

# Legacy CLEAR™

Water Quality Probiotics for Aquaculture



## Reduction of Toxic Ammonia and Excess Nutrients

**DESCRIPTION:** Legacy CLEAR™ product is a pellet formulation containing beneficial spore forming bacillus, enzymes, yeast and fungi with various growth stimulating cofactors for establishing a natural water ecosystem. The ion exchange capacity of the formulation significantly reduces heavy metals, toxic ammonia and unwanted excess phosphorus. It also improves microbial function in the water body.

**WHAT IT DOES:** Legacy CLEAR™, when used as directed, will reduce metals such as arsenic, lead, mercury, etc., eliminate bad odors from the water, improve water clarity, enhance nitrification cycles in the water and improve water quality for fish.

**HOW IT WORKS:** Legacy CLEAR™ microbes feed on carbon, ammonia, nitrate and phosphorus and convert them into cellular bio-mass reducing unwanted growth in the water column. Legacy CLEAR accelerates the natural nitrogen cycle and expedites the conversion of ammonia into nitrite, then nitrate. It takes oxygen from the nitrite or nitrate in order to grow, and in the process, nitrogen gas is released. Ultimately, Legacy CLEAR reduces the accumulation of ammonia and nitrite. Legacy CLEAR is a preventative maintenance product; it is not a quick fix. It will not kill a standing crop of algae like an herbicide, but over time it will cut off the algae's food source by out-competing the algae for the nitrogen and phosphorus in the water.

**WHERE IT CAN BE USED:** Legacy CLEAR can be used in both fresh water and salt water environments. Use of an aeration system will enhance the product's effectiveness.

**APPLICATION RATE:** Distribute Legacy CLEAR™ evenly across the surface of the water body. Initial application is 10 lbs. per acre foot of water. Maintenance dose is 5 lbs. per acre foot of water every 2 weeks. For heavily polluted water bodies dosage can be doubled. To determine the acre-feet of your water body, multiply the surface acres by the average depth, or divide the total volume in gallons by 325,850. See package for rates when measuring size by cubic meters (M<sup>3</sup>) of water.

**SAFETY:** Persons allergic to dust should wear nose and mouth protection when handling this product. In the event of direct contact with eyes or skin, flush the affected area with water. When used as directed, product is safe within the environment.

**STORAGE:** Store product in original container at room temperature. Protect from moisture.

**KEEP OUT OF THE REACH OF CHILDREN**

## Natural soil and water probiotics improve the FCR and survival rate of shrimps in aquaculture



Shrimp farming is being practiced for more than a decade for food and the livelihood of coastal people in India. In recent times, fisheries in India has been recognized as an important economic activity and a flourishing sector with varied resources and potentials. Aquaculture in India is concentrated around the giant tiger prawn (*P.monodon*) as the one of the most important species. The freshwater prawn

farming has received increased attention only in the last two decades due to its high consumer demand. While sustainability is being addressed, the present concern is with regard to obtaining maximum yield with high quality, protecting the shrimps from disease outbreaks and maintaining healthy pond environments for the shrimps.

A similar concern was being faced by Mr. Rao in his aquafarm in Nellore, Andhra Pradesh. Mr. Rao owns 20 acres of area under aquaculture. He carried out freshwater shrimp farming of *Penaeus monodon* in his aquafarm. The farm has a stocking density of 14/m<sup>2</sup> Mr. Rao was facing serious concerns about maintaining the water quality and increasing his yield as these factors were having negative impact on his profits.

### **The solution: Legacy CLEAR**

Mr. Rao was advised by Legacy BioSolutions' technical advisor in Andhra Pradesh to use Legacy CLEAR™ in his shrimp farm. Legacy CLEAR is a natural and organic soil and water probiotic. It contains a consortium of beneficial soil microbes which are natural and safe and can enhance biological functions to help maintain a healthy environment inside the pond. Mr. Rao was advised to use Legacy CLEAR at a concentration of 250 gms per acre, 3 days before stocking and continue with a maintenance dose of 100 gms per acre, every 10 days up to harvest. See package for rates according to cubic meters M<sup>3</sup> of water.

These microbes maintain an efficient nitrification cycle in the pond thereby maintaining a healthy pond environment. The microbes also biologically degrade organic sludge and stabilize the dissolved oxygen levels in water. Healthy water quality promotes growth rate and hence the production of shrimps. An improvement in the FCR directly impacts the animal weight. Legacy CLEAR ultimately helps maintain the pond water quality for better growth and higher, good quality yield in aquaculture.

### **Results:**

Mr. Rao could notice the difference within a month of using the product. The pond water quality parameters were effectively maintained by the use of the natural water probiotics.

