

A large number of light blue, textured, rod-shaped tablets are scattered across a dark, reflective surface. The tablets have a slightly irregular, porous appearance. The background is dark and out of focus, with some light reflections. There are several large, semi-transparent teal circles overlaid on the image: one in the top left, one on the right side, one in the bottom left, and a large one in the bottom right containing the company logo.

AquaStar®

Fast growth in
improved environment

dsm-firmenich 

What is AquaStar®?

AquaStar® is the most complete probiotic range on the market, with aquaculture specific solutions for hatchery, feed mill and farm segments.

The multi-genera approach builds on synergies and complementary modes of action between different bacterial species, bringing maximum benefits to shrimp and fish. Small things can make a big difference and the use of beneficial bacteria, or probiotics, is becoming increasingly popular in aquaculture. Feed probiotics can aid gut health, supporting health and welfare, whilst bioremediation probiotics ensure that aquatic animals are cultured in the highest quality environment, for maximum production efficiency.





AquaStar® for gut health

When aquatic animals hatch, their immune system is underdeveloped and relatively sterile, increasing their susceptibility to opportunistic pathogens. Disease remains a continuous threat throughout the production cycle. AquaStar® GH probiotics colonize the gut from first feeding, priming the animal for its production life. During nursery and growout phases, AquaStar® GH, stabilizes the gut microbiota from hatch to harvest, increasing survival and productivity.

Benefits of AquaStar® GH

- Improves survival
- Improves disease resistance
- Supports optimal gut health and barrier function
- Reduces pathogen load
- Contributes to sustainability, in part by improving health and welfare

Mode of action

- Establishes and maintains a balanced gut microbiota from hatchery until harvest
- Rapidly re-establishes and balances gut microbiota after antibiotic treatment or stress events (e.g. handling, diet changes)
- Pathogen control through competitive exclusion, direct inhibition and quorum quenching mechanisms
- Immune modulation, in part through attachment to epithelial tissues
- Improves gut morphology and barrier function

Using AquaStar® GH

AquaStar® GH should be applied in all production phases – hatchery, nursery and growout.

Hatchery: Dissolve thoroughly in un-chlorinated water (minimum 1:20 ratio) and apply in the tank water or via live feed.

Dosage: 2–5 g/ 1 000 L, or 100 000 larvae at least once per day during larval rearing period

Growout: At the farm level, top dress onto feed using standard mixer and a suitable carrier. For feed mill application, AquaStar® GH can be applied via post pellet liquid application (PPLA).

Dosage: 0.5 – 1.5 g/ kg

Note, during **nursery** phase AquaStar® Hatchery can be applied via the water and/ or feed.

AquaStar® for bioremediation

Aquatic animals share an intimate relationship with their environment. As such, they are continuously exposed to pathogens and toxic substances in the pond water which can reduce health and performance. AquaStar® Pond and PondZyme are a critical part of a robust pond management protocol supporting animal health, driving performance and productivity, whilst reducing the risk of pond crashes.

Benefits of AquaStar® Pond & PondZyme

- Improves water quality (TAN, NO₂⁻, NO₃⁻, H₂S)
- Boosts pond productivity and profitability
- Reduces environmental pathogenic load
- Positive impact on plankton abundance and profile
- Easy application, without the need for pondside fermentation
- Contributes to sustainability, in part by reducing pond effluents

By including a cocktail of exogenous enzymes, AquaStar® PondZyme is a premium bioremediation solution. These enzymes target organic matter with additional benefits:

- Releases highly digestible nutrients for improved growth performance
- Improves sediment quality by preventing the accumulation of black sludge
- Reduces pond aging and down time





Mode of action

- Driving nitrification and denitrification processes
- Specific metabolic pathways and mechanisms to reduce hydrogen sulfide
- Enzymatic breakdown of organic matter, facilitating the release of highly digestible nutrients and preventing the build of sludge
- Pathogen control through competitive exclusion, direct inhibition and quorum quenching mechanisms

Using AquaStar® Pond & PondZyme

Dissolve AquaStar® product in water (min. 1:30 ratio) and distribute in various locations around the pond, in the following dosage:

