

LIVE NAUPLII PASTE

CLEAN AND PURE

VIBRIO and EHP free



NUTRITIONALLY ENHANCED

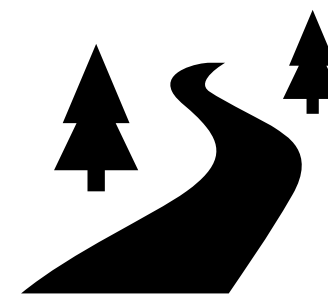
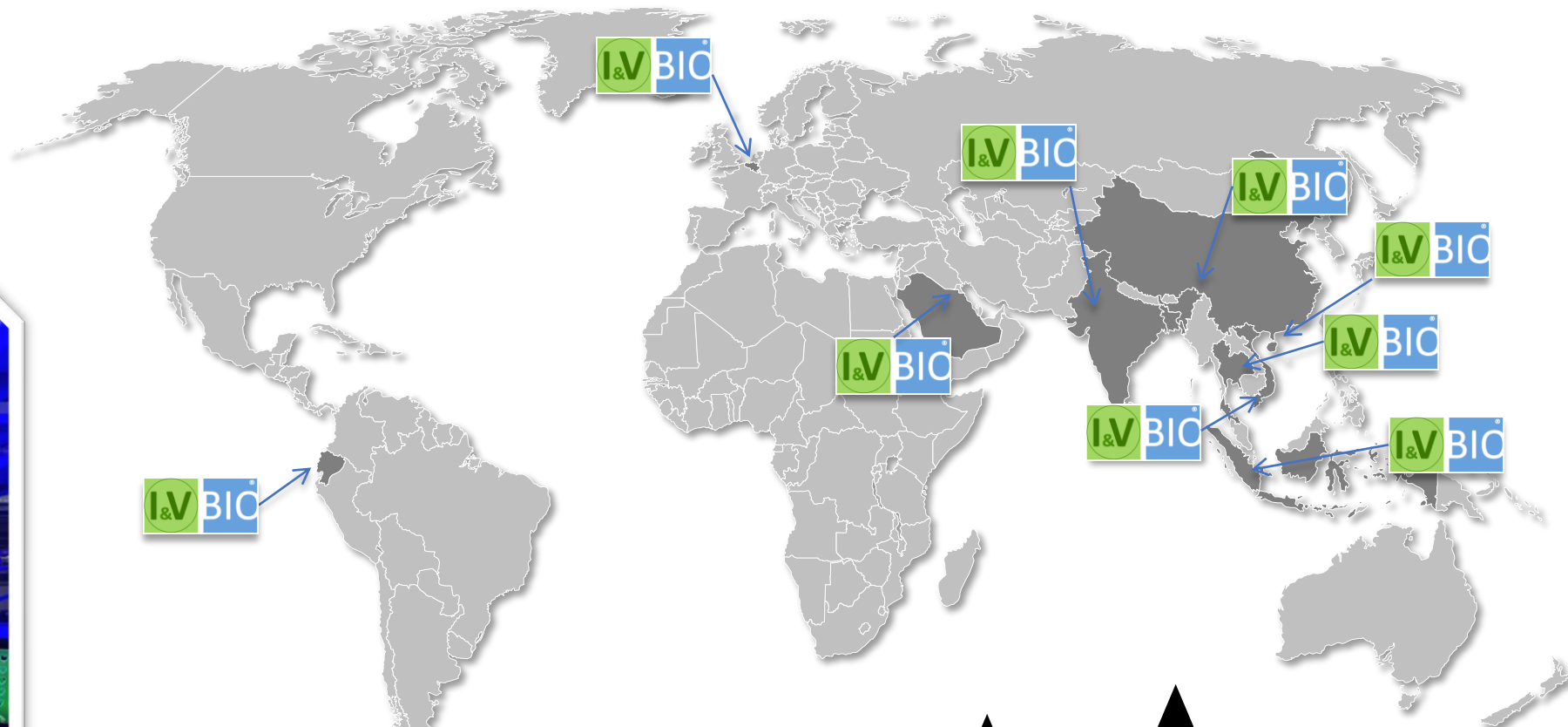
CONSISTENT Quality& Quantity