**Product Used: Legacy CLEAR**

**Species Cultured: Catla, Rohu, Mirgal (INDIAN CARPS)**

**Water Source: Canal & Bore**

**Stocking Density: Catla-200 pcs./acre, Rohu-2000 pcs./acre, Mirgal-200 pcs./acre combination or 0.7 pieces/Sq.meter**

**Salinity Range: Fresh water**

#### Results Observed

Water color	After Legacy CLEAR application blooming green.
Feed intake	De-oiled rice bran.
Harvested average body weight (ABW):	Catla-2kgs, Rohu-1.2Kg, Mirgal- 1Kg.
Ammonia level	Control between 0.01ppm to 0.02 ppm.
Colony count	Green colony-Nil; Yellow colony-Max.350
pH	Maintained between 8 to 8.9
Harvested Days of Culture (DOC)	255 days partial harvest made.
Animal Physical appearance	Looks very healthy, fresh, glazing nature and without any muddy moldy smell.
Post harvest Pond bottom	Not much black soil and no smell.
Survival	85%



Product Used: Legacy CLEAR

Total Area: 6 Ha.

No. of ponds: 7

Species: *P. monodon*

Stocking density: 8 / m<sup>2</sup>

Salinity: 3 ppt

Water Source: Bore

### Results Observed

Water colour: Bloom maintained light green colour.

pH: pH level was observed between 8.3 to 8.6.

Ammonia level: Maximum 0.01ppm observed

Harvested average body weight (ABW): 29gms.

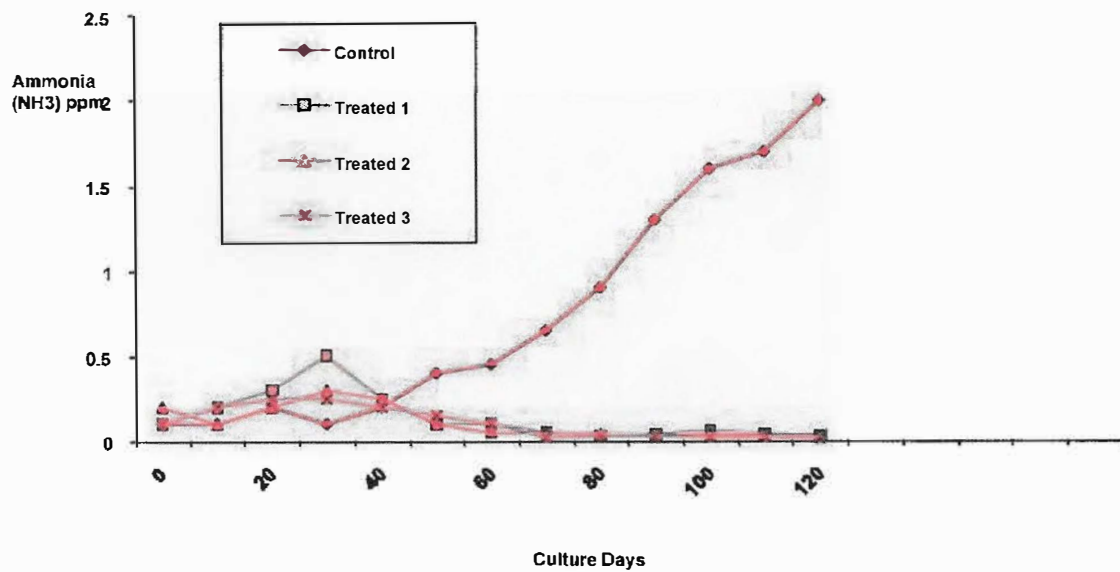
Count: 34.

Survival observed: 95%

Feed Conversion Ratio (FCR): 1:1.2.

