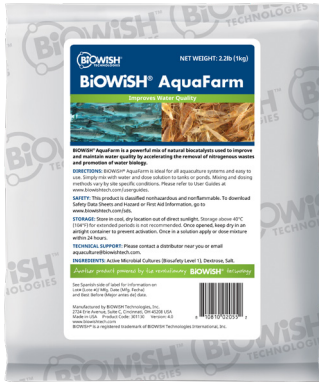


Pond Management: Shrimp Nursery and Grow Out Pond Preparation

BiOWiSH® AquaFarm for Water Treatment

Use this guide for the application of BiOWiSH® AquaFarm in nursery and grow out pond preparation.



Product Name

BiOWiSH® AquaFarm

Key Benefits

- Increases growth rate and weight of fish and shrimp
- Improves water quality by reducing and preventing the buildup of nitrite, ammonia, and hydrogen sulfide
- Inhibits the growth of pathogenic Vibrio bacteria in the pond, resulting in less disease and healthier shrimp
- Accelerates the decomposition of pond bottom sludge and minimizes suspended organic solids in the pond water
- Reduces odor of pond sludge and pond water
- Reduces labor and associated costs for pond treatment
- Increases quality of shrimp and fish, increasing economic value

Product Information

BiOWiSH® AquaFarm is a powerful blend of microbials that improves shrimp pond water by accelerating the removal of nitrogenous wastes and promoting good water biology. The easy-to-use formulation is ideal for all aquaculture systems.

Available in: 100g, 1kg, 5kg, and 10kg sizes

Directions

Mix the required dosage of BiOWiSH® AquaFarm with clean water to dissolve the product and apply. Use a minimum of 4L of water per 100g of BiOWiSH® AquaFarm for delivery. Allow a minimum of 15 minutes to activate, and dose the mixture within 24 hours. BiOWiSH® AquaFarm can be applied into an inflow event or the mixture can be applied evenly to the water surface.

Cleaning and Preparation for Shrimp Nursery and Grow Out Ponds

Before ponds are stocked with a new crop, it is recommended the soil and incoming water be reconditioned. Good pond preparation is critical to maintaining pond water quality, reducing disease risks, and improving shrimp production.

Pond Bottom Preparation

Removal of wastes from pond bottom

Wastes accumulated in the pond during the previous crop should be removed because they are the result of decayed or uneaten feed, dead and decaying plankton/algae, and fecal matter from shrimp. They form a layer on the soil that is black in color and produces a foul odor. These wastes release toxic substances such as hydrogen sulfide and ammonia into the pond, leading to stress or death for shrimp.

After harvest, all dead shrimp should be removed. Sludge and organic matter should be pumped from the pond or manually removed. Lined ponds must be disinfected with chlorinated water and allowed to dry. Earthen ponds need to be dried before filling, limed after each grow out, and plowed at least once per year. **Earthen ponds need to have soil pH tested to determine the amount of lime required for disinfection, acidity reduction, and accelerated mineralization.**

Sun drying the pond bottom

Sun drying the pond bottom is the most effective method of eliminating undesirable species, their eggs, and pathogens prior to restocking. Drying also oxidizes undesirable chemical substances, helps mineralize organic matter, and aids in the restoration of pond pH back to more neutral conditions.

Certain soil conditions and the impact of water tables may require special soil treatment. Please contact your local BiOWiSH representative, or reference our online tools for best pond preparation liming, pH, and soil preparation.

Ponds with a lined bottom cannot be dried and need to be disinfected using a chlorine solution. After disinfecting and rinsing, water should be drained and waste should be pumped into a waste reservoir.

Water Treatment

Incoming water source

Incoming water should first be filtered and pumped into a reservoir or pond and held without aeration for 24 hours to settle suspended solids. **Water with high suspended solids or high particulate matter should be settled for 48 hours.** If heavy metals are present, a chelant, such as EDTA, may be required.