... a better choice

A Global Presence



2013



... a better choice

Our commitment:

**Uninterrupted
Supply**

**Patented Hatching
technology**

**None damaging
separation technology**

**QC monitoring of
every batch**





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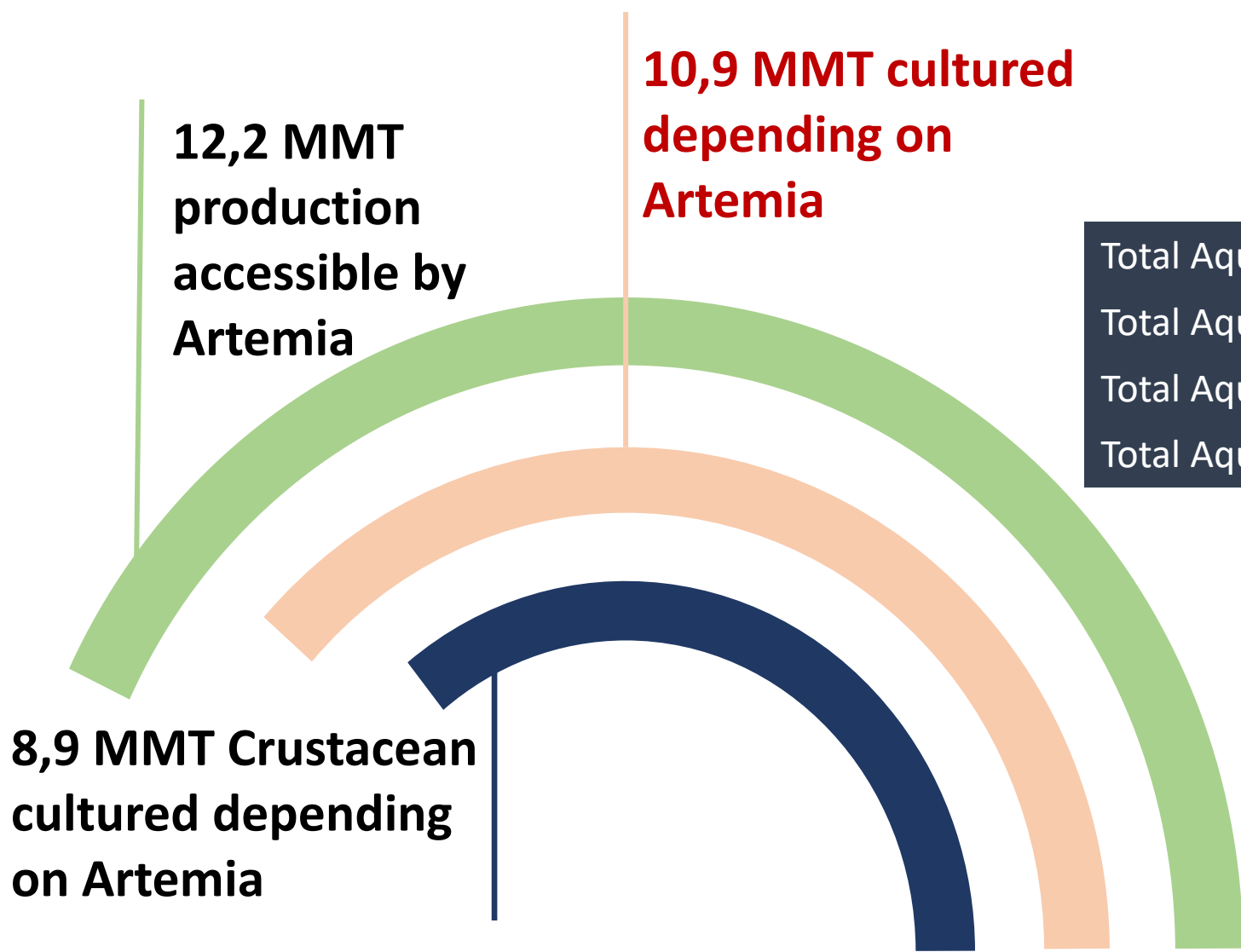