Harvested Days of Culture (DOC): 115 days

Ammonia Chart



**Product Used: Legacy CLEAR**

**Total Area: 250 acres**

**Species Cultured: Tiger (P.monodon)**

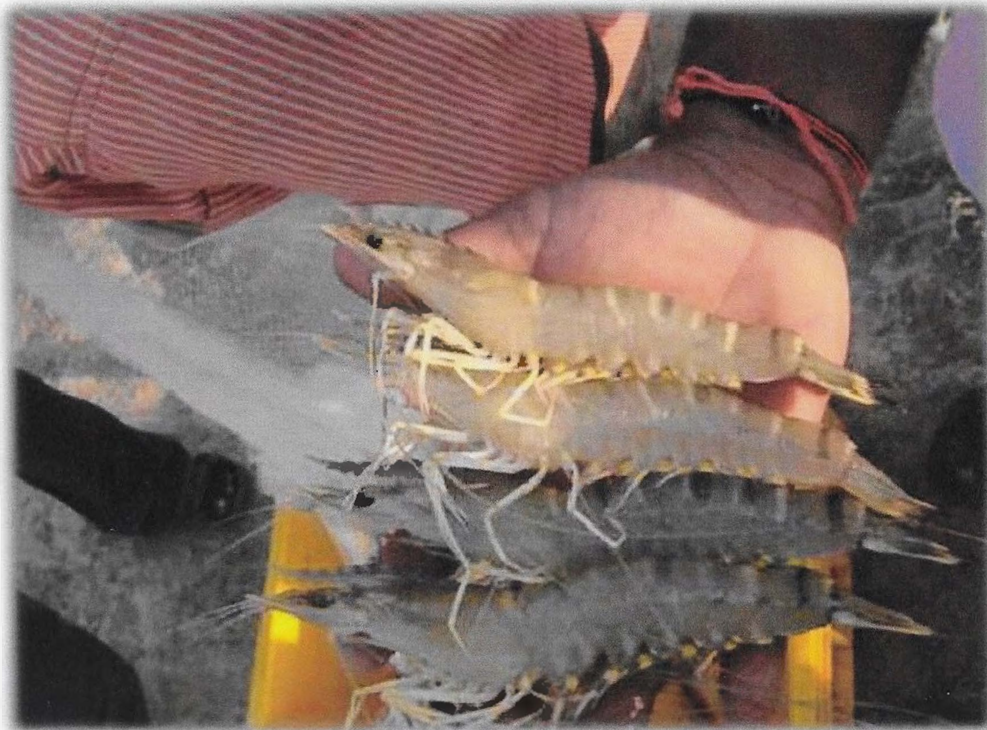
**Water Source: Creek**

**Stocking Density: 7 pieces / Sq.meter**

**Salinity Range: Between 16 to 33 ppt.**

**Results Observed**

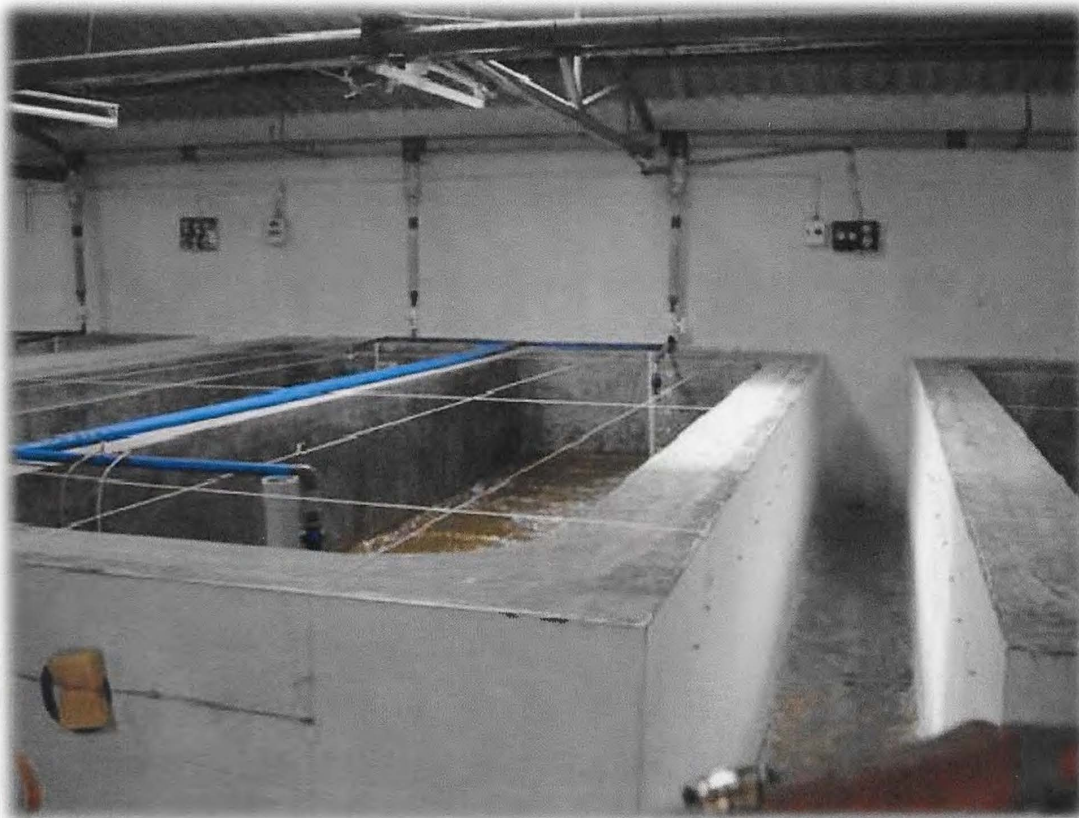
Water color	Light green to golden yellow
FCR	1:1.7
Green colony	Nil
Yellow colony	Max.135
Harvested average body weight (ABW)	45 gms
Ammonia level	Max observed 0.01 ppm
pH	7.9 to 8.7
Harvested Days of Culture (DOC)	171 days
Animal Physical appearance	Looks fresh and glazy, no fouling.
Post harvest Pond bottom	No much black soil, no muddy mould smell