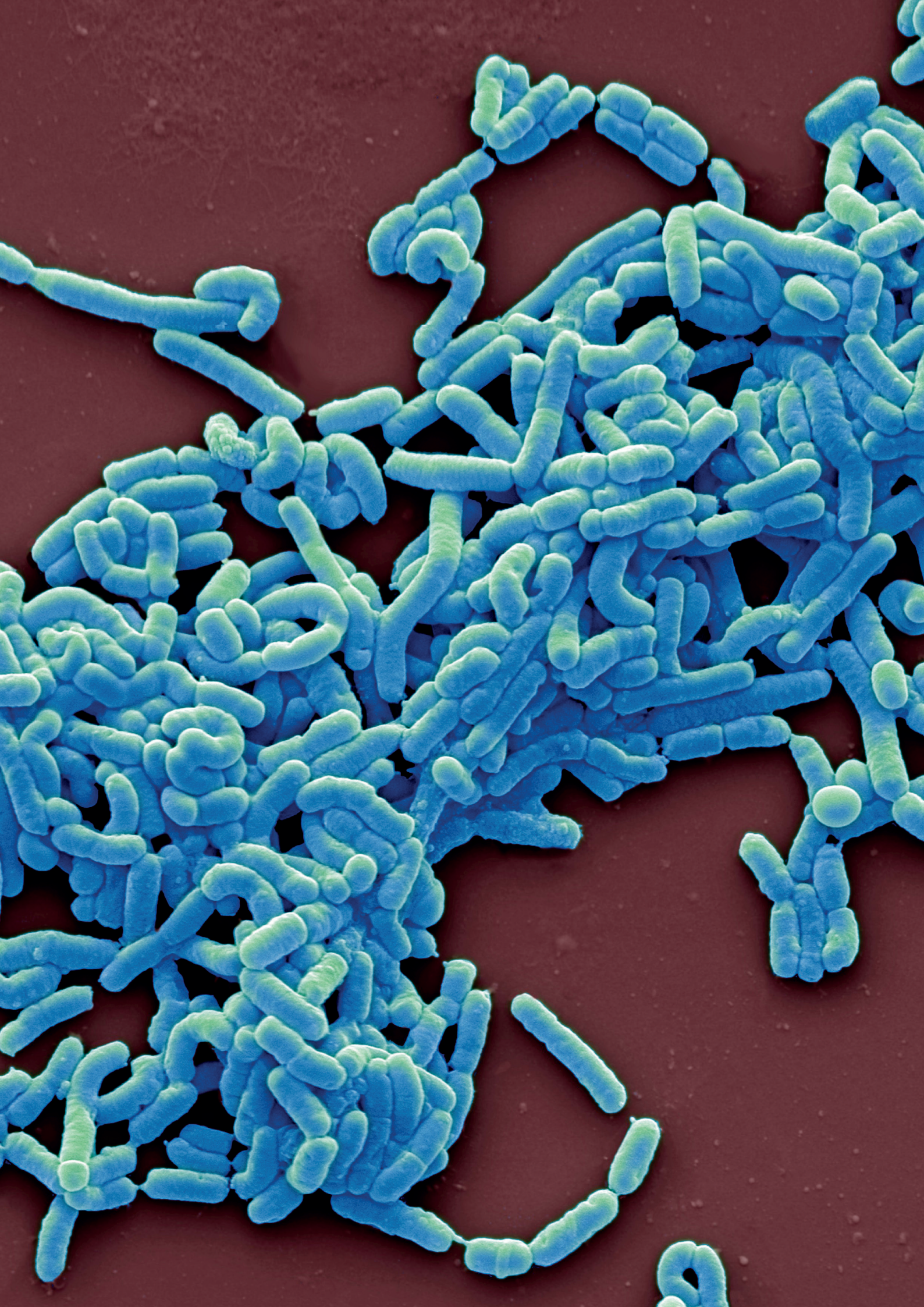
AquaStar Pond: 0.5–2.0 kg/ha every 5 to 28 days depending on culture system and stocking density

Stocking density (PL/m ²)	Application 7 days before stacking	Application during growout period
< 15	1.5 kg / ha	0.5 – 1 kg / ha every 2 – 4 weeks
15 – 50	2 kg / ha	0.5 – 1 kg / ha every 1 – 2 weeks
50 – 100	2 kg / ha	0.6 – 1.5 kg / ha every 1 – 2 weeks
> 100	2 kg / ha	0.6 – 1.5 kg / ha every 5 – 7 days