**Optimal Water
management**

**Software/
automatization**

**Nauplii conditioning
and storage**

IMPORTANCE OF ARTEMIA IN AQUACULTURE

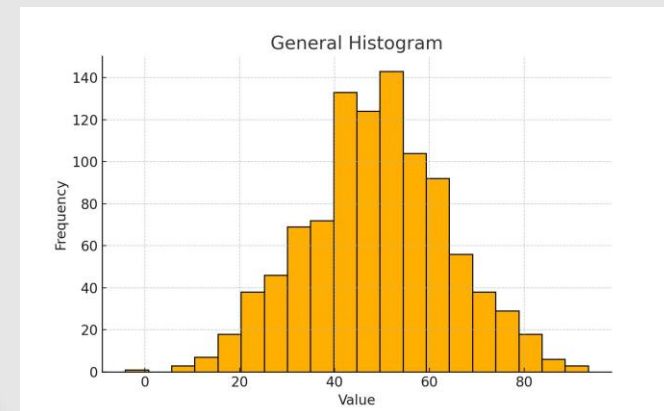


Live food remains a fundamental aspect to ensure **optimal survival** and ensure predictable production of **high-quality** marine fish & crustaceans juveniles

| | |
|-----------------------------------|---------------|
| Total Aquaculture Fresh water | 48,000,000 MT |
| Total Aquaculture Diadromous | 5,700,000 MT |
| Total Aquaculture Marine fishes | 3,500,000 MT |
| Total Aquaculture Crustacean spp. | 11,200,000 MT |

