male parent; all genes in an androgen come from the

father (b) Anabolic steroid hormone that stimulates activity of accessory sex organs and sexual characteristics in males. They are often termed male sex hormones.

**Antioxidant** — A substance that chemically protects other compounds against oxidating thus enhancing stability and prolonging shelf-life; for example, vitamin E prevents oxidation and rancidity of fats.

**Artemia** — A small crustacean. At certain periods of the year, it produces cysts, metabolically inactive as long as they are kept dry, that float at the water surface of saline waterbodies; upon immersion in seawater, these cysts hydrate and the embryo resumes its development. The cysts can be easily used as a source of live food for early stages of fish and crustaceans.

## B

**Berry** — One of the eggs of a fish or a crustacean.

**Binder** — The adhesive component that holds together the non-adhesive components of a compound mixture such as aquafeed.

**Bioencapsulation** — A technique whereby various substances, for example nutritional elements and prophylactics, are administered into living organisms, which can then be administered as feed to another animal.

**Blastoderm** — The foundation from which the embryo will form on an egg. For practical purposes, the blastoderm is the same as the blastodisc or germinal disc of a fertilized egg.

**Blastopore** — As the blastoderm grows over the egg, it finally leaves a circular opening or blastopore.

**Blastula** — A hollow ball of cells, one of the early stages of embryonic development.

**Breaking stage** — Developmental stage of the brine shrimp cysts, when their shell (including the

outer cuticular membrane) bursts and the embryo appears, surrounded by the hatching membrane.

**Breeding color** — Skin pigmentation developed during the spawning period.

**Breeding cycle** — A period between hatching and the first spawning of a given generation.

**Brine shrimp** — See *Artemia*

**Brood** — A group of young animals produced (spawned) at the same time.

**Brood fish** — Sexually mature fish, especially for propagation in fish farms.

**Brooding** — Care of the eggs during at least the early part of development. This can be undertaken either inside or outside the animal and can be undertaken by males in some animals.

**Broodstock** — Sexually mature specimens of both sexes kept for the purpose of controlled reproduction (independent of whether a first or subsequent generation is produced) as well as younger specimens destined to be used for the same purpose.

## C

**Carotenoids** — Pigment molecules found in algal cells and crustaceans (exoskeleton) as well as in plant and animal fats. Fed to fish, salmonids in particular.

**Copepod** — A major group of minute crustaceans common to freshwater and saltwater. They have no carapace and have a single median eye. Some are free-swimming and belong to the zooplankton, while others are parasitic on the skin and gills of fish.

**Copepodite** — Developmental stage of copepods after the nauplius stage.

**Crumbles** — Granular processed fish feed made by crushing pellets between rollers moving at different speeds; the resulting pellet fragments are screened to produce several size ranges of particles.

**Crustacean** — Aquatic animal belonging to the phylum Arthropoda, a major group of invertebrate organisms characterized by their chitinous exoskeleton and jointed appendages, occurring in marine and freshwaters and on land, e.g. crabs, lobsters, crayfish, shrimps, prawns, etc. Microcrustaceans include cladocerans and copepods.

**Cyst** — (a) The resilient non-mobile, dehydrated,

resistant, inactive, dormant stage of a free-living or parasitic organism, as a response to adverse environmental conditions. (b) A non-living membrane enclosing a cell or cells.

## D

**Decapsulation** — A process whereby the capsules of brine shrimp cysts are removed before they are used further in cultivation. The cyst, often called an egg, is an arrested gastrula encapsulated within a hard lipoproteinaceous shell or capsule.

**Die** — In mechanics: a piece of metal with holes through it, used in extruding pellets.

**Diet, purified** — A feed made out of refined ingredients with specified analyses; used for nutritional research only.

**Diet, reference (RD)** — In nutrition research: a diet with which one can compare response to experimental design and dietary treatments.

**Diet, standard reference (SRD)** — In nutrition research: a precisely defined and reproducible test diet satisfying the nutritional needs of fish for use in feeding studies to facilitate comparisons between various experiments, species, locations, researchers and other factors and conditions.

**Diet, supplemental** — A prepared diet formulated to provide additional nutrients to those obtained from natural food organisms grown in the culture environment (usually ponds). It may be undiluted as a supplement to other feeds, offered free choice with other parts of the diet separately available, or mixed with other feed ingredients to produce a complete feed.

**Digestion coefficient, true (TDC)** — Digestion efficiency expressed as the ratio of total weight of feed consumed minus weight of excreted faecal matter minus weight of metabolic faecal nutrient excreted over total weight of feed consumed.

## E

**Extruder, Extrusion Cooker** — A continuous cooker employing a screw, that applies pressure, high temperature and mechanical shear to produce feeds. The process gelatinizes the starchy components, denatures proteins, stretches or re-structures tactile components and causes exothermic expansion of the extrudate. When the feed leaves the die, it expands and the pellet that is formed will float.

## F

**Fatty acid** — Organic acid composed of carbon, hydrogen and oxygen that combines with glycerol to form fats.

**Fatty acid, essential- (FAE)** — Fatty acid, which cannot be synthesized by an organism and must be supplied in the diet to avoid a dietary deficiency.

**Fatty acid, highly unsaturated - (HUFA)** — Fatty acid containing three or more double bonds between the carbon molecules.

**Fatty acid, polyunsaturated - (PUFA)** — Fatty acid containing two or more double bonds between the carbon molecules.

**Feed coefficient** — Feed consumption per unit weight increase.

**Feed conversion (FC)** — In aquaculture, a term usually used in relation to defining the performance of fish diets. It is used to express, in kilos, the dry weight of a specific feed required to produce one kilogram of fish flesh, e.g. FC = 2.8.

**Feed conversion (efficiency), absolute** — In semi-intensive aquaculture: an index obtained by dividing the dry weight of feed distributed by the extra growth believed to have been obtained

**Feed conversion (efficiency), relative** — In semi-intensive aquaculture: an index obtained by dividing the dry weight of feed distributed by total fish production, including that obtained from available natural food.

**Feed conversion efficiency (FCE)** — Live weight gain over a defined period expressed as a percentage of food intake during that same period; it is equal to:  $(W/F) \times 100$ , where W is the live weight gain and F the weight of the dry food fed over the period.

**Feed conversion efficiency, specific - (FCEs)** — Measurement of fish growth. Is equal (in percent) to  $G/R \times 100$ , where R is the food ration in percent weight of body weight per day and G is the specific growth rate.

**Feed conversion ratio (FCR)** — Ratio between the dry weight of feed fed and the weight of yield gain. Measure of the efficiency of conversion of feed to fish (e.g. FCR = 2.8 means that 2.8 kg of feed is needed to produce one kilogram of fish live weight).

**Feed efficiency ratio (FER)** — The inverse of the feed conversion ratio; the live weight gain per unit dry weight of feed; for example 0.35:1 if a gain of 0.35 kg live weight is produced by one kilogram of dry feed.

**Feed formulation** — Feed formulation is a calculation to decide how much of each raw ingredient to use to prepare a feed. The general objective of feed formulation is to mix ingredients of differing nutritional quality so as to obtain a balanced diet whose biologically available nutrient profile approximates to the dietary needs of the animal in question. Many manufacturers use the "least cost" method, where the ingredients of a feed may change regularly according to the availability and price of different feedstuffs, but the final formulation of the feed (in terms of percentage and overall quality of protein, fats, etc.) will remain constant.

**Feed rate** — Quantity of feed given to animals on a daily basis, expressed as percent body weight per day or number of organisms consumed per hour.

**Feed utilization** — The weight increase per unit of utilized feed.

**Feed, closed-formula** — A diet for which the formula is known only to the manufacturer.

**Feed, complete** — A nutritionally adequate feed to be fed as the sole ration and capable of maintaining life and/or promoting.

**Feed, compound** — A feed composed of several ingredients of vegetable or animal origin in their natural state, fresh or preserved, or products derived from the industrial processing thereof, or organic or inorganic substances, whether or not containing additives, for oral feeding in the form of a complete feed.

**Feed, expanded** — Type of hard, relatively low-density pelleted feed with a slow sinking rate. Can be used to produce high-oil diets.

**Feed, floating** — Prepared feed pellets produced by the extrusion process under conditions that result in a density that will allow them to float at the water surface for extended periods.

**Feed, microbound** — feeds that are held together with binders from within the mix of ingredients. These can be either crumbles or on-size feeds.

**Feed, microencapsulated** — A microdiet consisting of ingredients that are encapsulated by a

shell, or membrane.

**Feed, moist** — Feed which contains from 18 to 45 percent water.

**Feeding value** — A term referring to the nutritive value of different feeds, i.e. expressing the amount of nutrients furnished by each feed and the degree of their digestibility.

**Fertilization** — The addition of nutrients (fertilizers) for the purpose of artificial enrichment in order to stimulate primary production as the base of the food chain.

**Fingerling** — Related to any fish from advanced fry to the age of one year from date of hatching regardless of size, usually applied to trout of about 10-70 g in weight, or 8-15 cm fork length. The term is, however, not rigidly defined.

**First feeding** — Term given to describe the period of transition between sac fry and fry, when the fish begin to look for food after having exhausted most of their yolk sac.

**Flake** — A feed ingredient rolled or cut into flat pieces with prior steam conditioning.

**Floc** — A coagulated mass of particles.

**Food, live** — Common, non-specific term used to describe the living microscopic organisms (e.g. rotifers, artemia) used to feed the larvae of certain finfish and shellfish before being weaned on artificial diets.

**Fry** — A term used to describe a fish at the post-larval stage. All stages from hatchling to fingerling stage can potentially be covered by "fry".

**Fry, advanced** — Any young fish from the start of exogenous feeding (after the yolk is absorbed). For salmon and migratory trout, see Parr.

**Fry, swim-up** — Term usually used in relation to salmonid culture referring to fish fry, which have just absorbed almost all of their yolk, becoming buoyant and ready to consume food. Swimbladder inflation occurs at this point.

## G

**Green water culture** — The enhancement of natural food chains in ponds or tanks by nutri-

ent enrichment, as a means of increasing food supply to an aquaculture species.

**Growth rate, absolute** — The actual increase in size of an individual or stock per unit time under known or specific conditions, expressed e.g. in g/day or kg/month.

**Growth rate, instantaneous- (g)** — A measure of the daily weight increase determined from a sample of fish over a short period of time and calculated by the following equation:  $g = (\ln W_t - \ln W_0)/(t_1 - t_0)$  where  $W_t$  is the weight of the fish after  $t_1$  days,  $W_0$  is the initial weight and  $\ln$  is the natural logarithm.

**Growth rate, relative (GRR)** — The increase in size (length or weight) of an individual or stock per unit of time in proportion to its initial size; often expressed as equal to  $[(S_t - S_0)/S_0] \times 100$  where  $S_0$  is the initial size and  $S_t$  the size at the end of the period.

**Growth rate, specific (G)** — An expression of daily increase in weight defined as  $G = g \times 100$  where  $g$  is the instantaneous growth rate.

## H

**Hatchery** — Place for artificial breeding, hatching and rearing through the early life stages of animals, finfish and shellfish in particular. Generally, in pisciculture, hatchery and nursery are closely associated.

**Hatchery constant** — A single value derived by combining the factors in the numerator of the feeding rate formula. Hatchery constant =  $(3 \times \text{feed conversion} \times \text{daily length increase} \times 100) / \text{length of fish}$ . This value may be used in fish hatcheries to estimate feeding rates (in percent body weight/day) when water temperature, feed conversion and growth rate remain constant.

**Hatching stage** — For brine shrimp: last developmental stage of the brine shrimp embryo, when the fully developed nauplius ruptures the hatching membrane and hatches, becoming a free-swimming larva.

## J

**Juvenile** — Young stage of animals, usually up to the time they first become sexually mature. For fish usually between the postlarval stages

up to the time they first become sexually mature. They are generally hardy at this stage.

## L

**Larva (Plural:Larvae)** — An organism from the beginning of exogenous feeding to metamorphosis into juvenile. At the larval stage the animal differs greatly in appearance and behaviour from a juvenile or an adult.

**Larva, (echino)pluteus** — Planktonic larva of sea urchins (echinoderm Echinidae), which swims very actively to feed on planktonic organisms. After metamorphosis, settles on a substrate and becomes a juvenile sea urchin.

**Larva, D** — Developmental stage of mollusc, so called as the shell of the larva resembles a capital "D". Last stage of a planktonic mollusc larva prior to settlement on the sea bottom.

**Larva, competent** — Larva of mollusc that is ready to metamorphose and attach to a suitable surface.

**Larva, eyed** — Generally refers to a molluscan larva, which has developed a foot and is ready to settle out of the plankton and become benthic.

**Larva, schizopod** — Stage in development of decapod crustacean larva when it resembles an adult mysis in having an exopodite and endopodite to all thoracic limbs.

**Larviculture**— The culture of larvae, usually in hatcheries.

## M

**Marumerizer** — a sizing and shaping device that breaks extruded strands into small individual agglomerations and shapes them into spherical particles.

**Microencapsulation** — Liquids and particulate dietary components are enclosed within a coating, which helps prevent dissolving and leaching, but will release under specific environmental conditions.

**Microextrusion Marumerization (MEM)** — see Agglomeration

**Microalgae** — see Phytoplankton

**Micro-ingredients** — Vitamins, minerals, antibiotics, drugs, and other materials normally

required in small amounts and measured in milligrams, micrograms or parts per million (ppm)

**Mycotoxins** — Toxins naturally produced by molds and fungi

**Mysis** — Pelagic larval stage of a crustacean intermediate between the protozoa (zoa) and postlarva stages.

## N

**Nauplius (pl. nauplii)** — Earliest larval stage of a crustacean.

## P

**Particle-Assisted Rotational Agglomeration (PARA)** — see Agglomeration

**Pellet** — Agglomerated feed formed by compacting and forcing it through die openings by a mechanical extrusion process.