**Product Used:** Legacy CLEAR  
**Hatchery capacity:** 150 million fry/annum  
**Species Cultured:** Tiger (*P.monodon*), Scampi (*M.Roserbergii*)  
**Water Source:** Sea water  
**Stocking Density:** 80,000 nauplii / lit  
**Salinity Range:** 30 to 33 ppt

**Results Observed**

Water colour	Light yellowish brown
Feeding	Regularly feeding good
Harvested average length	11.5 mm to 12.5 mm
Colony Count	Green colony- Nil, Yellow colony- 35
Ammonia level	No toxicity observed
Survival	90%
Conversion & Molting	Normal by time, no stress nor partial molting observed
Animal Physical health	Swimming normal, no necrosis nor healing, good in stress test
Post packing farm performance	99% HAPA survival, daily molting observed, fast growth



**Products Used:** Legacy CLEAR

**Total Area:** 20 Ha.

**No. of ponds:** 20

**Species:** *Penaeus vannamei*

**Stocking density:** 50 pcs / m<sup>2</sup>

**Water Source:** Creek + Bore

**Results Observed**

- The animals have shown a better assimilation of nutrients and microelements, indirectly helping in a better FCR ratio.
- Loose shell problem was controlled to a very large extent.
- All the animals were stress free.
- Excellent Vibrio reduction.
- Lowering of suspended organic matter in the pond.
- Remarkable improvement was observed on the shrimp haemocyte profile.



**Product used: Legacy CLEAR**

**Total Area: 15 acre**

**Species Cultured: Tiger (P.monodon)**

**Water Source: Creek**

**Stocking Density: 10 pieces / sq.meter**

**Salinity Range: Between 15 ppt to 35 ppt**

### **Results Observed**

Water color	Light Green
Harvested average body weight (ABW)	35.5 gm
Count	28
Ammonia level	Max 0.01 ppm
pH	8 to 8.5
Harvested Days of Culture (DOC)	142 days
Post harvest Pond bottom	No back soil found, bottom clean.





**Product used: Legacy CLEAR**

**Total Area: 35 Ha.**

**Species: P. monodon**

**Stocking density: 10/m<sup>2</sup>**

**Salinity: 15 ppt**

**Water Source: Creek + Bore**

**Results Observed**

- A good improvement was noticed in the grow-molt-grow cycle.
- The survival rate was around 85 to 90 %.
- The animals were very healthy with a highly improved immune system.



**Product Used:** Legacy CLEAR

**Growing Cycle:** 4 months, high stocking.

**Results Observed**

- In spite of a higher stocking density of 20/m<sup>2</sup>, there was a good FCR.
- The growth was very good and the survival rate was around 87%.
- It solved all the white gut problems which were faced prior to treatment.
- Improved molting cycle.



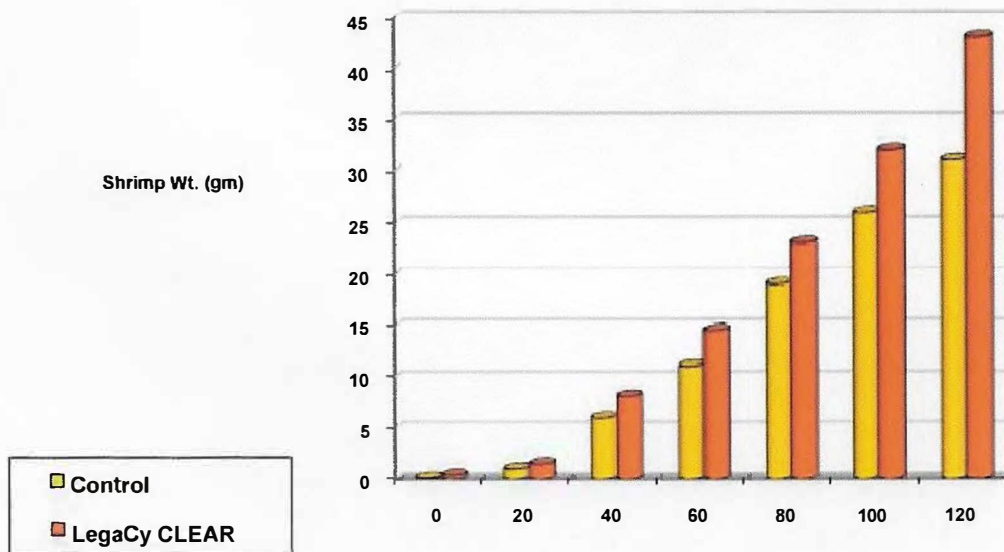
**Product Used: Legacy CLEAR**  
**Total Area: 26.3 Ha. Species:**  
**P. monodon**  
**No. of ponds: 45**  
**Stocking density: 8 pcs. / m<sup>2</sup>**  
**Salinity: 12 ppt to 40 ppt**  
**Water Source: Creek**

