MICROBE-LIFT® Increases Sea Bass Hatchery Fry Survival Providing 100% Increase in Yield

Location: **Marine Life Aquaculture Farm, Singapore**

Background:

Marine Life Aquaculture Pte. Ltd. (MLA) is a high tech food fish hatchery located in Pasir Ris, Singapore. The company's core business consists of the hatching and breeding of sea bass, thread fin, grouper, and other fish fry for commercial aquaculture farms in Singapore and surrounding countries.

Mr. Tan Kay Heok, the Chief Technical Officer of MLA has developed great expertise in the hatchery of commercial food fish. The farm has been using various innovative technologies to maintain food water quality in their hatchery tanks.

Objective:

Dr. Lim Lian Chuan, an expert in ornamental and food fish breeding and packing introduced MICROBE-LIFT® to MLA in December 2010 when they decided to test the technology in their sea bass tanks for potential improvement of yield and survival rate of fry.

Three 20 M3 breeding tanks (tank 1, 2 & 3) were each stocked with 200,000 AVA sea bass eggs on 6 Dec 2010 after the tanks had been cleaned and sterilized with Remedor Aquatic (RA) and UV light which is their normal process to prepare the environment prior to stocking.

During the breeding period a rotifer and artemia diet was fed to the fry in all three tanks. Tanks 2 & 3 were maintained using the bath system that included daily exchange of 30% of the culture water, replacing backwater and seawater. Tank 1 was maintained by dosing with MICROBE-LIFT® . Because the trial tanks did not have biofilters or other filter media the dosage applied was higher than the standard recommendation by the manufacturer, **Ecological Laboratories Inc.** In addition, due to lack of filtration in any of these tanks, the fish manure and food waste were regularly siphoned off manually.

MICROBE-LIFT® was added to tank as follows:

Dosage Schedule	Dosage
Day 1 (12/06/2010	100 ml
Day 2	200 ml
Day 3	300 ml
Day 4	400 ml
Day 5	500 ml
Day 6	500 ml
Day 7	400 ml
Day 8 to 11	no dosage
Day 12	500 ml
Day 13	400 ml
Day 14 (12/19/2010)	400 ml

Fig. 1: *Dosage rates considerably higher than standard dosage rates were required to compensate for lack of the normal filter system in these tanks. Normally, the filters provide a surface for substantial fixed film growth of these strains.*

Results Achieved: During the trial, Mr. Tan found that ammonia levels in tank 1 were much lower compared to the control tanks while the water exhibited much higher DO levels when using MICROBE-LIFT®. As a result the water in tank 1 was less frequently changed and at a much lower volume compared to the control tanks. Despite the reduced frequency and volume of water changes, less sludge formed at the bottom of the tank reducing the need for siphoning tank 1.

Fig. 2: *Yield of fry per tank demonstrates 100% increase in yield in the* MICROBE-LIFT® *treated tank.*

The table below depicts the number of try transferred from the tanks to a nursery on day 17 (Dec 22, 2010). Using MICROBE-LIFT® has doubled the number of fry compared to the control tanks.

Trial Tanks	Number of Fry	Survival Rate
Tank 1	50,000	25%
Tank 2	25,000	12.5%
Tank 3	30,000	15%

Treatment with MICROBE-LIFT® increased the fry survival rate to double the yield of fry making it an excellent investment. In addition, since less water recycling was required less labor was required during the hatching process. Mr. Tan was so pleased with the results, that he incorporated the use of MICROBE-LIFT® in the standard operating procedure of the hatchery.

For more information on MICROBE-LIFT® Technology contact
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