**Phytoplankton** — Minute plants suspended in water with little or no capability of controlling their position in the water mass. The plant component of plankton. Frequently referred to as microalgae.

**Plankton** — Passively drifting or weakly swimming organisms, including many microscopic plants and animals.

**Postlarva (pl. postlarvae)** — Stage occurring after the larval stage, resembling the juvenile but still lacking certain characteristics. For crustaceans: the stage following metamorphosis from larva (zoa) to juvenile. In penaeid shrimp, this is commonly counted in days after appearance of postlarval features, e.g. PL12 indicates a postlarva that has lived 12 days since its metamorphosis from the zoea stage of development.

**Prebiotics** — Non-digestible food ingredients that stimulate the growth and/or activity of bacteria in the digestive system that have favorable effects on the intestinal flora.

**Probiotics** — Live micro-organisms added to feed, which confer health benefits.

**Protein efficiency ratio (PER)** — Ratio of live weight gain (in grams) over protein consumed (in grams). Production per unit of protein fed.

**Protein utilization, (apparent) net (NPU)**

— The amount of nitrogen retained by the animals over the total nitrogen consumed.

**Protein, biological value of (BV)** — Percent digested protein retained by the animal, expressed as the percentage of food nitrogen utilized for growth and body maintenance; this involves digestion, absorption, utilization and excretion of nitrogen-bearing compounds, especially proteins.

**Protein, crude** — The nitrogen content in a feed or animal or plant tissue, multiplied by a factor, which is generally 6.25.

**Proteins, single-cell- (SCP)** — type of natural food used in hatcheries made of individual cells (unicellular organisms), such as yeasts and microalgae fed to brine shrimp nauplii.

**Protozoan (pl. protozoans)** — A member of the phylum Protozoa, composed of mostly microscopic animals made up of a single cell or a group of more or less identical cells, reproducing by fission and living chiefly in water; includes many parasitic forms.

**Protozoa (pl. protozoae)** — Larval stages between the nauplius and mysis in crustaceans; usually have seven pairs of appendages.

**Proximate analysis** — (Analysis of) moisture, lipid, protein, fibre, ash and (by difference) carbohydrate content of any animal or plant product or mixed substance such as a feed.

**R**

**Rotifers** — Group of microscopic, primarily aquatic, animals belonging to a distinct class of the phylum Aschelminthes. They are characterized by a corona at the anterior end, which bears tufts of cilia used for feeding and locomotion. Rotifers are important live-food organisms in the rearing of marine fish larvae in hatcheries.

**U**

**Umbrella stage** — Developmental stage of the brine shrimp embryo, when it hangs underneath the empty cyst shell after the breaking stage and completes its development into a nauplius.

**W**

**Weaning** — Process in which an animal's dependence on its mother, directly or indirectly (e.g. yolk sac) for food or protection comes to an end. In aquaculture, also used to refer to the transition from live food to processed feed for small larval fish.

**Z**

**Zoea (pl. zoeae)** — Larval stage of crustaceans following metamorphosis from the nauplius larva. It may be referred to as protozoa where differentiation between the nauplius and mysis (or postlarva stage of development) is difficult.

**Zooplankton** — The animal component of plankton.

The best

# BALANCE

New FRIPPAK® FRESH *Gold*

Maximize your profits with the proven best balance between live feed and dry diets.\*



Available diets:

- #1 CAR
- #2 CD
- #3 CD

\* as shown in lab-scale experiments large commercial culture runs (> 2 billion fry per year) in Mexico, Nicaragua and Vietnam.

For more information, contact your local INVE Aquaculture representative.














# MANUFACTURED FEEDS

SUPPLIER	PRODUCT NAME	SPECIES	LIFE STAGE	FORM	DESCRIPTION	MORE INFORMATION
Aller Aqua	Aller Futura EX	Fish		Crumbles Micro pellets Mini pellets	ALLER FUTURA is rich in easily digestible proteins and contains a high amount of natural micronutrients, attractants, minerals and vitamins.	<a href="#">DATASHEET</a> <a href="#">DATASHEET</a>
Aller Aqua	Aller Futura MP EX	Fish		Crumbles Micro pellets Mini pellets	ALLER FUTURA micro-pellets is an alternative or a supplement to the existing crumbles. The feed is produced by a low-temperature, agglomeration technique, which is gentler to the raw materials than traditional extrusion technology. The physical properties of the ALLER FUTURA MP are defined by homogeneous, easy-to-handle, dust free pellets.	<a href="#">DATASHEET</a>
Aller Aqua	Aller Performa	Fish		Crumbles Micro pellets Mini pellets	ALLER PERFORMA is first of all good value for money and provides excellent growth rates as well as FCR. The product is suitable for a wide variety of conditions and a broad range of species.	<a href="#">DATASHEET</a> <a href="#">DATASHEET</a>
Aller Aqua	Aller Artex	Fish		Crumbles	The best solution for full or partial substitution of live Artemia to young fry in the early stages after hatching. A natural feeding solution for fry with high palatability which is immediately ingested and consequently not polluting the water.	<a href="#">DATASHEET</a>
Argent Chemical Laboratories	Cyclop-Eeze (Deep Frozen)	All	All	Whole organism	Whole frozen micro-crustacean, 3,000 ppm+ Astaxanthin.	<a href="#">WEBSITE</a>
Argent Chemical Laboratories	Cyclop-Eeze (Freeze Dried)	All	All	Whole organism	Whole freeze dried micro-crustacean, 3,000 ppm+ Astaxanthin.	<a href="#">WEBSITE</a>
Argent Chemical Laboratories	Hatchfry Encapsulon O - III	All	Larvae PL	Micro-Encapsulated	Complete diet, hydro-stable, all marine proteins Made in USA, Micron sizes: HF-0 (30-50) HF-1 (50-150) HF-2 (150-250) HF 3 (250-350).	<a href="#">WEBSITE</a>
Argent Chemical Laboratories	Spirulina Microfine	All	All	Spray Dried Microfine	Finest purity made in USA.	<a href="#">WEBSITE</a>
Argent Chemical Laboratories	Argentemia Platinum Grade 0	All	Larvae PL Fry	Artemia Cysts	High $\Omega$ 3, High hatch rate Small nauplii.	<a href="#">WEBSITE</a>
Aqua-In-Tech	Black Box Larval Diets	Fish Shrimp	Larval		Custom made to the clients specifications. Krill based protein diets with a proprietary bacterial products added for optimum stress resistance.	<a href="#">DATA SHEET</a>
Aqua-In-Tech	Black Box Acclimation diets	Fish Shrimp	Nursery		Custom made to the clients specifications. Krill based protein diets with proprietary bacterial products added for optimum stress resistance. Acclimation diet high in Vitamins and minerals, glucans, nucleotides and other materials that impact stress tolerance.	<a href="#">DATA SHEET</a>

SUPPLIER	PRODUCT NAME	SPECIES	LIFE STAGE	FORM	DESCRIPTION	MORE INFORMATION
Aqua-In-Tech	Mat Mix	Shrimp	Broodstock	Powdered	Completely replaces most live feed ingredients (although recommended that you just use less). A powdered product that you mix up in the hatchery with some water and the ingredients provided. Proven to promote excellent productivity in broodstock..	<a href="#">DATA SHEET</a>
BernAqua – InVivo NSA	Caviar	Fish	Larvae Juveniles	Agglomerated Micro-capsules	Caviar is an agglomerated product, classified in different sizes to match the different stage of the fish larval development. Each capsule is filled with small peptides and low MW soluble proteins, nucleotides, EFA based phospholipids, a balanced profile of chelated	<a href="#">WEBSITE</a>
BernAqua – InVivo NSA	Nori	Fish	Larvae Juveniles	Agglomerated Micro-capsules	Nori is an agglomerated feed high in protein and moderated in fat content, which preserves hepatic conditions and promote fast growth. The essential fatty acids of the feed are only originating from the protein fraction. Nori is perfectly water stable. It has an excellent buoyancy and water stability.	<a href="#">WEBSITE</a>
BernAqua – InVivo NSA	MeM	Fish	Juveniles	Cold Extruded	MeM is a nursery feed for fish cultured in intensive conditions. MeM is produced following a new technology, which involves cold Micro-extrusion and Marumerization. This innovative technology ensures a full water stability of soluble and insoluble nutrients in the feed while avoiding the use of chemical binders.	<a href="#">WEBSITE</a>
BernAqua – InVivo NSA	Royal Caviar	Shrimp	Larvae Post larvae	Agglomerated Micro-capsules	Royal Caviar is formulated and produced to mimic the basic features of live food. Royal Caviar increases profitability and performance of shrimp hatcheries. Royal Caviar is produced following a unique technology, which involves the agglomeration of microcapsules. The new key ingredient is giving Royal Caviar a better palatability so increased performance.	<a href="#">WEBSITE</a>
BernAqua – InVivo NSA	BioSpheres	Shrimp	Larvae Post larvae	Agglomerated Micro-capsules, Extruded & Crumbled	The BioSpheres range comprises four different feeds, each one exclusively and independently formulated for the shrimp stage it is targeted to. Each of the feeds is easily identified by their color and physical properties which are following the evolution of the needs of the shrimp throughout its cycle.	<a href="#">WEBSITE</a>
BernAqua – InVivo NSA	Vitellus	Shrimp	Larvae Post larvae Juveniles	Extracted Artemia	Vitellus is exclusively composed of first quality Artemia cysts. The cysts have been opened and their content extracted. Vitellus is processed with the most modern techniques which guarantee the total preservation of the unique nutritional qualities of the Artemia cyst.	<a href="#">WEBSITE</a>
BernAqua – InVivo NSA	MeM	Shrimp	Juveniles	Cold Extrusion	MeM is a nursery feed for shrimp cultured in intensive conditions. MeM is produced following a new technology, which involves cold Micro-extrusion and Marumerization. This innovative technology ensures a full water stability of soluble and insoluble nutrients in the feed while avoiding the use of chemical binders.	<a href="#">WEBSITE</a>



SUPPLIER	PRODUCT NAME	SPECIES	LIFE STAGE	FORM	DESCRIPTION	MORE INFORMATION
BernAqua – InVivo NSA	Royal Oyster	Shrimp	Broodstock	Cold Extrusion	Royal Oyster is a high quality supplementary shrimp maturation feed. Royal Oyster speeds up the recovery of breeders after each spawn. Royal Oyster improves nauplii quality and pigmentation. Royal Oyster is produced by Cold-extrusion and Marumerization. This process avoids the use of artificial binders and nutrient-loss in water.	<a href="#">WEBSITE</a>
Biomar	LARVIVA Multigain	Shrimp	Larvae	Powdered	Complete dry formula high quality feed with all nutrients required to boost disease and stress resistance of shrimp larvae. LARVIVA Multigain can be used as a supplementary diet, fed directly to the shrimp tanks.	<a href="#">DATASHEET</a>
BioMar	LARVIVA Shrimp-ProStart	Shrimp	From Z1-Z2 onwards		Agglomerated, high protein larval feed with the right amino acid balance, for first feeding and replacement of live feed. Available in appropriate size range. Complete nutritional profile. Of constant quality always off-the-shelf available. Includes Bactocell®, a probiotic that is documented to have positive effect on shrimp survival and growth performance.	<a href="#">DATASHEET</a>
BioMar	LARVIVA Shrimp-PL	Shrimp	From PL1 onwards		An extruded and granulated feed with high digestibility, based on the best raw materials of marine origin. Great importance has been ascribed to palatability, which together with high protein content ensures maximum growth and survival during the early life stages. Contains immune stimulants, and high levels of vitamins and minerals.	<a href="#">DATASHEET</a>
BioMar	LARVIVA ProStart	Fish	Larvae		Agglomerated, high protein larval feed with the right amino acid balance, for co-feeding with live feed and for early weaning. Includes Bactocell®, a probiotic that is documented to reduce vertebral deformities in marine larvae as well as in salmonids..	<a href="#">DATASHEET</a>
BioMar	LARVIVA ProWean	Fish	Larvae		Weaning and nursery feed for fish larvae. Extruded granulates of highest quality to use in standard weaning procedures. Includes Bactocell®, a probiotic that is documented to reduce vertebral deformities in marine larvae as well as in salmonids.	<a href="#">DATASHEET</a>
Biomat	SPIROO microFEED PLUS	Fish Shrimp Bivalve	Larvae PL fry	Micro-packaged <i>spirulina</i>	Patent-pending micro packaging technology enables the production of a new and unique larvae and fry micro feed, based on 100% organic, contaminant-free, closed PBR, high-protein <i>spirulina</i> microalgae. SPIROO micro FEED PLUS features field tested neutral buoyancy, highly attractant, palatable and digestible proteins and nutrients with superior water stability. Room-temperature storage.	<a href="#">DATA SHEET</a>
	BioVita Starter	Salmon/ Trout	First feed- ing fry	Extruded Crumbles	BioVita Starter is a premium fish feed with high levels of fish meal and fish oil. For use in first feeding, it contains an enhanced vitamin pack and pigment to promote healthy fish and natural coloration. Natural palatability enhancers ensure an active first feeding response.	<a href="#">DATASHEET</a>