ARTEMIA CYSTS

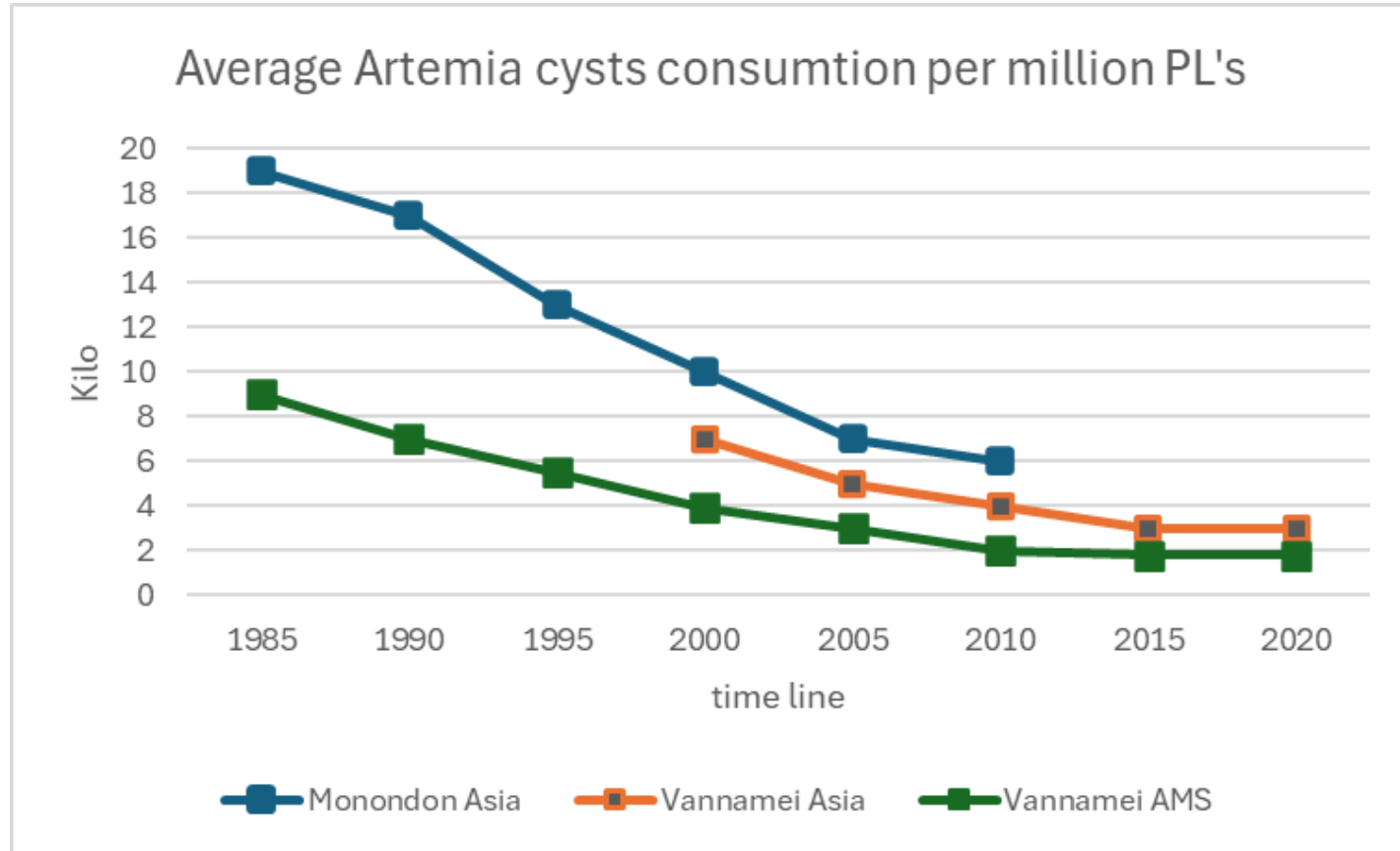
While hatcheries need live Artemia nauplii they are being supplied with Artemia Cysts. The yields obtained from hatching these cysts are susceptible to **a wide daily variation of yield and quality**. Quality criteria are based on lab results, which are rarely if ever obtained in commercial production facilities





... a better choice

Fuel for the performers



"Although today's hatcheries rely on high-performance breeder lines, Artemia consumption has declined significantly. Given its limited availability, the logical step forward is to enhance its quality through superior enrichment—maximizing its nutritional impact where quantity falls short."





... a better choice

INSTANT **ARTEMIA**

INSTANT ①

LIVE **INSTANT ARTEMIA**
Easy and Consistency



INSTANT ORI-N3 LIVE **INSTANT** **ARTEMIA ENRICHED**

with Skretting ©
Ori-N3 algae-based enrichment product



M-Bryo

FRESH DECAPSULATED
ARTEMIA CYSTS
Intact membrane
No leaching



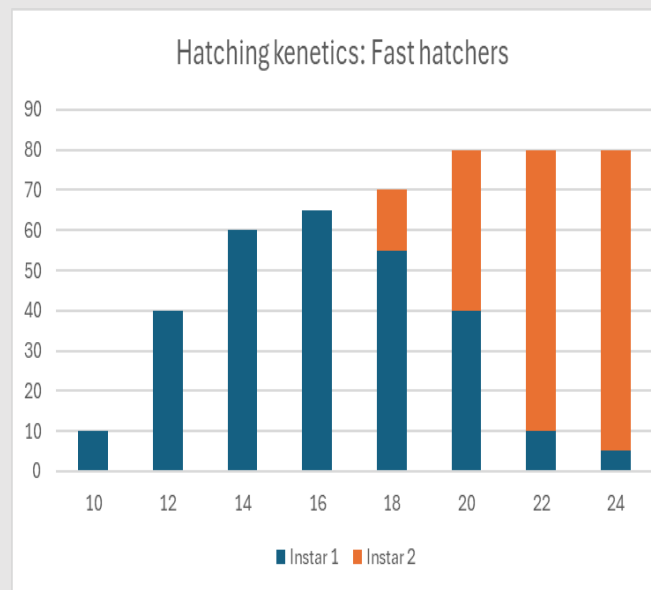
- ✓ Ready to feed
- ✓ Vibrio, EMS, EHP free
- ✓ Daily delivery
- ✓ DIV1 free



