

MICROBE-LIFT® IN AQUACULTURE

Microbe-Lift® AQUA C

SPECIFICALLY FORMULATED FOR THE AQUACULTURE INDUSTRY

MICROBE-LIFT® AQUA C is a highly active liquid culture consortium design specifically for use in all industrial and municipal wastewater systems. MICROBE-LIFT® AQUA C contains a blend of 12 select microorganisms with a specification of 387/450 million microorganisms/ml. MICROBE-LIFT® AQUA C cultures accelerate the biological oxidation of slow to degrade organic matter in aerobic, facultative anaerobic and anaerobic wastewater systems, ponds, lagoons and wastewater retention tanks. MICROBE-LIFT® AQUA C enhances the biological oxidation of slow to degrade organic compounds significantly improving overall system performance and stability.

MICROBE-LIFT® AQUA C select cultures promote increased biological degradation capabilities in all types' aquaculture pond systems. They increase the degradation rate of slow to degrade, difficult to degrade and many non-biodegradable compounds that have shown to negatively impact fish and shrimp growth.

MICROBE-LIFT® AQUA C increases overall microbial oxidation rates, significantly increasing organic degradation performance. This novel microbial consortium provides reductions in ammonia, nitrite and nitrate and eliminate the formation of bottom sludge.

Specific Benefits:

- Reduces ammonia, nitrogen and nitrate levels.
- Reduces frequency of dredging
- Reduces biological oxygen demand (B.O.D.) and related organics which can cause off flavors in fish
- Reduces buildup of bird droppings, fish feed and dead leaves.
- Seeds and maintains biological filters
- Effective over a wide range of pH conditions
- Sustains biological activity in water temperatures down to 40° F (4° C)

MICROBE-LIFT® AQUA C and Denitrification

MICROBE-LIFT® AQUA C provides a real value to your aquaculture environment. In addition to being one of the BEST products you can use to speed the removal of unwanted, slow-to-degrade organic matter from your pond environment, the novel cultures in MICROBE-LIFT® AQUA C assist in the removal of nitrate from water via a process called *Denitrification*.

While some nitrate is removed by plants and partial water changes, the most effective way to control nitrate removal is by biological denitrification. In this process, nitrate removal takes place in the anaerobic areas, such as those found in pond filter bio-films. MICROBE-LIFT® AQUA C cultures are also *denitrifying microbes* that provide an important nitrate removal pathway assisting in the removal of nitrate via denitrification. MICROBE-LIFT® AQUA C includes high-rate denitrifiers that convert nitrate to nitrogen gas under an anaerobic condition that exists in filters and pond surface bio-films, reducing the nitrate level in your pond. It is noteworthy that algae can use nitrate as a nutrient.



Microbe-Lift[®] N1-AG

ESTABLISHES & MAINTAINS NITRIFICATION IN FISH & SHRIMP PONDS

Eliminates the toxic effect of ammonia

MICROBE-LIFT[®] N1- is a highly specialized microbial consortium of nitrifying cultures designed specifically to promote, establish and maintain nitrification in adequately designed wastewater facilities. MICROBE-LIFT[®] N1 contains Nitrosomonas spp and Nitrobacter spp. The Nitrosomonas spp convert ammonia to nitrite and the Nitrobacter spp convert the nitrite to nitrate. This select group of highly specialized microorganisms requires specific requirements to achieve stable nitrification. These requirements are listed below:

pH	7.2 to 9.0
Alkalinity	CaCO ₃ /NH ₄ consumed
Temperature	45 - 104 F
Dissolved Oxygen	4.5/mg O ₂ /mg/NH ₃

MICROBE-LIFT[®] N1's select microorganisms are autotrophic "able to use carbon dioxide as the sole source of carbon", and are relatively slow growing. They require specific conditions for optimum growth, with typical cell division rates from 8 to 16 hours. Their performance and rate of growth is impacted by the environmental constitution required for nitrification. They are also highly oxygen sensitive, requiring relatively high aerobic condition to achieve maximum growth rates.

MICROBE-LIFT[®] N1 cultures may be used in any wastewater system designed for nitrification. They should be added as recommended by your service representative and prior to reaching low water temperatures. All necessary biological conditions should be maintained within the guide lines for stable nitrification.

MICROBE-LIFT[®] N1 highly-specialized microbial consortium of nitrifying cultures are specially formulated to eliminate ammonia via a natural biological process termed nitrification.