SUPPLIER	PRODUCT NAME	SPECIES	LIFE STAGE	FORM	DESCRIPTION	MORE INFORMATION
 Bio-Oregon® Lifestage Diets for Fish®	BioClark's Starter	Salmon/ Trout	First feed- ing fry	Extruded Crumbles	BioClark's Starter combines traditional dietary values with an increased level of alternative ingredients to reduce cost and to promote sustainability. For use in first feeding, it contains an enhanced vitamin pack and pigments to promote healthy fish and natural coloration. Natural palatability enhancers ensure an active first feeding response.	<a href="#">DATASHEET</a>
 Bio-Oregon® Lifestage Diets for Fish®	MicroVita	Salmon/ Trout	First feed- ing fry	Extruded Micro-Pellets	MicroVita micro-pellets are based on the premium BioVita Starter formulation. MicroVita micro-pellets are available in 0.6 & 0.9 mm sizes, and can be used as direct replacements for our #1 & #2 starter crumble sizes. Micro-pellets are clean, durable and uniform in shape.	<a href="#">DATASHEET</a>
 Bio-Oregon® Lifestage Diets for Fish®	BioVita Fry	Salmon/ Trout	Parr	Extruded Pellets	BioVita Fry is a premium fish feed with high levels of fish meal and fish oil. It contains an enhanced vitamin pack and pigments to promote healthy fish and natural coloration. Natural palatability enhancers ensure an active feeding response.	<a href="#">DATASHEET</a>
 Bio-Oregon® Lifestage Diets for Fish®	Bio-Olympic Fry	Salmon/ Trout	Parr	Extruded Pellets	Bio-Olympic Fry is our most advanced fry diet and provides maximum growth rates and shortened production times. Bio-Olympic Fry has demonstrated growth improvements of up to 20% in controlled trials.	<a href="#">DATASHEET</a>
 Bio-Oregon® Lifestage Diets for Fish®	BioClark's Fry	Salmon/ Trout	Parr	Extruded Pellets	BioClark's Fry is a mid-level energy fish feed for moderate or controlled growth. It includes an increased level of alternative ingredients to reduce cost and to promote sustainability. It contains an enhanced vitamin pack and pigments to promote healthy fish and natural coloration.	<a href="#">DATASHEET</a>
 Bio-Oregon® Lifestage Diets for Fish®	BioBrood	Salmon/ Trout	Broodstock	Extruded Pellets	BioBrood is designed to meet the needs of developing and maturing eggs and sperm. It contains premium fish meal and fish oil and extra vitamins and minerals for improved fecundity, sperm motility, brood health, egg quality, and fry survival. BioBrood should be fed for 6-12 months prior to spawning.	<a href="#">DATASHEET</a>
 Bio-Oregon® Lifestage Diets for Fish®	BioPro	Salmon/ Trout	Parr	Extruded Pellets	BioPro is a health promoting diet specifically formulated for freshwater salmon and trout. BioPro is designed to be fed leading up to stressful situations, including periods of high disease risk or adverse environmental conditions such as elevated summer water temperatures, intense sunlight or low dissolved oxygen.	<a href="#">DATASHEET</a>
 Bio-Oregon® Lifestage Diets for Fish®	BioSupreme	Salmon/ Trout	Smolt transfer	Extruded Pellets	BioSupreme is specifically formulated to prepare salmon for the transition from fresh to saltwater. Like BioTransfer, BioSupreme contains elevated levels of dietary salt and now includes newly identified ingredients that are essential for increasing feed intake and growth following transfer. BioSupreme should be fed for 6 weeks prior to release or transfer to saltwater.	<a href="#">DATASHEET</a>

SUPPLIER	PRODUCT NAME	SPECIES	LIFE STAGE	FORM	DESCRIPTION	MORE INFORMATION
	BioDry 1000LP	Salmon/ Trout	Parr	Extruded Pellets	BioDry 1000LP (Low Phosphorus) is an extruded, low-pollution fish feed which is formulated to reduce the amount of phosphorous discharged into the environment. This diet contains less than 1% dietary phosphorus.	<a href="#">DATASHEET</a>
Cargill	LiquaLife Z-M	Shrimp	Larvae	Pre-stabilized nutrient beads	LiquaLife® products are liquid feeds for larval and post-larval shrimp produced through a patented technology. Each drop contains pre-stabilized nutrient beads and direct-fed microbials to deliver optimum nutrition for better survival rates and growth. LiquaLife® feeds are designed to complement live feeds, such as algae and Artemia, and completely replace conventional dry feeds. In addition, the probiotic bacteria in LiquaLife® feeds help prevent the accumulation of toxic ammonia.	<a href="#">WEBSITE</a>
Cargill	LiquaLife M-PL	Shrimp	Larvae PL	Pre-stabilized nutrient beads		<a href="#">WEBSITE</a>
Cargill	LiquaLife PL	Shrimp	PL	Pre-stabilized nutrient beads		<a href="#">WEBSITE</a>
Cargill	LiquaLife PL*	Shrimp	PL	Pre-stabilized nutrient beads	LiquaLife® PL is designed for PL transport and ideally replaces Artemia in the transportation of your PL's from the hatchery to the farms, making sure your PL's are active and stress free while reducing your costs and hazards. LiquaLife® PL improves water conditions during travel, due to the probiotic bacteria in its micro capsules. Reduces water contamination risks and mortality caused by stress. Prevents the contact of personnel with caustic and toxic products used in Artemia decapsulation. Reduces personnel and production costs by not having to hatch or produce Artemia.	<a href="#">WEBSITE</a>
Cargill	Aquaxcel	Shrimp/ Fish	Larvae PL/ fry Finger- lings	Micro- extruded	Combining superior nutrition and modern micro-extrusion technology, AQUAXCEL® gives young animals all they need to thrive. Our feeds are designed to give you the best cost-benefit ratio to take to your bottom line..	<a href="#">WEBSITE</a>
Cargill	Aquaxcel 0.3 mm, 0.6 mm, 0.8mm	Shrimp	Larvae/PL	Micro- extruded	Complete feeding program designed for shrimp hatcheries, maternities and raceways that is composed of advanced starters, maximizing performance, nutrient stability, and cost-benefit to farmers.	<a href="#">WEBSITE</a>
Cargill	Aquaxcel 0.8mm, 1.5mm, 2.0mm	Shrimp	PL	Micro- extruded	Advanced starter feeds designed to provide enhanced performance of PL's in nursery, transfer ponds and direct stocking of growout ponds	<a href="#">WEBSITE</a>

*Did someone forward this guide to you? Don't miss out on our free publications again: Sign up today from [hatcheryfeed.com](http://hatcheryfeed.com).*

SUPPLIER	PRODUCT NAME	SPECIES	LIFE STAGE	FORM	DESCRIPTION	MORE INFORMATION
Cargill	AquaXcel Warm Water	Fish		Micro-Extruded	Combining superior nutrition and modern micro-extrusion technology, AQUAXCEL® gives young animals all they need to thrive. Our feeds are designed to give you the best cost-benefit ratio to take to your bottom line.	<a href="#">WEBSITE</a>
Cargill	AquaXcel Cold Water	Fish		Micro-Extruded	Combining superior nutrition and modern micro-extrusion technology, AQUAXCEL® gives young animals all they need to thrive. Our feeds are designed to give you the best cost-benefit ratio to take to your bottom line.	<a href="#">WEBSITE</a>
Cargill	AquaXcel Marine	Fish		Micro-Extruded	Combining superior nutrition and modern micro-extrusion technology, AQUAXCEL® gives young animals all they need to thrive. Our feeds are designed to give you the best cost-benefit ratio to take to your bottom line.	<a href="#">WEBSITE</a>
CreveTec	L100, L200	shrimp	larvae	crumbles	Extremely attractive diet due to inclusion of highly digestible ingredients. All feeds contain micro-algae and hydrolyzed proteins	<a href="#">WEBSITE</a>
CreveTec	PL300, PL500	shrimp	PL	crumbles	Extremely attractive diet due to inclusion of highly digestible ingredients. All feeds contain micro-algae and hydrolyzed proteins	<a href="#">WEBSITE</a>
CreveTec	PL800, PL1000	shrimp	Nursery	crumbles	Extremely attractive diet due to inclusion of highly digestible ingredients. All feeds contain micro-algae and hydrolyzed proteins. Growth of PL12 to 1,2 g in 4 weeks in intensive nursery systems	<a href="#">WEBSITE</a>
CreveTec	Broodstock growing pellet	shrimp	Broodstock	pelleted	Pellet with 54 % proteins. Contains krill and squid.	<a href="#">WEBSITE</a>
CreveTec	Maturation pellet	shrimp	Broodstock	semi-moist	Semi-moist pellets with 10 % fresh polychaetes	<a href="#">WEBSITE</a>
EWOS Canada/ Norway/Scotland	EWOS start (015P, 040P, 1P)	Salmonids	Hatchery Fry	Extruded Pellets	EWOS start uses the best fishmeal & fish oil to produce a clean, slow sinking and homogenous pellet. Using EWOS start has been shown to improve water quality, optimise SGR and FCR and will give a more even fish size distribution.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
EWOS Chile	EWOS micro (018, 075, 2)	Salmonids	Hatchery, fry	Sphere-izer Agglomeration System feed (SAS)		<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
EWOS Chile	EWOS Transfer (5,15,50,100,200)	Salmonids	Fry, Smolt	Extruded Pellets		<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
EWOS Norway	EWOS fry (5P, 15P) EWOS smolt (30P, 50P)	Salmonids	Hatchery, fry, smolt	Extruded Pellets	A comprehensive and complete range of hatchery diets from first – feeding to fry. Please refer to <a href="http://www.ewos.com">www.ewos.com</a> or contact your local representative for details.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
EWOS Scotland	EWOS micro (5P, 15P, 30P, 50P)	Salmonids	Hatchery, fry, smolt	Extruded Pellets		<a href="#">WEBSITE</a> <a href="#">CONTACT</a>

SUPPLIER	PRODUCT NAME	SPECIES	LIFE STAGE	FORM	DESCRIPTION	MORE INFORMATION
Gold Coin Biotechnologies Sdn. Bhd.	Gold Coin ENCAP	Shrimp	Larvae Feed	Micro-encapsulated feed	ENCAP products are microencapsulated with ingredients of the highest quality and digestibility. With our process being carried out at low temperature where minimum heat is involved, there is minimal nutrient loss. When used in hatcheries, the products also display the following advantages: simplicity to use, minimum water pollution, minimal feed wastage, controlled buoyancy, high attractability and faster growth to larvae.	<a href="#">WEBSITE</a>
Gold Coin Biotechnologies Sdn. Bhd.	Gold Coin Microparticulated feed	Shrimp	Larvae Feed	Micro-particulated feed	Microparticulated feed is formulated based on the highly specialized feeding habits of the post-larvae. Highly digestible marine proteins are used to allow the young post-larvae's alimentary canal assimilate these important nutrients.	<a href="#">WEBSITE</a>
	O.range	Fish	Larvae up to juveniles	Crumbled dry feed	The ultimate marine fish dry diet range. Consists of 4 diets that perfectly fit the fish's nutritional needs throughout the different hatchery stages. Optimal HUFA and DHA/EPA profiles. Excellent stability and floatability. Formulated using only top quality raw ingredients.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	Fish Breed-M	Fish	Broodstock	Powdered	A consistent, high quality powdered concentrate for moist broodstock feeds. Decreases or eliminates the use of fresh fish feed, thus reducing risk of infection. Optimizes productivity while offering consistent spawning and fertilization rates.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>

INNOVATION DISTINGUISHES BETWEEN A LEADER AND A FOLLOWER.

—Steve Jobs

*Newly farmed aquatic species, changing raw material availabilities, and even controversial ecological issues have created serious needs for advancements in aquafeed processing. As a long-time leader in extrusion, Wenger is addressing these and other challenges with ground-breaking approaches. Consider these recent Wenger innovations: Oblique Tube Die and Diverging Cone Screw result in small diameter feeds at rates three to five times those of previous technology; Thermal Twin Screw Extruder permits high percentages of fish slurry, oil and high moisture ingredients; HIP preconditioner, with adjustable mixing intensity, addresses recipe challenges - especially those with varying content of starch, fiber and oils. And the list goes on.*

*Contact us now. With new concepts and fresh initiatives, we're ready to help you meet the ever-evolving requirements of the aquatic feed industry.*





Turning ideas into opportunities.  
PROGRESSIVE AQUAFEED PROCESSING

What will tomorrow bring




















wenger.com

BELGIUM TAIWAN BRASIL CHINA TURKEY INDIA

SUPPLIER	PRODUCT NAME	SPECIES	LIFE STAGE	FORM	DESCRIPTION	MORE INFORMATION
	Lansy Breed	Fish	Broodstock	Pellets	Soft pellets that enhance the nutritional quality of the offspring and provide a more predictable output. Allows for better and increased egg production. Available in 8, 12 or 24 mm pellets.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	NRD	Fish	Larvae up to juveniles	Crumbled dry feed	Top performance dry diet range for marine fish. One diet line for the co-feeding, weaning, post-weaning, nursery and pre-ongrowing stages.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	BREED-S FRESH	Shrimp	Broodstock	Semi-moist pellets	Pioneering, soft shrimp maturation diet with fresh marine ingredients. Replaces up to 70% of the fresh feed. Offers full-biosecurity, a consistent nutritional quality and superior egg quality while boosting the spawning performance.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	EPAC	Shrimp	PL	Crumbled pellets	Post-larval shrimp feed range for low cost applications. NEW formula that includes more marine proteins and lipids, offers better water stability and increased palatability and attractiveness to the PLs. Maintains a clean and healthy rearing environment while allowing a reliable output of robust PLs.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	FRIPPAK FRESH	Shrimp	Larvae	Micro-encapsulated	A range of advanced larval shrimp feeds. Minimizes <i>Artemia</i> consumption, offering the best balance between live food and formulated diets. Contains high levels of fresh and natural ingredients. Offers higher survival rates and shorter production cycles. Now with NEW formulas for #2 CD and #3 CD.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	FRIPPAK PL FEEDS	Shrimp	PL	Crumbled	High quality diet range for post-larval shrimp. Complementary with our FRIPPAK FRESH range for the larval stages. Minimizes <i>Artemia</i> consumption and produces the best quality PLs. Increases survival rates.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	LANSY-Shrimp	Shrimp	Larvae PL	Micro-encapsulated, crumbled and flaked	A range of high quality dry diets covering all hatchery stages. Replaces at least 40% of the <i>Artemia</i> needs. Manufactured according to the highest sanitary standards, ensuring consistent survival and uniform growth. Excellent buoyancy and water stability.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	VANNA (China only)	Shrimp	Larvae PL	Micro-encapsulated, crumbled and flaked	A performing diet range for economic <i>vannamei</i> larviculture. Highly nutritional, well balanced formulation. Largely reduces the use of live algae and <i>Artemia</i> . Produces strong, healthy PLs. Non-GMO.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
Lucky Star	Initial	Fish	Larvae	Micro-encapsulated	Nutritionally balanced to satisfy the requirements of marine fish species. Slow sinking to maximize feed availability and avoid feed loss. High levels of digestible protein, utilizable lipids, cholesterol and vitamins. Effective co-feed with rotifer, artemia and micro algae..	<a href="#">WEBSITE</a>