AquaStar® PondZyme: 0.3 – 1 kg/ha every 7 to 28 days depending on culture system and stocking density

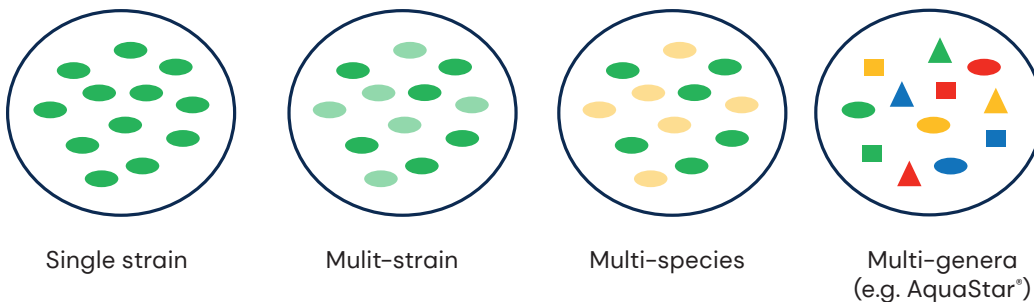
Stocking density (PL/m ²)	Application during first 4 – 12 weeks production	Application during last 4 weeks of production
< 15	–	–
15 – 50	0.3 – 0.5 kg / ha every 4 weeks	0.5 – 0.7 kg / ha every 2 – 4 weeks
50 – 100	0.5 kg / ha every 2 – 3 weeks	0.5 – 1 kg / ha every 2 weeks
> 100	0.5 kg / ha every 2 weeks	0.5 – 1 kg / ha every 1 – 2 weeks

Note, for best results, a combination of AquaStar® Pond and AquaStar® PondZyme should be used. Application should be adapted according to rearing conditions. Consult your dsm-firmenich representative for specific recommendations



Not all probiotics are created equal

With many probiotic products on the market, it is important to choose the best solution. Typically, formulations can be either single-strain, multi-strain, multi-species or multi-genera.

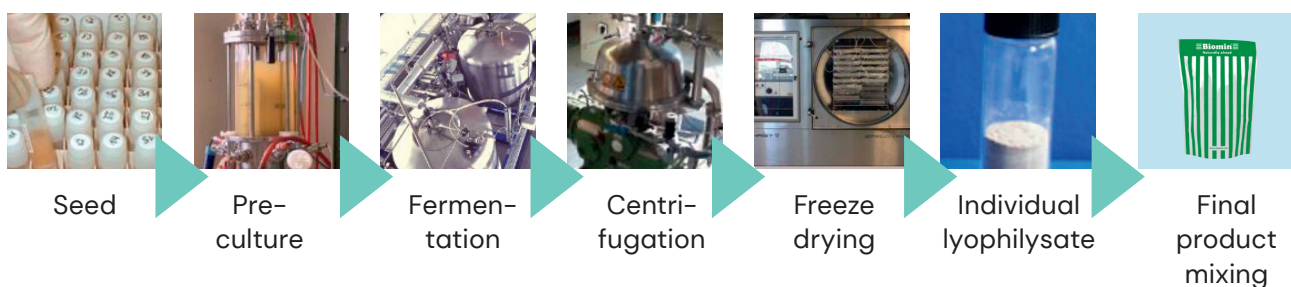


Since a single bacteria type cannot do everything, the multi-genera formulation in AquaStar® products have many advantages:

- Aquaculture environments are complex, **specialized bacteria** are needed for specific roles in the gut and/ or pond
- Different bacteria occupy different niches, bringing **synergistic and complementary benefits**
- **Reduced risk** when environmental conditions change, giving **consistent results** across multiple cycles

All AquaStar® products are produced with the highest level of **quality control**, in a procedure known as single strain fermentation. This unique process not only brings greater **traceability**, but also ensures each batch is **identical, contamination free** for **consistent** benefits.

Single strain fermentation



Note: Product name and formulation may differ, depending on country specific registration.

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