Specific Benefits:

- Initiates nitrification
- Promotes stable nitrification
- Provides cold weather nitrification
- 100% natural, non-toxic and non-pathogenic
- Safe for use around plants & animals



Pictures are worth a thousand words

The following are actual pictures and results of Microbe - Lift AQUA C and Microbe - Lift N1 treatment programs from around the world. Once you see them, you will want to know more about how Microbe - Lift AQUA C and Microbe - Lift N1 can help you and your community.

Determining The Performance Of Microbe-Lift® In Shrimp Aquaculture In India



Control Pond



Trial pond



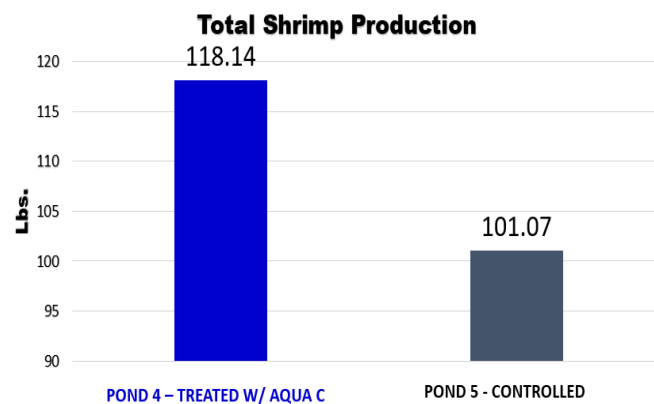
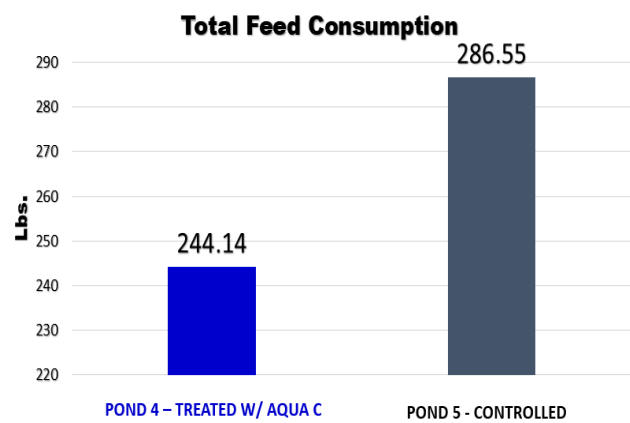
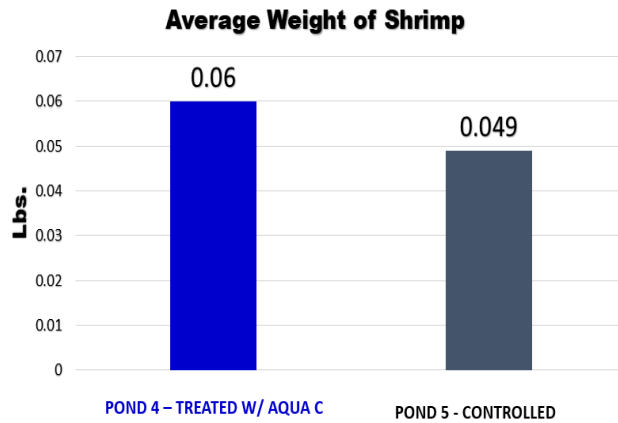
Sludge after harvest in all control ponds



Trial pond after harvest – no sludge

MICROBE-LIFT® Technology Increases Yield & Size of Shrimp

A Case Study of Giant Freshwater Prawn in Mississippi Gulf Coast, Community College



Summary Benefits of Aqua C

Total Shrimp Production:	+17.4%
Total Feed Consumption:	-14.4%
Avg. Weight per Shrimp:	+ 22.4%
Total Weight per Shrimp:	+22.4%

We provide total system and technical support to solve your water pollution and waste treatment problem by:

1. Innovative Treatment Plans

Identifying problems that need to be solved via systematic survey forms, establishing goals and defining criteria for success;

2. Sustainable Natural Solution

Providing an environmental friendly treatment solution to achieve an ecological balanced system through natural microbial remediation and bioaugmentation technologies. Review results to adjust & maintain sustainable long-term performance and satisfaction;

3. Cost Effective and Efficient

An innovative solution that is very cost effective and efficient. Eliminates the need for high upfront capital equipment investment;

4. Environmentally Safe

Microbe - Lift AQUA C and Microbe – Lift N1 only uses naturally occurring, safe and non-pathogenic bacteria in their products, which are not harmful to human and aquatic life. Approved by the USA USDA, reviewed and exempted by the USA EPA.