SUPPLIER	PRODUCT NAME	SPECIES	LIFE STAGE	FORM	DESCRIPTION	MORE INFORMATION
Lucky Star	MP Enhance	Fish	Larvae	Formulated particle	Extrusion micro-particulate granule which offers an economical choice. Effective co-feed with rotifer, microalgae and <i>artemia</i> .	<a href="#">WEBSITE</a>
Lucky Star	Micro Elite	Shrimp	Larvae	Encapsulated	Micro Elite shrimp larval feed is processed by the most advanced encapsulated technology with the following characteristics: Excellent feed buoyancy in water column to maximize feed availability. Encapsulated granules extending water stability and minimize nutrition leaching. Balanced fatty acid profile.	<a href="#">WEBSITE</a>
Lucky Star	Brine shrimp flake	Shrimp	Larvae	Flake	Lucky Star brine shrimp flake is delicately formulated to satisfy the nutritional requirements of quality shrimp larvae.	<a href="#">WEBSITE</a>
Pacific Trading Aquaculture	Otohime	Fish	Larvae	Granulate	Otohime is made from highly selected raw materials with easily digested protein and high quality lipids to promote the vitality of fish larvae, sizes 75µm to 1400µm. Amazing cleanliness, excellent dispersibility on water surface and ideal sinking speed, this is considered the premium Japanese larval diet around the world.	<a href="#">DATA SHEET</a>
	Instant Algae TP 1800	Shrimp, Bivalves	All life stages	Single-species Microalgae, 8% dry-weight;. Refrigerated liquid concentrate; no blending required.	Always available. <b>TP 1800</b> can be used to replace live algae production, augment existing production during peak season, or to have available in case of a culture crash. <i>Thalassiosira pseudonana</i> is high in DHA and EPA and works fabulously for shrimp and bivalves at all stages.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
 Skretting Marine Hatchery Feed	Vitalis CAL	Marine fish	Broodstock	Extruded	Extruded diet which should be offered to brood fish from the onset of vitellogenesis and should be fed until 1 month after spawning to allow optimal development, sustenance and recovery through the whole spawning period	Contact Skretting to get a product sheet <a href="#">WEBSITE</a> <a href="#">CONTACT</a>
 Skretting Marine Hatchery Feed	Vitalis REPRO	Marine fish	Broodstock	Extruded	Extruded diet which should be offered outside the spawning window to maintain optimal condition of the spawning fish	Contact Skretting to get a product sheet <a href="#">WEBSITE</a> <a href="#">CONTACT</a>
 Skretting Marine Hatchery Feed	GEMMA Micro	Marine fish	Early weaning	Low temperature extruded	Unique, patented diet, which is specifically formulated and produced to facilitate early weaning without the use of <i>Artemia</i>	Contact Skretting to get a product sheet <a href="#">WEBSITE</a> <a href="#">CONTACT</a>
 Skretting Marine Hatchery Feed	GEMMA Wean	Marine fish	Co-feed & weaning	Low temperature extruded	Cold extruded micro diet which has been developed to co-feed and wean marine larvae during the larval rearing phases. Optimal diet to follow on from rotifers and co-feed with minimal <i>Artemia</i>	Contact Skretting to get a product sheet <a href="#">WEBSITE</a> <a href="#">CONTACT</a>

SUPPLIER	PRODUCT NAME	SPECIES	LIFE STAGE	FORM	DESCRIPTION	MORE INFORMATION
 Skretting Marine Hatchery Feed	GEMMA Diamond	Marine fish	Post-weaning	Low temperature extruded	Extruded micro pellet diet which has been designed to give juveniles the best start by assuring fast and efficient growth and low feed conversion under pre-growing conditions	Contact Skretting to get a product sheet  <a href="#">WEBSITE</a>  <a href="#">CONTACT</a>
 Skretting Marine Hatchery Feed	Perla MP	Marine fish	Transfer & pre-ongrowing	Extruded	Complete micro and mini pellet starter diet which has been designed as a specific pre-ongrowing feed	Contact Skretting to get a product sheet  <a href="#">WEBSITE</a>  <a href="#">CONTACT</a>
 Skretting Marine Hatchery Feed	PL	Shrimp	Larval & post larval nutrition	Cold Extruded	Feeding programme which has been engineered to offer advanced nutrition to shrimp hatcheries. It can be utilized from zoea stages until pre-growing stages	Contact Skretting to get a product sheet  <a href="#">WEBSITE</a>  <a href="#">CONTACT</a>
 Skretting USA	Starter Crumble	Trout and Steelhead	First feeding fry	Extruded Crumbles	Starter Crumble is a nutrient-rich, crumbled starter feed suitable for Trout, Steelhead and a range of other cold and warm water species. Starter Crumble is produced from a highly digestible, extruded pellet.	Contact Skretting to get a product sheet  <a href="#">WEBSITE</a>  <a href="#">CONTACT</a>
 Skretting USA	Nutra ST & MP	Trout and Steelhead	First feeding fry	Micro-pellets	Nutra ST & MP are high-performance, pelleted diets designed to give your fish the best possible start. Nutra ST is produced at only one plant in the world, and is designed to give small fish (<0.15g) the best possible nutrition in start feeding. Nutra MP is used after ST, and is a uniform micro-pellet with semi-floating characteristics, giving excellent growth and feeding efficiency.	Contact Skretting to get a product sheet  <a href="#">WEBSITE</a>  <a href="#">CONTACT</a>
 Skretting USA	Classic Fry	Trout and Steelhead	Parr	Extruded Pellets	Classic Fry, previously called Extruded Steelhead, is a medium-energy, extruded sinking or floating fry diet. Classic Fry is specifically formulated to achieve good growth and healthy fry.	Contact Skretting to get a product sheet  <a href="#">WEBSITE</a>  <a href="#">CONTACT</a>
 Skretting USA	Oncor Fry	Trout and Steelhead	Parr	Extruded Pellets	Oncor Fry is Skretting USA's best diet for Trout and Steelhead fry, formulated to ensure good water stability, excellent growth and low FCR. Oncor Fry has a higher level of digestible protein and higher energy content than Classic Fry to ensure that your fish get off to the best possible start.	Contact Skretting to get a product sheet  <a href="#">WEBSITE</a>  <a href="#">CONTACT</a>
 nutrition through innovation	EZ Artemia	Shrimp	Larvae, PL	Micro-capsule	100% Artemia Replacement formulated as a complete balanced diet to mimic the color, taste, texture, and nutritional value of Artemia nauplii	<a href="#">DATA SHEET</a>  <a href="#">WEBSITE</a>  <a href="#">CONTACT</a>

SUPPLIER	PRODUCT NAME	SPECIES	LIFE STAGE	FORM	DESCRIPTION	MORE INFORMATION
 nutrition through innovation	EZ Larva	Shrimp	Larvae, PL	Micro-capsule	Premium Liquid Larval Diet designed to produce high quality PLs and maintain excellent water quality. Contains algae, pigments, and high HUFA content.	<a href="#">DATA SHEET</a> <a href="#">WEBSITE</a> <a href="#">CONTACT</a>
 nutrition through innovation	Larva Z Plus	Shrimp	Larvae, PL	Micro-particle	Premium Dry Larval Diet scientifically and commercially proven to produce the highest quality PLs. Contains algae, pigments, and high HUFA content.	<a href="#">DATA SHEET</a> <a href="#">WEBSITE</a> <a href="#">CONTACT</a>
 nutrition through innovation	Larva Esencial	Shrimp	Larvae, PL	Micro-particle	Dry Larval Diet designed to promote fast growth while maintaining water quality in larval rearing systems. Contains pigments and HUFA's from marine sources.	<a href="#">DATA SHEET</a> <a href="#">WEBSITE</a> <a href="#">CONTACT</a>
 nutrition through innovation	Larva AP-100	Shrimp, Fish	Larvae, PL	Micro-particle	Dry Larval Diet nutritionally balanced for marine larvae. Contains pigments and HUFA's from marine sources	<a href="#">DATA SHEET</a> <a href="#">WEBSITE</a> <a href="#">CONTACT</a>
 nutrition through innovation	Shrimp Starter	Shrimp	PL	Crumble	A complete nutrition alternative for feeding post larvae. A high protein, nutrient dense diet fortified with vitamin packs and pigments to enhance survival and growth.	<a href="#">DATA SHEET</a> <a href="#">WEBSITE</a> <a href="#">CONTACT</a>
 nutrition through innovation	PL Raceway Plus	Shrimp	PL	Crumble	Complete, premium diet for Nursery and Raceway systems that is proven to yield larger, more robust and healthier animals for stocking in ponds. Contains pigments and high levels of HUFA's from marine sources.	<a href="#">DATA SHEET</a> <a href="#">WEBSITE</a> <a href="#">CONTACT</a>
 nutrition through innovation	Brine Shrimp Flake – Red	Shrimp	PL	Flake	Highly digestible flake diet formulated for <i>P. monodon</i> with special pigments added for preferred coloration of the larval rearing tank. Contains high quality brine shrimp.	<a href="#">DATA SHEET</a> <a href="#">WEBSITE</a> <a href="#">CONTACT</a>
 nutrition through innovation	Brine Shrimp Flake - Black	Shrimp	PL	Flake	Highly digestible flake diet for coloration of the digestive track in <i>L. vannamei</i> . Contains high quality brine shrimp and algae for a nutritionally balanced formula.	<a href="#">DATA SHEET</a> <a href="#">WEBSITE</a> <a href="#">CONTACT</a>
 nutrition through innovation	EZ Black	Shrimp	PL	Micro-particle Flake	Micro-particle flake diet for coloration of the digestive track in <i>L. vannamei</i> . Contains high quality brine shrimp.	<a href="#">DATA SHEET</a> <a href="#">WEBSITE</a> <a href="#">CONTACT</a>

### Help us make this Guide more comprehensive!

Do you use a feed that isn't listed? Please tell us so we can include it next time. If you are a feed supplier and have not been listed, please contact us for inclusion in the next issue. Email: [info@hatcheryfeed.com](mailto:info@hatcheryfeed.com)

# Aquaculture Feeds Reimagined

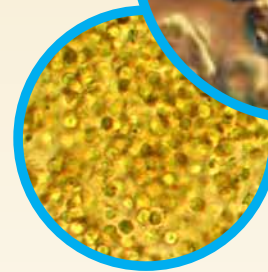
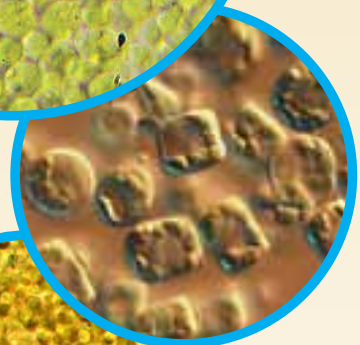
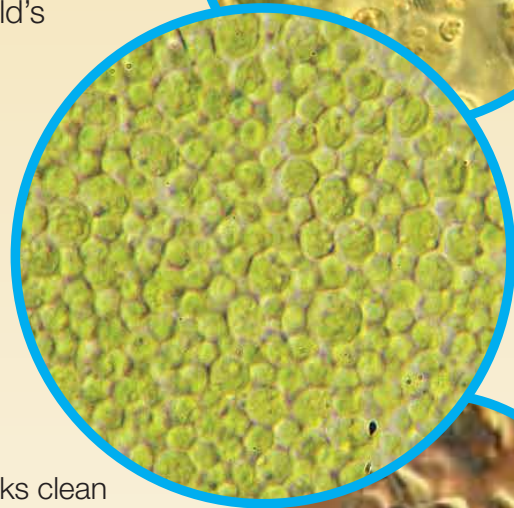
In the mid-1990s, Tim Reed invented a method for growing laboratory-pure microalgae on a commercial scale and a concentrate process that ensures nearly intact cell structure and therefore, the complete nutritional value of live algae — a “sea change” *for modern marine aquaculture.*

The Reed family’s genius for innovation, coupled with treating customers as family and unmatched commitment to the aquaculture industry, has made Reed Mariculture Inc (RMI) the world’s largest producer of marine microalgae concentrates.