Water disinfection

Settled water should be pumped to a chlorination pond or disinfected in the settling pond. If disinfection is carried out in the settling pond, more chlorine may be required for disinfection. This is due to the fact that settled solids possibly contain organic matter that will react with the chlorine. Chlorine should be applied until a concentration of 25 to 30mg/L is obtained. Water should be left without aeration for at least 24 hours. After the additional 24 hours of settling, residual chlorine can be removed, by either:

- Using sodium thiosulfate, if water is pumped to a chlorination pond without prior sedimentation
- By using aeration, if water was pumped to a chlorination pond where sediment has been removed

Water acclimation

Once the water is properly disinfected, it should then be pumped to an acclimation reservoir. Ideally, the volume of an acclimation reservoir will be at least four times greater than the volume of the chlorination pond. BiOWiSH recommends that acclimation reservoirs be stocked with a species of fish which does not reproduce, such as all male Tilapia.

BiOWiSH® AquaFarm should be applied to the acclimation reservoir on a regular basis to maintain a population of beneficial heterotrophic bacteria. BiOWiSH® AquaFarm should be applied to the water during the filling process at 1kg/ha. A weekly maintenance dose of 500g/ha should be applied thereafter. **Disinfected water should stay in the acclimation reservoir until it becomes populated with secondary productivity species such as Copepods and Rotifers.**

If possible, maintaining several acclimation reservoirs will allow for rotation of disinfected water from the chlorination pond and improve efficient acclimation. Mineral content of the water should be analyzed and adjusted as needed with a mineral nutrient supplement. Alkalinity should be adjusted to at least 120mg/L using lime or dolomite. The pH should be adjusted to between 7.5 to 8.0. Water from these acclimation reservoirs can then be used to fill production ponds prior to stocking.

BiOWiSH also recommends testing the pond water for green pathogenic *Vibrio* to make sure the levels are acceptable prior to use. It is also recommended that water be tested by PCR to make sure no pathogens are present.

Microbial Maturation of Nursery and Grow Out Pond Water with BiOWiSH® AquaFarm

- Microbial maturation with BiOWiSH® AquaFarm requires approximately 3-5 days for nursery ponds, or 5-7 days for grow out ponds. Shrimp should not be stocked into nursery or grow out ponds until the water is matured. Prior to stocking, BiOWiSH® AquaFarm is added to nursery and grow out ponds during the filling process at 1kg/Ha. Please refer to the BiOWiSH® AquaFarm user guide for details on shrimp nursery and grow out pond applications at int.biowishtech.com/userguides.
- Nursery and grow out ponds should be filled to a minimum of 100cm depth. As soon as sufficient water depth is achieved, aeration should be started.

Nursery and Grow Out Pond Management and Maintenance

Water quality parameters should be checked daily. This includes DO, temperature, inorganic nitrogen levels, pH, alkalinity, and turbidity. *Vibrio* bacteria levels should be checked weekly. Water quality parameters will determine how the pond is best managed. If pH and alkalinity are low, correct with dolomite or agricultural lime. Mineral analysis should be checked after filling the ponds and adjusted if needed. It is also recommended to quantify the level of heterotrophs and algae in the pond. Please refer to BiOWiSH user guides and technical bulletins at int.biowishtech.com/resources for further information and instruction.

BiOWiSH® AquaFarm is applied to water on a regular basis as recommended. BiOWiSH® MultiBio 3PS is applied to feed, as recommended, with each feeding event.

Please see User Guide: Shrimp Nursery and Grow Out Pond Applications for dosing recommendations of BiOWiSH® AquaFarm and BiOWiSH® MultiBio 3PS at int.biowishtech.com/userguides.

Site Specific Applications

For site specific information or consulting please contact your local BiOWiSH distributor or see the contact information below.

Safety

This product is classified nonhazardous and nonflammable. To download Safety Data Sheets, and Hazard and First Aid Information, go to www.biowishtech.com/sds.

Product Handling and Storage

Store in cool, dry location out of direct sunlight. Storage above 40°C (104°F) for extended periods is not recommended. Once opened, keep dry in an airtight container to prevent activation.



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