	Water Colour	pH	Ammonia	Total Alkalinity
Control	Dark Green	8.7	0.06 ppm	216 to 176
Legacy CLEAR	Golden Yellow	7.9 to 8.2	0.01 ppm	190 to 125

### Results Observed

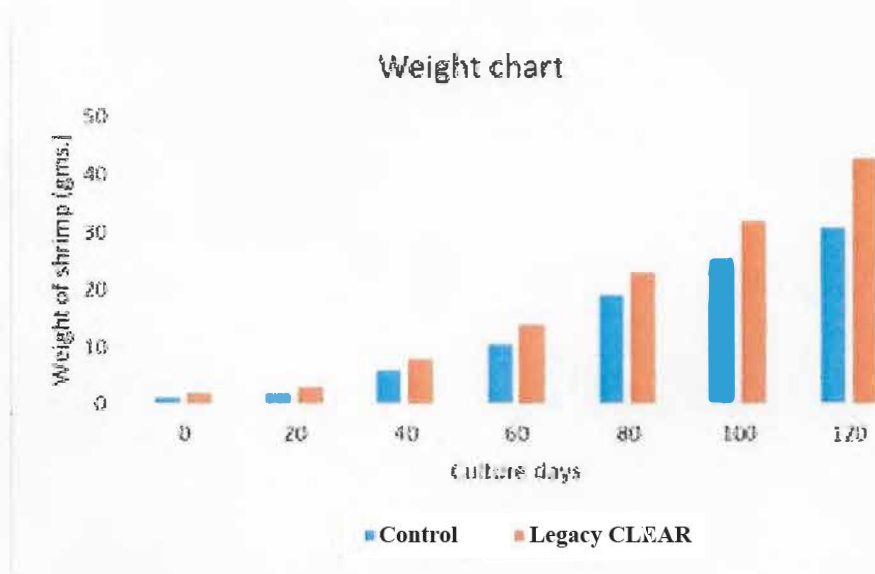
Water colour	Dark green and turbid colour changed to golden yellow in colour and stable for up to harvest.
pH	pH level was stable between 7.9 to 8.3
Ammonia level	Ammonia level as minimum of 0.01
Harvested average body weight (ABW)	38.3 gm., Count: 26
Survival observed	87%.
Feed Conversion Ratio (FCR)	1:1.2
Harvested Days of Culture (DOC)	143 days.
Post harvest pond bottom	After harvest bottom clean, no black soil observed.
Animal Physical appearance	Animals looks very good greenish yellow and glassy.

### Weight Chart



The pH level in the pond was maintained stably between 7.8- 8.2. Also the pond water color remained light green up to harvest. The bottom of the tank was clean and there was minimal or no black soil. Most importantly the shrimps looked fresh and there was no foul odor emission.

<b>Highlights in shrimp farming after using Legacy CLEAR</b>	
Feed conversion ratio	1:1.2
Survival rate	95%
Harvested days of culture	117 days



Graph: Comparison of weight of shrimp (gms) with and without using Legacy CLEAR

**Conclusion:**

The application of Legacy CLEAR in shrimp farming provided major benefits for farming and management of shrimps. Legacy CLEAR protects the shrimp from disease outbreaks and improves their nutrient uptake and FCR, thus overall improving profits in aquaculture. The microbes in Legacy CLEAR degrade the excess organic matter in the pond thus reducing chances of algal blooms. This can be clearly indicated by the pond water color that remained light green suggesting the presence of healthy planktons that can be used as food by shrimps. The ammonia levels also stayed under control and avoid any instances of ammonia toxicity. Keeping the pond water parameters under check reduces the stress that intensive farming exposes fishes and shrimps to.