## RMI’s *Instant Algae*® Revolutionary Aquaculture

*Instant Algae*® products offer a wide-range of pure, nutritionally optimized, easy-to-use marine algae concentrates that ensure safer, highly effective, and more profitable hatchery production of larval fish, bivalve, and shrimp. *Benefits:*

- **Whole-cell:** better nutrition for animals and keeps tanks clean
- **Closest to nature:** made from marine algae grown in a proprietary closed-system photobioreactor process free of pathogens
- **Easy to use:** frozen for freshness; can be used immediately
- **Back up feed:** instantly available should onsite hatchery culture crash occur
- **Science-backed nutritional profiles:** optimized for all production phases and many specific larval species
- **Cost effective:** reduces cost and risk of onsite culture production
- **Extraordinary customer support:** superior logistics expertise and knowledgeable technical support

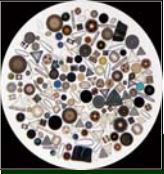


[instantalgae.com](http://instantalgae.com)

**The cleanest, most effective, and easiest-to-use feeds in aquaculture**

TOLL-FREE: 1-877-732-3276 | VOICE: 408-377-1065 | FAX: 408-884-2322 | [www.reed-mariculture.com](http://www.reed-mariculture.com)

# Reed Mariculture Inc.





# ENRICHMENTS & SUPPLEMENTS



	PRODUCT NAME	SPECIES	PRODUCT TYPE	FORM	DESCRIPTION	MORE INFORMATION
Algal Scientific	Algamune AM	Finfish, shrimp	Algae meal supplement with beta 1,3 glucan	Dried and milled algae meal in bags	Algamune AM is a dried and milled algae meal produced from a pure algal culture. It contains over 45% beta 1,3 glucan as well as essential omega 3 fatty acids and vitamins. The algae meal comes in bags and can be top-dressed or pelleted with standard feeds.	<a href="#">DATASHEET</a>
Algal Scientific	Algamune AP	Shrimp, shellfish, rotifers, <i>Artemia</i> , filter-feeding fish	Algae paste with beta 1,3 glucan	Refrigerated or frozen bags (nominally over 20% solids)	Algamune AP is a wet algae paste harvested from a pure algal culture. It contains over 45% beta 1,3 glucan as well as essential omega 3 fatty acids and vitamins. The paste can be added to tanks to enrich the diet of filter feeding species.	<a href="#">DATASHEET</a>








Is YOUR product missing? Make sure you're not left out next time:  
[email\\_editor@hatcheryfeed.com](mailto:email_editor@hatcheryfeed.com)








Aqua-In-Tech	PRO4000X	Fish, shrimp	Water conditioner probiotic for hatchery tanks and ponds	Tablets	Targeted delivery of large number of bacterial spores (>60 billion per tablet) to pond and hatchery tank bottoms. No activation required. Used for bio-augmentation and bioremediation. Bacteria. Stable field proven bacterial strains are the subject of a US patent for use in catfish ponds. Sludge degradation and ammonia reduction	<a href="#">DATA SHEET</a>
Aqua-In-Tech	AQUAPRO-EZ	Fish, shrimp	Water conditioner probiotic for hatchery tanks and ponds	Bags	A mixture of selected bacterial strains and nutrients packaged in a biodegradable bag for direct addition to ponds and tanks. Sludge degradation and ammonia reduction	<a href="#">DATA SHEET</a>
Aqua-In-Tech	MBX	Shrimp, Fish Broodstock; Shrimp Larvae, PL	Bacterial Extract		An extract from a non-pathogenic environmental bacterial species that is a source of nucleotides and nutrients shown to enhance PL stress tolerance and survivals in ponds	<a href="#">DATA SHEET</a>
<b>BernAqua – InVivo NSA</b>	Red Pepper	Fish	Enrichment	Stable Emulsion	<b>Red Pepper</b> is a complete enrichment product for rotifers and Artemia. <b>Red Pepper</b> contains, besides essential fatty acids, the most important nutrients. The level of Vitamin C included is unique on the market. <b>Red Pepper</b> is also containing chelated trace minerals and immunostimulants. <b>Red Pepper</b> disperses easily. All nutrients are well protected as not to leach.	<a href="#">WEBSITE</a>
<b>BernAqua – InVivo NSA</b>	Olio Ω3	Fish	Enrichment	Stable Emulsion	<b>Oliow3</b> is a stable emulsion based on refined fish oils, stabilized with carefully selected emulsifiers. <b>Oliow3</b> is also enriched with Vitamins E and C that are acting as antioxidants in the body of the fish larvae. <b>Oliow3</b> is readily forming a uniform and stable emulsion of lipid droplets, filtered efficiently by rotifers or Artemia.	<a href="#">WEBSITE</a>









SUPPLIER	PRODUCT NAME	SPECIES	PRODUCT TYPE	FORM	DESCRIPTION	MORE INFORMATION
BernAqua – InVivo NSA	Olio DHA-base	Fish	Enrichment	Emulsion-base	<b>Olio DHA-base</b> is an oil based solution formulated with the very best refined fish oils and stabilizing emulsifiers. <b>Olio DHA-base</b> is also enriched with Vitamins E and C. <b>Olio DHA-base</b> readily forms a uniform and stable emulsion of lipid droplets when mixed with water. These lipid particles are filtered efficiently by rotifers or Artemia.	<a href="#">WEBSITE</a>
BernAqua – InVivo NSA	Ω3 Algae	Fish	Micro-algae	Powder	<b>ω3Algae</b> is only composed of a selected blend of Chlorella Algae. The processing ensures the preservation of all nutritional characteristics and the total elimination of all bacteria and viruses. <b>ω3Algae</b> is easy to use, reaching complete cell separation in just a few minutes of blending. The suspension remains remarkably stable in water.	<a href="#">WEBSITE</a>
BernAqua – InVivo NSA	Ω3 Yeast 60	Fish	Rotifer Feed	Powder	<b>ω3Yeast60</b> is a selected yeast-strain, not genetically modified. <b>ω3Yeast60</b> is presenting the highest levels of protein associated with EFA and vitamin C levels comparable to the highest levels found in live micro algae. No oils are mixed or top coated on the yeast. <b>ω3Yeast60</b> can support fast growth at high densities for long period of time, without presenting the risk of rotifer degeneration or culture crashes.	<a href="#">WEBSITE</a>
BernAqua – InVivo NSA	Royal Pepper Energy	Shrimp	Booster	Liquid	<b>Royal Pepper Energy</b> is a high quality shrimp supplementary liquid feed aimed at improving health and stress resistance. <b>Royal Pepper Energy</b> is targeted at difficult stages such as the Zoea - Mysis - PL transition. <b>Royal Pepper Energy</b> is produced following a unique technology that involves the formation of protein wall capsules around a liquid lipid core.	<a href="#">WEBSITE</a>
BernAqua – InVivo NSA	Royal Pepper Protein	Shrimp	Booster / Micro-bial	Suspension	<b>Royal Pepper Protein</b> is a high quality shrimp supplementary liquid feed aimed at improving health and stress resistance. <b>Royal Pepper Protein</b> is used throughout the larval cycle, and fences off Zoea syndrome and Post Larvae stress.	<a href="#">WEBSITE</a>
BioMar	LARVIVA Multigain	Rotifers, Artemia	Enrichment		Complete dry formula to enrich live feed with all nutrients required by marine larvae or other first feeding species.	<a href="#">DATASHEET</a>
Industrial Plankton Inc.	PBR 1000L	Marine Fish, Shellfish	On site algae production equipment	Live Algae	Fully automated equipment produces live algae on site for hatchery feed. 1000L tank, self cleaning and sterilizing, automated harvesting, UV sterilization, user friendly touch screen controls. Requires 4'X4'X7' space.	<a href="#">DATASHEET</a>
	S.presso	Fish	Live food enrichment	Liquid	Complete liquid enrichment for <i>Artemia</i> and rotifers. Innovative suspension/emulsion technology that performs in different conditions and densities.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	S.tream	Fish	Rotifer diet		Semi-continuous rotifer culture diet with superior performance. Easy to adapt to any previous equipment, it is clean, easy and quick to use. Cost-effective, can be used from 2000 up to 8000 rotifers per ml.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>








SUPPLIER	PRODUCT NAME	SPECIES	PRODUCT TYPE	FORM	DESCRIPTION	MORE INFORMATION
	S.parkle	Fish	Rotifer diet	Liquid	Sparkling clean batch diet for a consistent, performing rotifer culture. Allows re- inoculation up to 50 consecutive generations. Cost-effective and easy to use as it is designed to reduce the workload providing short and highly productive runs.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	EASY SELCO	Fish	<i>Artemia</i> enrichment	Liquid	The original, easy to use liquid enrichment for <i>Artemia</i> . Easy preparation: no mixing needed. Easy application: 1 single dose is possible. Easy storage: enhanced temperature stability.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	A1 DHA SELCO	Fish	<i>Artemia</i> enrichment	Liquid	All-in-one liquid <i>Artemia</i> enrichment. Enriches up to 500 nauplii per ml. Optimal DHA inclusion and increased levels of natural marine phospholipids. Bacterial control during the enrichment cycle while ensuring increased survival rate of the fish larvae.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	DHA PROTEIN SELCO	Fish	Rotifer enrichment	Liquid	All-in-one powdered enrichment for rotifers with an optimal DHA/EPA ratio. Ensures a high nutritional value and allows continued rotifer growth during the enrichment process. Makes for increased survival rates of the fish larvae while reducing the number of deformities.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	Sanocare SURE	Fish		Liquid	Water conditioner for improved rotifer quality. Improves survival rate of the fish larvae, increases the coloration of the rotifers and thus also the attractability for the fish.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	Sanocare ACE	Fish		Liquid	Water conditioner for improved <i>Artemia</i> quality. Increases the quality and vitality of hatched, concentrated and stored <i>Artemia</i> nauplii. Stabilizes pH levels and avoids foaming off during hatching, enrichment or storage.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	Sanolife MIC-F	Fish			Microbial mixture for disease control, gut microflora colonization and water quality improvement in fish hatcheries. Inhibits a number of pathogenic bacteria. Produces enzymes and degrades waste. Colonizes the digestive tract and improves growth and survival rates.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	Sanolife GWS	Fish			Green water conditioner for larval fish rearing. Replaces up to 100% of the live algae while maintaining the rotifer quality inside the tank. Improves water quality and microbial flora. Diffuses light inside the tank, reducing the stress levels of the fish.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	Sanoguard S-PAK	Shrimp			Health booster for shrimp, for improved resistance to stress and diseases. Strengthens the immune system and health. Facilitates recovery after a period of stress. Improves survival and growth rates.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	Sanolife MIC	Shrimp			Microbial mixture for disease control and improved water quality in shrimp hatcheries. Inhibits <i>Vibrio</i> and other pathogenic bacteria. Produces enzymes and degrades waste. Colonizes the digestive tract. Produces strong PLs while improving survival and growth rates.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>

SUPPLIER	PRODUCT NAME	SPECIES	PRODUCT TYPE	FORM	DESCRIPTION	MORE INFORMATION
Lucky Star	Nutri - HUFA	Fish Shrimp	<i>Artemia</i> / Rotifer enrichment	Fluid	Lucky Star Nutri – HUFA is an <i>Artemia</i> /Rotifer enrichment product which consists of essential unsaturated fatty acids that are desirable by marine fish and shrimp larvae.	<a href="#">WEBSITE</a>
Pacific Trading Aquaculture	Super Fresh Chlorella SV-12	Fish Rotifers	Rotifer diet Green-water technique	Fresh live chilled liquid	Super Fresh Chlorella SV12 has been developed in Japan especially for Rotifer cultivation. Each cell contains DHA, EPA and Vitamin B-12 ensuring optimal enrichment. Delivered live and fresh within 5 days of order and is considered a vital cornerstone of RELIABLE stable high and low density rotifer cultivation.	<a href="#">DATASHEET</a>
	<b>Instant Algae</b> Isochrysis 1800	Finfish - Zooplankton and Artemia enrichment, Bivalve Shellfish, Shrimp	Single-species Microalgae, 8% dry weight	Refrigerated liquid concentrate; no blending required	Always available. <b><i>Isochrysis 1800</i></b> can be used to replace live algae production, augment existing production during peak season, or to have available in case of a culture crash. <b><i>Isochrysis</i></b> is high in DHA and often used to enrich zooplankton such as rotifers or Artemia..	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	<b>Instant Algae</b> Nanno 3600	Finfish - as a rotifer feed or for greenwater	Single-species Microalgae, 18% dry weight	Frozen or Refrigerated liquid concentrate; no blending required	<b><i>Nanno 3600</i></b> is our original high-yield rotifer feed. It is a single-species product ( <i>Nannochloropsis</i> ) and produces phospholipid-rich rotifers. It also provides a high Feed Conversion Rate with minimal organic waste, and gives an EPA and ARA pre-enrichment boost for use with high-DHA enrichment protocols. Store frozen for 3 years.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	<b>Instant Algae</b> Pavlova 1800	Finfish - Zooplankton enrichment; Bivalve Shellfish; Shrimp	Single-species microalgae, 8% dry weight	Refrigerated Liquid concentrate; no blending required	<b><i>Pavlova</i></b> is a small golden/brown flagellate whose nutritional profile is very similar to <b><i>Isochrysis</i></b> . It is excellent for enriching rotifers and other zooplankton. Its sophisticated sterol composition makes it particularly popular in cold water fish hatcheries. <b><i>Pavlova</i></b> is very difficult to grow so it is not produced by many hatcheries.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	<b>Instant Algae</b> Tetraselmis 3600	Finfish - feed stimulant effect for zooplankton and Brine Shrimp; Bivalve Shellfish; Shrimp	Single-species microalgae, 18% dry weight	Frozen Liquid concentrate; no blending required	<b><i>Tetraselmis</i></b> is a large green flagellate with a very high lipid level. It contains natural amino acids that stimulate feeding in marine animals. <b><i>Tetraselmis</i></b> increases fecundity in zooplankton, is a standard feed for many Bivalves, and is excellent for increasing growth rates and fighting "Zoea Syndrome" in larval Shrimp.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	<b>Instant Algae</b> TW 1200	Finfish - Zooplankton; Bivalve Shellfish; Shrimp	Single-species microalgae; 6% dry weight	Refrigerated Liquid concentrate; no blending required	<b><i>Thalassiosira weissflogii</i></b> is a large diatom used in Shrimp and Bivalve Shellfish larviculture. Considered by many to be the single best algae for larval Shrimp, the large cell size (5 – 15 micron) extends the algae feeding period until the end of the PL stage.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	<b>Instant Algae</b> Shellfish Diet 1800	Bivalve Shellfish; Ascidians/ Tunicates; Sea Urchins; Soft Corals; Brine Shrimp; and Copepods	Microalgal blend; 8% dry weight	Refrigerated Liquid concentrate; no blending required	<b><i>Shellfish Diet 1800</i></b> ® is a mix of four marine microalgae that have all demonstrated success with a variety of Shellfish including Oysters, Clams, Mussels, and Scallops. Shellfish Diet can be used with pre-set larvae all the way up through broodstock as a <b>complete live algae replacement</b> .	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>

SUPPLIER	PRODUCT NAME	SPECIES	PRODUCT TYPE	FORM	DESCRIPTION	MORE INFORMATION
	<b>Instant Algae</b> RotiGrow <i>Plus</i>	Finfish - Zooplankton feed	Microalgal blend; >14.8% dry weight	Frozen Liquid concentrate; no blending required	<b>RotiGrow <i>Plus</i></b> is a clean, high yield rotifer feed that maximizes pre-enrichment levels of DHA, EPA and ARA. The essential first step in the <b>RotiGrow System</b> . Depending on the nutritional requirements of the fish larvae, it can be used as a stand-alone feed or in combination with one of our N-Rich enrichment products.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	<b>Instant Algae</b> RotiGrow <i>Nanno</i>	Finfish - Zooplankton feed	Microalgal blend; >16.4% dry weight	Frozen Liquid concentrate; no blending required	<b>RotiGrow <i>Nanno</i></b> is a clean, high yield single species rotifer feed that produces phospholipids-rich rotifers. Our highest yielding feed, it provides the highest biomass conversion rate of our products, with the least organic waste in the tank. Gives a high EPA and ARA pre-enrichment boost for use with high DHA-enrichment protocols.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	<b>Chlorella Ltd.</b> Chlorella V12	Finfish – Zooplankton feed	Live microalgae concentrate; 14% dry weight	Refrigerated algal concen- trate – highly perishable	This <b>Chlorella</b> , grown in Japan, is a super fresh grow-out feed enriched with DHA using a patented methodology. It provides a moderate DHA, EPA and ARA enrichment (25mg/g HUFA pre-enrichment). It is naturally high in vitamin B-12, a nutrient necessary for larval health.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	<b>Instant Algae</b> N-Rich <i>High PRO</i>	Finfish - Zooplankton enrichment	Microalgal blend; 9% dry weight	Refrigerated Liquid concen- trate; no blending required	<b>N-Rich <i>High PRO</i></b> feeds ensure that the rotifer's soft tissue and gut contain the highest levels of proteins and lipids rich in phospholipid HUFAs, as well as a host of carotenoids, sterols, vitamins, enzymes, and other key nutrients. <b>High PRO</b> is especially protein-rich (>45%), keeping rotifers healthy and vibrant while they are being enriched.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	<b>Instant Algae</b> N-Rich <i>PL Plus</i>	Finfish - Zooplankton enrichment	Microalgal blend; 9% dry weight	Refrigerated Liquid concen- trate; no blending required	<b>N-Rich <i>PL Plus</i></b> provides a high phospholipid content (approximately 50%) plus other bioavailable polar and membrane lipids for rapid rotifer tissue enrichment with minimal triglyceride storage. Rotifers emerge vibrant and swimming from the enrichment process. Near optimum enrichment in 1-2 hours when used with <b>RotiGrow <i>Plus</i></b> .	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	<b>Instant Algae</b> N-Rich <i>Ultra PL</i>	Finfish - Zooplankton enrichment	Microalgal blend; 9% dry weight	Refrigerated Liquid concentrate; no blending required	<b>N-Rich <i>Ultra PL</i></b> provides a very high HUFA enrichment from bioavailable polar and membrane lipids for rapid rotifer tissue enrichment with minimal triglyceride storage. Rotifers emerge vibrant and swimming from the enrichment process. Extreme DHA enrichment in as little as 2 hours when used with <b>RotiGrow <i>Plus</i></b> .	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	<b>Instant Algae</b> RotiGreen <i>Omega</i>	Finfish - Greenwater	Microalgal blend; 8% dry weight	Frozen Liquid concentrate; no blending required	<b>RotiGreen <i>Omega</i></b> is effective Greenwater with Optimum DHA, EPA & ARA nutrition for fish larvae as well as enrichment maintenance for rotifers in the larval tank. Marine microalgae concentrates stay extremely clean with excellent suspension in the tank. <b>*RotiGreen <i>Omega</i></b> may require special care for larva with an inflating air bladder.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>

SUPPLIER	PRODUCT NAME	SPECIES	PRODUCT TYPE	FORM	DESCRIPTION	MORE INFORMATION
	<b>Instant Algae</b> Rotigreen <i>Nanno</i>	Finfish- Greenwater	Microalgal blend; 8% dry weight	Frozen Liquid concentrate; no blending required	<b>RotiGreen <i>Nanno</i></b> balances DHA/EPA with ARA to optimally nourish fish and maintain the health of rotifers. Extremely clean, it offers excellent suspension in the water column. <b>RotiGreen <i>Nanno</i></b> is as effective as live <i>Nannochloropsis</i> , and is replacing our <b>Nanno 3600</b> for greenwater applications.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	<b>Instant Algae</b> RotiGreen <i>Iso</i>	Finfish- Greenwater	Microalgal blend; 8% dry weight	Refrigerated Liquid concentrate; no blending required	<b>RotiGreen <i>Iso</i></b> is a pure algae formulation that is as effective as live <b>Isochrysis</b> . A highly nutritious greenwater when swallowed or gill fed by larvae, it can maintain or further increase the DHA/EPA ratio in your rotifers and larval fish to meet their nutritional requirements. Naturally high in the carotenoids necessary for larval health.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	<b>Instant Zooplankton</b> "Mini L 160" Live Rotifers	Finfish— Live Larval Feed	Live Zooplankton	A dense culture of Live Zooplankton packaged in 1 – 1.5 liters of salt water in breathable bags.	Reed Mariculture supplies pure cultures of a strain of <i>Brachionus plicatilis</i> (L-type) with a typical lorica length of about 160 µm. This species is euryhaline, capable of thriving in salinities of 5-40 ppt. It is available in quantities from 1 million to 1.5 billion, concentrated and packaged into "breathable" bags.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	<b>Instant Zooplankton</b> <i>Parvocalanus crassirostris</i> Copepods	Finfish— Live Larval Feed	Live Zooplankton	A dense culture of Live Zooplankton packaged in 1 – 1.5 liters of salt water in breathable bags.	Copepods are the feed of choice for wild marine finfish. <i>Parvocalanus crassirostris</i> is a small, pelagic calanoid copepod. The nauplii (newly hatched larvae) are small measuring in the 40-100 µm range, making them a suitable feed for small-gape fish larvae. Adults are in the 200 to 400 µm range.	<a href="#">WEBSITE</a> <a href="#">CONTACT</a>
 Distributor to the Americas	<b>Otohime Larval</b> Weaning Diets	Finfish - Larval Weaning Diet	High quality dry larval weaning diet	Pellets: Granular, Marumerized and Extruded	<b>Otohime</b> Larval Weaning Diets from Japan provide superior nutrition for juvenile and adult fish. They are amazingly clean with excellent particle integrity in water, provide optimal nutrition and stimulate a strong feeding response for improved growth and survival rates. A balanced diet suited for virtually all finfish.	<a href="#">WEBSITE</a> ( <a href="#">Otohime</a> ) <a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	<b>APBreed</b> RGcomplete	Finfish - Zooplankton Feed	Microalgal blend; 4.4% dry weight	Very stable refrigerated liquid concen- trate; includes ammonia control; no blending required	<b>RGcomplete</b> is a super-concentrated microalgal-based premium quality feed for filter-feeding invertebrates. It has been sized especially for Breeders, Aquarists, and Propagators and includes both a pH buffer and ClorAmX® (ammonia neutralizer). It has a long refrigerated shelf life of at least six months. Suitable for a wide range of zooplankton with a balanced Omega profile.	<a href="#">WEBSITE</a> ( <a href="#">AP Breed</a> ) <a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	<b>APBreed</b> SDaquarist	Shellfish, Corals	Microalgal blend; 4.4% dry weight	Very stable refrigerated liquid concentrate; includes ammonia control; no blending required	A mixed diet of four marine microalgae ( <i>Isochrysis</i> , <i>Pavlova</i> , <i>Tetraselmis</i> and <i>Thalassiosira weissflogii</i> ) that provides superior nutrition for all types of shellfish, crustaceans and other filter feeding invertebrates, increasing both growth rate and survival. Complete with ammonia control and buffered for a long refrigerated shelf life.	<a href="#">WEBSITE</a> ( <a href="#">AP Breed</a> ) <a href="#">WEBSITE</a> <a href="#">CONTACT</a>

SUPPLIER	PRODUCT NAME	SPECIES	PRODUCT TYPE	FORM	DESCRIPTION	MORE INFORMATION
	APBreed TDO	Finfish - Pelletized Feed/Weaning Diet	High quality dry diet	Pellets: Granular and Extruded	<b>TDO</b> is the top-selling hatchery larval finfish diet "top dressed" with <i>Haematococcus</i> (astaxanthin source), natural feed stimulants, a natural immune-stimulant, and more! Prime source of easily digested proteins and high quality lipids with an excellent HUFA and phospholipid profile. High in the carotenoid astaxanthin for color enhancement.	<a href="#">WEBSITE (AP Breed)</a> <a href="#">WEBSITE</a> <a href="#">CONTACT</a>
	FOURFISH SLIME&SLUDGE BUSTER	FISH	Water conditioner, Microbial enrichment	FREEZE DRIED	A super soluble blend as BIOFILTER ADDITIVE of non-pathogenic consortium of Bacillus Spp. to remove Slime and Bottom sludge. Keeps Water devoid of suspended and settled wastes. Rapiy buildsup favorable bacteria after Chemical/Drug treatments. High production of enzymes Amylase, Protease, Lipase, Cellulase, Xylanase, Gelatinase, Lignosulfonase removes all kinds of wastes.	<a href="#">DETAILS</a> <a href="#">CONTACT</a>
	FOURFISH AMMONIA CONTROL	FISH	Water conditioner	LIQUID	Liquid blend of Nitrifying bacteria designed to control ammonia and nitrite in breeding and display tanks, to seed biofilter for quick nitrification cycle.	<a href="#">DETAILS</a> <a href="#">CONTACT</a>
	FOURFISH OXYGEN SUPPORT TABLET	FISH	Oxygen support	Effervescent Tablets	Designed for improving the dissolved Oxygen levels in tanks, overcoming the sudden drop due to climate change or mechanical breakdown and during transport.	<a href="#">DETAILS</a> <a href="#">CONTACT</a>
	SEEDONE	Shrimp Hatchery	Microbial culture	Fully Soluble Powder	Instantly soluble, super-concentrated, probiotic blend for use in aquaculture hatcheries with high livability, adapts faster to a wide range of salinity and acts instantly. For use in Broodstock, Naupli, Zoea, Mysis and Post Larvae stages.	<a href="#">DETAILS</a> <a href="#">CONTACT</a>
	STRESSBEAT	Shrimp Hatchery	Microbial Feed Additive	Powder	Isolates of "Bacillus" species and its cellular components. Promotes phagocytosis, improves hepatopancreas health and improves digestion in times of stress.	<a href="#">DETAILS</a> <a href="#">CONTACT</a>
	ENCON	Shrimp Hatchery	Microbial enrichment	Liquid	Liquid blend capable of reducing ammonia and sulphide gas, minimizes the need for frequent water exchanges and ensures better bio security.	<a href="#">DETAILS</a> <a href="#">CONTACT</a>
 Skretting Marine Hatchery Feed	NEPTUNE	Marine fish	Water conditioner	Powder	Blend of selected micro algae and micro particles offering a convenient solution for replacing live algae in greenwater applications.	Contact Skretting Marine Hatchery Feed to get a product sheet. <a href="#">WEBSITE</a> <a href="#">CONTACT</a>

SUPPLIER	PRODUCT NAME	SPECIES	PRODUCT TYPE	FORM	DESCRIPTION	MORE INFORMATION
 Skretting Marine Hatchery Feed	ORI-ONE	Marine fish	Combined culture & enrichment for rotifers	Powder	Diet which has been developed to offer excellent rotifer reproduction and measured nutritional incorporation without the need for a separate enrichment	Contact Skretting Marine Hatchery Feed to get a product sheet.  <a href="#">WEBSITE</a>  <a href="#">CONTACT</a>
 Skretting Marine Hatchery Feed	ORI-GREEN	Marine fish	Rotifer & <i>Artemia</i> enrichment	Powder	Diet which has been designed to ensure a very fast and efficient uptake by the live feed. The algae in the formulation also provide a natural pre-biotic effect and stimulate rotifer and <i>Artemia</i> condition	Contact Skretting Marine Hatchery Feed to get a product sheet.  <a href="#">WEBSITE</a>  <a href="#">CONTACT</a>
 Skretting Marine Hatchery Feed	ORI-GOLD	Marine fish	<i>Artemia</i> enrichment	Liquid suspension	Natural blend of encapsulated marine HUFAs, phospholipids, algae and proteins for enriching <i>Artemia</i> . It is boosted with specific proteins to offer a more balanced profile and increased gut retention in the <i>Artemia</i>	Contact Skretting Marine Hatchery Feed to get a product sheet.  <a href="#">WEBSITE</a>  <a href="#">CONTACT</a>
 nutrition through innovation	EZ Bio	Shrimp	Larvae, PL	Powder	A multi-functional biologic treatment for use in shrimp and fish hatcheries . Used to lower risk from pathogenic bacteria and improve water quality	<a href="#">DATA SHEET</a>  <a href="#">WEBSITE</a>  <a href="#">CONTACT</a>
 nutrition through innovation	EZ Mate	Shrimp	Maturation	Form into Worm	Partial replacement for fresh maturation foods to promote increased nauplii production; and brood stock health. Completely biosecure and contains high levels of pigments, HUFA's, vitamins, and minerals.	<a href="#">DATA SHEET</a>  <a href="#">WEBSITE</a>  <a href="#">CONTACT</a>
 nutrition through innovation	Maturation Supplement	Shrimp	Maturation	Pellet	Promotes rapid ovarian development and increased mating in maturation systems.	<a href="#">DATA SHEET</a>  <a href="#">WEBSITE</a>  <a href="#">CONTACT</a>
 nutrition through innovation	Shrimp Broodstock	Shrimp	Broodstock	Pellet	Power-packed with special ingredients for stronger, healthier brood stock and improved reproductive performance.	<a href="#">DATA SHEET</a>  <a href="#">WEBSITE</a>  <a href="#">CONTACT</a>



The new information resource from [Aquafeed.com](http://Aquafeed.com)

[Hatcheryfeed.com](http://Hatcheryfeed.com)

Website . Hatchery Feed Guide . Magazine



# R&D Services

SUPPLIER	SERVICE	SPECIES	LIFE STAGE	FEED TYPE	DESCRIPTION	MORE INFORMATION
AquaBioTech Group	Aquatic nutrition R&D and aquaculture consultancy services	Barra-mundi, Catfish, Pike Perch, Salmon, Sea Bream, Sea Bass Sturgeon, Shrimp, Tilapia, Trout etc.	Larvae, PL., Fry Nursery, Broodstock	All kind of feeds	The AquaBioTech Group is an international consulting company located in the centre of the Mediterranean on the island of Malta, although operating globally with clients and projects in over fifty-five countries. The AquaBioTech Group undertakes a variety of aquaculture, fisheries, marine surveying, aquarium and aquatic environmental projects throughout the world.	<a href="#">MORE INFORMATION</a>
ABT Innovia	Aquatic nutrition & nutraceutical R&D. Novel protein testing; efficacy of dietary health and growth promoting supplements	Barra-mundi, Catfish, Pike Perch, Salmon, Sea Bream, Sea Bass Sturgeon, Shrimp, Tilapia, Trout etc.	Larvae, PL., Fry Nursery, Broodstock	All kind of feeds	ABT Innovia offers research services to support the development of feed additives (pre- and pro-biotics, growth and health promoting feed additives) and alternative protein sources, among other activities, with a wide range of commercially important species under any combination of culture conditions in our fully licensed and bio-secure R&D facilities.	<a href="#">MORE INFORMATION</a>
	Aquatic nutrition & nutraceutical R&D feed testing. Efficacy of dietary supplements. Efficacy of health products.			All types.	ABT Innovia offers research services to support the development of live feed enrichments, water treatment processes and products, algal products and production processes, among other activities, with a wide range of commercially important species under any combination of culture conditions in our fully licensed and bio-secure R&D facilities.	



## AQUAFEED HORIZONS Asia

The 7th Aquafeed.com international conference for aquafeed professionals

April 8, 2014. Bangkok. Thailand

[www.feedconferences.com](http://www.feedconferences.com)

Join us in Bangkok and learn about advances in aquafeed processing and formulation from world-class experts - and visit the industry's premier feed and grain show.



Register  
online  
now!



# Species Look Up: Manufactured Feeds

## ALL

### Argent Chemical Laboratories

Cyclop-Eeze (Deep Frozen)  
 Cyclop-Eeze (Freeze Dried)  
 Hatchfry Encapsulon O - III  
 Spirulina Microfine  
 Argentemia Platinum Grade 0

## FISH

### Aller Aqua

Aller Artex  
 Futura EX  
 Futura MP EX  
 Performa MP EX

### Aqua-In-Tech

Black Box Larval Diets  
 Black Box Acclimation Diets

### BernAqua

Caviar  
 Nori  
 MeM

### BioMar

Larviva ProStart  
 Larviva ProWear

### Biomat

SPIROO microFEED PLUS

### Cargill

Aquaxcel Marine  
 Aquaxcel Warm Water

Aquaxcel Cold Water

Aquaxcel Marine

### Inve Aquaculture

O.range  
 Fish Breed-M  
 Lansy Breed  
 NRD

### Lucky Star

Initial  
 MP Enhance

### Pacific Trading Aquaculture

Otohime

### Skretting

Vitalis CAL  
 Vitalis REPRO  
 GEMMA Micro  
 GEMMA Wean  
 GEMMA Diamond  
 Perla MP

### Zeigler

Larva AP-100

## SALMONIDS

### EWOS Canada

EWOS Micro (015P, 040P, 1P)

### EWOS Chile

EWOS Micro (018,075,2)  
 EWOS Transfer  
 (5,15,50,100,200)

### EWOS Norway

EWOS Micro (015P, 040P, 1P)  
 EWOS Fry (5P, 15P)  
 EWOS Smolt (30P, 50P)

### Ewos Scotland

EWOS Micro (015P, 040P, 1P)  
 EWOS Micro (5P, 15P, 30P, 50P)

### Skretting North America

Starter Crumble  
 Classic Fry  
 Oncor Fry

## SALMON/TROUT

### Bio-Oregon

BioVita Starter  
 BioClark's Starter  
 MicroVita  
 BioVita Fry  
 Bio-Olympic Fry  
 BioClark's Fry  
 BioBrood  
 BioPro  
 BioSupreme  
 BioDry 1000LP

## TROUT/STEELHEAD

### Skretting USA

Starter Crumble  
 Nutra ST & MP  
 Classic Fry  
 Oncor Fry

# Species Look Up: Manufactured Feeds

## MARINE FISH

### Skretting Marine Hatchery Feed

Vitalis Cal  
 Vitalis Repro  
 Gemma Micro  
 Gemma Wean  
 Gemma Diamond  
 Perla MP

## BIVALVE

### Biomat

SPIROO microFEED PLUS

### Reed Mariculture

Instant Algae TP 1800

## SHRIMP

### Aqua-In-Tech

Black Box Larval Diets  
 Black Box Acclimation Diets  
 MAT MIX

### BernAqua

Royal Caviar  
 BioSpheres  
 Vitellus  
 MeM  
 Royal Oyster

### Biomar

Larviva Multigain  
 Larviva Shrimp-ProStart  
 Larviva Shrimp-PL

### Biomat

SPIROO microFEED PLUS

### Cargill

Aquaxcel  
 Aquaxcel 0.3mm, 0.6mm, 0.8mm  
 Aquaxcel 0.8mm, 1.5mm, 2.0mm  
 Ligualife Z-M  
 Ligualife M-PL  
 Ligualife PL  
 Ligualife PL\*

### Crevetec

L100, L200  
 PL300, PL500  
 PL800, PL1000  
 Broodstock Growing Pellet  
 Maturation Pellet

### Gold Coin Biotechnologies

Gold Coin ENCAP  
 Gold Coin Microparticulated feed

### Inve Aquaculture

BREED-S FRESH  
 EPAC  
 FRiPPAK FRESH  
 FRiPPAK PL FEEDS  
 LANSY-Shrimp  
 VANNA (China only)

### Lucky Star

Micro Elite  
 Brine shrimp flake

### Reed Mariculture

Instant Algae TP 1800

### Skretting Marine Hatchery Feed

PL

### Zeigler

Brine Shrimp Flake – Red  
 Brine Shrimp Flake - Black  
 EZ Artemia  
 EZ Black  
 EZ Larva  
 Larva Z-Plus  
 Larva Z-Plus  
 Larva Esencial  
 Larva AP-100  
 PL Raceway Plus  
 Shrimp Starter



# Species Look Up: Enrichments & Supplements

## FISH

### Algal Scientific

Algamune AM

### Aqua-In-Tech

PRO4000X

AQUAPRO-EZ

MBX

### BernAqua—*InVivo* NSA

Red Pepper

Olio Ω3

Olio DHA-Base

Ω3 Algae

Ω3 Yeast 60

### Inve Aquaculture

S.presso

S.tream

S.parkle

EASY SELCO

A1 DHA SELCO

DHA PROTEIN SELCO

Sanocare SURE

Sanocare ACE

Sanolife MIC-F

Sanolife GWS

### Lucky Star

Nutri-HUFA

### Pacific Trading Aquaculture

Super Fresh Chlorella SV-12

## Reed Mariculture

Instant Algae Isochrysis 1800

Instant Algae Nanno 3600

Instant Algae Pavlova 1800

Instant Algae Tetraselmis 3600

Instant Algae TW 1200

Instant Algae RotiGrow Plus

Instant Algae RotiGrow Nanno

Chlorella Ltd. Chlorella V12

Instant Algae N-Rich High PRO

Instant Algae N-Rich PL Plus

Instant Algae N-Rich Ultra PL

Instant Algae RotiGreen Omega

Instant Algae Rotigreen Nanno

Instant Algae RotiGreen Iso

Instant Zooplankton "Mini L 160" Live Rotifers

Instant Zooplankton *Parvocalanus crassirostris* Copepods

Otohime Larval Weaning Diets

APBreed RGcomplete

APBreed TDO

## Salem Microbes

Fourfish Slime&Sludge Buster

Fourfish Ammonia Control

Fourfish Oxygen Support Tablet

## Skretting Marine Hatchery Feed

Neptune

Ori-One

Ori-Green

Ori-Gold

## MARINE FISH

### Industrial Plankton Inc

PBR 1000L

## SHRIMP

### Algal Scientific

Algamune AM

Algamune AP

### Aqua-In-Tech

PRO4000X

AQUAPRO-EZ

MBX

### BernAqua—*InVivo* NSA

Royal Pepper Energy

Royal Pepper Protein

### BioMar

Larviva Multigain

### Inve Aquaculture

Sanoguard S-PAK

Sanolife MIC

### Lucky Star

Nutri - HUFA

### Reed Mariculture

Instant Algae Isochrysis 1800

Instant Algae Pavlova 1800

Instant Algae Tetraselmis 3600

Instant Algae TW 1200

# Species Look Up: Enrichments & Supplements

## Salem Microbes

Seedone  
Stressbeat  
Encon

## Zeigler

EZ Bio  
EZ Mate  
Maturation Supplement  
Shrimp Broodstock

## SHELLFISH

### Industrial Plankton Inc

PBR 1000L

### Reed Mariculture

Instant Algae Isochrysis 1800  
Instant Algae Pavlova 1800  
Instant Algae Tetraselmis 3600  
Instant Algae TW 1200  
Shellfish Diet 1800  
AP Breed SDAquarist

## BIVALVE

### Reed Mariculture

Instant Algae Isochrysis 1800  
Instant Algae Pavlova 1800  
Instant Algae Tetraselmis 3600  
Instant Algae TW 1200  
Shellfish Diet 1800

## SOFT CORALS

### Reed Mariculture

Shellfish Diet 1800  
AP Breed SDAquarist

## ASCIDIANS/ TUNICATES

### Reed Mariculture

Shellfish Diet 1800

## SEA URCHINS

### Reed Mariculture

Shellfish Diet 1800

## ARTEMIA/ROTIFERS

### Algal Scientific

Algamune AP

### BernAqua—*InVivo NSA*

Red Pepper  
Ω3 Yeast 60

### BioMar

Larviva multigrain

### Inve Aquaculture

S.presso  
S.tream  
S.parkle  
EASY SELCO  
A1 DHA SELCO  
DHA PROTEIN SELCO

### Lucky Star

Nutri-HUFA

### Pacific Trading Aquaculture

Super Fresh Chlorella SV-12

### Reed Mariculture

Instant Algae Isochrysis 1800  
Instant Algae Nanno 3600  
Instant Algae Tetraselmis 3600  
Shellfish Diet 1800  
Instant Algae RotiGreen Omega  
Instant Algae Rotigreen Nanno  
Instant Algae Rotigreen Nanno  
*Iso*

## ZOOPLANKTON

### Reed Mariculture

Instant Algae Isochrysis 1800  
Instant Algae Tetraselmis 3600  
Instant Algae TW 1200  
Shellfish Diet 1800  
Instant Algae RotiGrow Plus  
Instant Algae RotiGrow Nanno  
Chlorella Ltd. Chlorella V12  
Instant Algae N-Rich High PRO  
Instant Algae N-Rich PL Plus  
Instant Algae N-Rich Ultra PL  
APBreed RGcomplete



## The Year in Review

*A round-up of hatchery-related stories from around the world that made the news in 2013*

**AUSTRALIA** - Marine Innovation Southern Australia scientists helped South Australian oyster growers revive the culture of the native or flat oyster, *Ostrea angas*. A trial to address hatchery issues and growing techniques involving up to three million oyster spat was conducted at SARDI Aquatic Sciences, West Beach. Known as the oyster lover's oyster, the native oyster can command twice the price of the introduced Pacific oyster, *Crassostrea gigas*, which is now commonly grown on oyster leases along the South Australian coastline. Earlier hatchery trials achieved survival rates of at least 70 per cent from early stage larvae to metamorphosis, providing around one million spat to oyster farmers to trial in the field.

**AUSTRALIA** - CO2 Group' subsidiary Western Australian Resources Limited (WARL) acquired Marine Farms' aquaculture site in Exmouth Gulf, Western Australia. The site is to be upgraded and converted to a prawn broodstock facility as part of the commercial breeding program for Project Sea Dragon. Facilities will be used to hold, rear, breed and test animals for disease status prior to introduction into production systems. Project Sea Dragon aims to develop a world class, 100,000 tonne per annum Black Tiger Prawn aquaculture industry in northern Australia.

**CHINA** - Norwegian companies Futurama and AquaOptima signed an agreement with Lim Shrimp Organization to create 'Aquapolis', the world's first land based fully integrated salmon and cod farming facility in Hainan, China. The aquaculture complex will cover the production of cod and salmon from egg to market size in a demonstration farm and smaller grow-out units will be run and managed by individual farmers.

**INDIA** – Specific Pathogen Free (SPF) *Litopenaeus vannamei* broodstock were developed for the first time in India by Rajiv Gandhi Centre for Aquaculture, the R & D arm of the Marine Products Export Development Authority, in association with the Oceanic Institute, Hawaii, USA, for supply to hatchery operators at a reasonable rate.

**ISRAEL** – The Israeli Tiran Group and Green Advances, a Vietnamese company, came together to advance aquaculture in Vietnam using innovative Ben-Gurion University of the Negev (BGU) biotechnology to change the sex of shrimp and yield fast growing all-male populations. This is the first time that the aquaculture industry was able to use advanced gene silencing to increase yields. Monosex culture of prawns was obtained by using an insulin-like androgenic hormone that influences the sex of these prawns.

**MALTA** - Bluefin tuna eggs from the broodstock cages of the EU Transdott project were collected off the southeast coast of Malta and flown to Europe for rearing trials. Collected eggs were sent by Malta Aquaculture Research Centre (MAR) and Malta Fish Farming (MFF) with the assistance of IOLR/NCM (Israel) and the University of the Düsseldorf (Germany). MAR signed an agreement with Korean Marine Fish Hatchery Association to collect eggs from tuna cages anchored off the northeast coast, through AJD Tuna. It shipped approximately 1.2 million eggs to ARDAG (SME hatchery) and IOLR-NCM research facility based at Eilat, Israel. Transportation was also initiated to Futuna Blue Espaða for larval rearing and fingerling production at El Puerto de Santa Maria near Cadiz, Spain. Similar efforts are being made at other places under IEO in Mazarron, Murcia Spain.

**MEXICO** - ANPLAC, the Mexican shrimp hatchery association, inaugurated a nucleus shrimp breeding center at an inland facility near Hermosillo, Sonora, Mexico. The facility consists of a quarantine area where broodstock are individually tested by PCR for four different viruses, a maturation unit, a small hatchery for family culture and multiple growout tanks. The facility was partially funded by the Mexican Government and dues paid by participating hatcheries. The breeding center's founder broodstock, which has a high tolerance to whitespot, were imported from Primo Broodstock in Houston, Texas, USA. Primo has a three-year contract to provide broodstock to ANPLAC.

**MEXICO** - On the Yucatan coast in Mexico, Mayab Mollusks, a small cooperative, is finally rearing Octopus maya from eggs after a decade of research and unsuccessful attempts. Unlike fish species that are farmed in captivity, most octopus larvae insist on eating live food. *O. maya*, however, are more apt to consume less costly chum. Mayab Mollusks is developing a specialized blend of crab, squid and other ingredients.

**NEW ZEALAND** - The Ministry for Primary Industries and SPATnz signed a seven year innovation contract to selectively breed mussel spat at the Cawthron Aquaculture Park north of Nelson, using research established by Cawthron's MBIE-funded Cultured Shellfish Programme. A new shellfish hatchery is to be built at the Cawthron Aquaculture Park. The first significant quantities of commercially bred mussels are planned for 2015. Mussel exports are worth \$220 million annually to the New Zealand economy.

**QATAR** - The government announced plans to build a huge fish hatchery to be completed in February of 2015.

**SAUDI ARABIA** - In a culmination of three years of research and development, National Prawn Company spawned 23 million Sea Cucumber eggs. 90 tons of sea cucumber (*Holothuria Scabra*), were expected to be harvested within the year. The success follows the company's record first with shrimp and then fish production. The company is targeting international markets, including China, Taiwan, Hong Kong and Singapore.

**SCOTLAND** - Researchers at the University of Glasgow discovered the behavior and metabolism of young trout is affected by where the egg they hatched from rested in the ovaries of their mother. Eggs from the rear of the female's ovaries developed into fry that were larger but had lower metabolic rates for their size than eggs from the front. These differences were bigger in more dominant mothers. Position of the egg in the ovary also influenced the later behaviour of the fry, with the fish being initially more aggressive in fighting for territories if they came from the back of the ovary, although as they got older.

**SINGAPORE** - The Myanmar Fisheries Department teamed up with the Singaporean Gold Coin Company to produce disease resistant *Litopenaeus vannamei*. The Gold Coin Company is helping in breeding operations by providing medicine, food and equipments. At present, the country has three

**ASIA** - Shrimp Early Mortality Syndrome (EMS) or Acute Hepatopancreatic Necrosis Syndrome (AHPNS), was the big story in 2013. The epidemic caused large-scale die-offs of cultivated shrimp in several countries in Asia. The cause of the disease baffled scientists, animal health authorities and farmers, making prevention and treatment difficult. In a major breakthrough, Prof. Donald V. Lightner and a team of researchers at the Aquaculture Pathology Laboratory at the University of Arizona (UA), identified the causative agent behind a mysterious disease as *Vibrio parahaemolyticus*, a strain of a bacterium commonly found in brackish coastal waters around the globe. The high virulence of this agent to shrimp was thought to be due to a phage which affects this particular strain of *V. parahaemolyticus*. The effort to study EMS, identify its pathology and respond to EMS was supported by a coalition of partners including UA; FAO; the World Organisation for Animal Health (OIE); the World Bank; the Network of Aquaculture Centres in Asia-Pacific (NACA); the Global Aquaculture Alliance (GAA); the Ministry of Agriculture and Rural Development of Viet Nam; CP Foods; the Minh Phu Seafood Corporation; Grobest Inc. and the Uni-President Feed Company.

EMS/AHPNS initially surfaced in 2009. By 2010 outbreaks had become serious. In China in 2011, farms in Hainan, Guangdong, Fujian and Guangxi suffered almost 80 percent losses. In Thailand, shrimp production for 2013 was predicted to be down 30 percent from the previous year due to EMS. Production on some farms in eastern parts of the country dropped by 60 percent..

shrimp breeding zones in Yangon Region. The company will share the production with Fisheries Department on mutually agreed terms.

**USA** - SPF shrimp (*Penaeus vannamei*) broodstock producer, Molokai Sea Farms International, said that in response to the EMS crisis in China, it would re-enter the Chinese market in 2014, and expected to sell 6,000 to 7,000 pairs of broodstock to the Chinese market in 2014.

**VIETNAM** - Sai Gon-Mekong Fishery Company (SAMEFICO) was awarded GlobalGAP certification for two pangasius hatcheries. The two farms, located in Cang Long district and Chau Thanh district in Tra Vinh province were the first GlobalGAP certified pangasius hatcheries in Tra Vinh province. Two other pangasius hatcheries in the Mekong region have been certified by GlobalGAP. SAMEFICO's hatcheries produce 27.5 million seeds per year, of which the Cang Long-based hatchery produces 150 million fries and 15.5 million fingerlings per year.



# Reading Room

*A selection of conference presentations, manuals and other resources recently linked from Hatcheryfeed.com*



**Conference proceedings: Hatchery Technology for High Quality Juvenile Production**, United States-Japan Natural Resources Panel on Aquaculture 40th Scientific Symposium Hatchery Technology for High Quality Juvenile Production, Honolulu, Hawai'i, October 22-23, 2012

*Session I: Broodstock Selection, Nutrition, and Spawning*

*Session II: Larval and Juvenile Culture Systems and management*

*Session III: Larval Health Management*  
Withering syndrome in abalone in Japan - Carolyn Friedman,

*Session IV: Larval Nutrition*

[More](#)



**Conference proceedings: larvi 2013**

6th Fish & Shellfish Larviculture Symposium, Ghent University, Belgium, September 2 - 5, 2013

*Artemia genome workshop*

*Opening session*

*Session I: Broodstock Management, maturation and Spawning*

*Session II: Developmental Biology and Deformaties*

*Session III. Larval Nutrition*

*Session IV. Larviculture at Commercial Scale*

*Concluding Remarks & Closing Session*

[More](#)

**Increasing the levels of the essential trace elements Se, Zn, Cu and Mn in rotifers (*Brachionus plicatilis*) used as live feed**

Levels of Mn, Cu, Zn, Se and iodine found in rotifers are low and may be insufficient to meet larval fish requirements. This study investigates increasing the concentration of Mn, Cu, Zn, Se and iodine simultaneously in rotifers (*Brachionus plicatilis*) in both short term enrichments (3h) or during batch cultures (6 days), using either organically bound or inorganic mineral sources. (Open Access)

[More](#)

**Development of lipid microbeads for delivery of lipid and water-soluble materials to Artemia**

Lipid spray beads (LSB) containing high concentrations of phospholipids were produced in order to improve their dispersion in both fresh and saltwater. The beads were developed to deliver both fat-soluble and water-soluble micronutrients to Artemia and other suspension feeders. Artemia readily ingested riboflavin-containing LSB and their full guts were evident within 30min of feeding. The riboflavin content of Artemia could be increased from  $55 \pm 0.6 \text{ mg kg}^{-1} \text{ (dw)}$  to  $329 \pm 62 \text{ mg kg}^{-1} \text{ (dw)}$  after 1h enrichment. LSB prepared with phospholipids are promising vehicles for enrichment of suspension-feeding organisms used as feed for larval marine fish and crustaceans as well as other suspension feeders.

[More](#)

**Fish larval nutrition and feed formulation: knowledge gaps and bottlenecks for advances in larval rearing**

A holistic understanding of the supply line of nutrients is important for developing diets for use in larval culture and for the adaptation of rearing

conditions that meet the larval requirements for the optimal presentation of food organisms and/or microdiets. The aim of the review is to revise the state of the art and to pinpoint the gaps in knowledge regarding larval nutritional requirements, the nutritional value of live feeds and challenges and opportunities in the development of formulated larval diets.

[More](#)

---

### **The influence of nutrition at the larval stages in marine fish**

The potential influence of some dietary vitamins in the appearance of malformations. The impact of the dose of the vitamin mix recommended by NRC93 was evaluated, and three vitamins in particular were studied: Vitamin A (retinol acetate), vitamin D (1,25 dihydroxycalciferol), and vitamin C (ascobyl polyphosphate).

[More](#)

---

### **Manual on Sturgeon Reproduction**

Coppens International offers this manual to assist in the set up of reliable hatchery procedures for sturgeon. This booklet contains a general description of the sturgeon biology and describes relevant items for successful reproduction and hatchery management as known for sturgeon at present. It has to be noticed that the described procedures are only meant as guidelines. All mentioned parameters need to be checked and adjusted by the hatchery manager to the specific sturgeon species, life stage and the particular hatchery conditions

[More](#)

---

### **Feed Particle Size Requirements for Crucian Carp Fry**

*Results of ASA/China 1999 Feeding Trial 35-99-61*

Feed particle size requirements for crucian carp of 2-cm to 7-cm total length were determined in a joint study by ASA and the Zhejiang Freshwater Fisheries Research Institute in Huzhou, China. Results were used to formulate feed size recommendations for fish farmers producing crucian carp using feed-based production technologies. Crumble feeds of size 0.5-mm and

1.0-mm are recommended for fry of 2-cm and 3-cm total length, respectively. Crucian carp fry can be weaned to a 1.5-mm extruded pellet at 5-cm total length

[More](#)

---

### **Storage and Handling of Feeds for Fish and Shrimp**

Specific storage conditions and handling procedures are usually left to assumption. This article is intended to provide some detailed discussion, and information references where possible, on the most common causes of degradation and waste of aquaculture feed on the farm.

[More](#)

---

### **Understanding Fish Nutrition, Feeds, and Feeding**

*Steven Craig, Virginia-Maryland Regional College of Veterinary Medicine; and L. A. Helfrich, Department of Fisheries and Wildlife Sciences; Virginia Tech*

Prepared (artificial) Diets  
 Protein  
 Lipids (fats)  
 Carbohydrates  
 Vitamins  
 Minerals  
 Energy and Protein  
 Feed Types  
 Automatic Feeders  
 Feed Conversion and Efficiency Calculations  
 Feed Care and Storage  
 Medicated Feeds  
 Useful References

[More](#)

---

### **Interpreting a Fish Food Package Label**

*Frank A. Chapman, Program in Fisheries and Aquatic Sciences, School of Forest Resources and Conservation; and Richard Miles, Department of Animal Sciences, University of Florida.*

A guide to interpreting the information on labels. From the analysis of nutrients and listing of ingredients in the label, the user can select different formula foods for specific needs.

[More](#)



# EVENTS 2014

## Upcoming aquaculture events

### FEBRUARY



9 - 12

Aquaculture America

Seattle, WA, USA

[website](#)

### APRIL

8

Aquafeed Horizons Asia

Bangkok, Thailand

[website](#)

9-11

Offshore Mariculture  
Conference 2014

[website](#)

### MAY

25-30

16th International  
Symposium of Fish Nutrition  
and Feeding

Cairns, Australia

[website](#)

25-30

10th International Sym-  
posium on Reproductive  
Physiology of Fish

Olhao, Portugal

[website](#)

### JUNE

7-11

World Aquaculture 2014

Adelaide, South Australia

[website](#)

16-18

AquaVision

Stavanger, Norway

[website](#)



30- July 5

The Australian Society for  
Fish Biology and Australian  
Society for Limnology  
Congress

Darwin, Australia

[website](#)

### AUGUST

3-7

International Congress on  
the Biology of Fish 2014

Edinburgh, United Kingdom

[website](#)

17-21

38th Annual Larval Fish  
Conference

Québec, Canada

[website](#)

17-21

144th annual meeting of  
the American Fisheries  
Society

Québec, Canada

[website](#)

31- to Sept 5

10th International Sea Lice  
conference

Portland, Maine, USA.

[website](#)

### OCTOBER

14-17

Aquaculture Europe 2014

San Sebastian, Spain

[website](#)