www.iandv-bio.com
e-mail: sales@iandv-bio.com

Starter live feed

- 100% instant Instar 1 Artemia nauplii.
- Energy **yolk** still present
- High in **EPA**
- Natural presence of **micro elements**.
- Slow moving/ easy prey

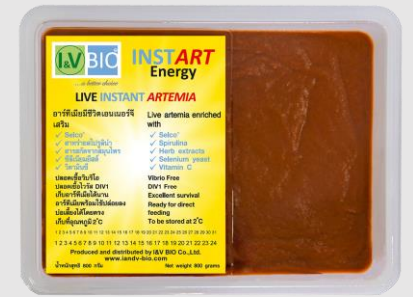


One

EPC 23

EPC 25

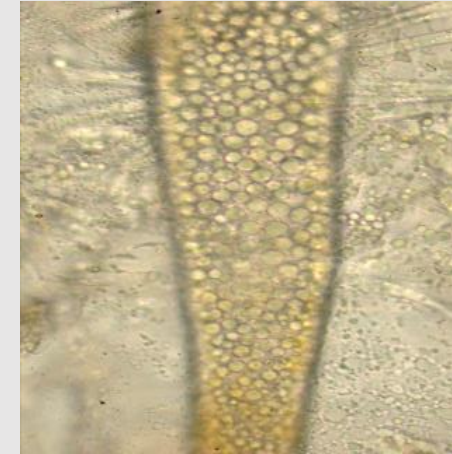
EPC 26



Ori-N3 (Enrichment Performance Claim 23)

Nutritional enrichment

- From Bio-encapsulation to **Cellular** encapsulation,
- From starved nauplii to **fed** nauplii,
- From oil-based to **algae-based**,
- Higher dry weights, more **meat** to the bone,
- Highly **digestible**,
- Less water **pollution**,
- Different Artemia sources (GSL-CIS).

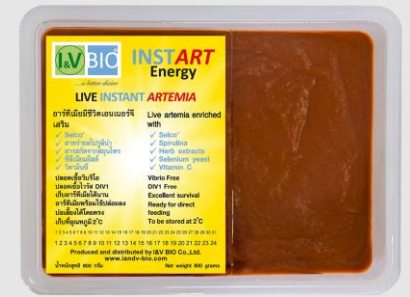


Oil based



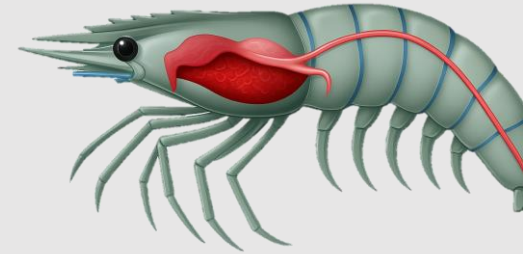
Algae





Probiotic enrichment and gut health improvement

- Inhibition of potential pathogens through **probiotic** activity while acting positively with beneficial bacteria
- Enhanced **gut conditioning** and active repair.
- Stimulation of the **immune system**, hence robustness.
- Active in a wide variety of culture conditions.

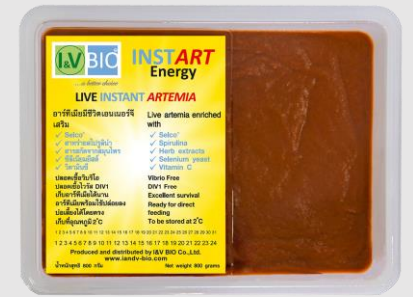


One

EPC 23

EPC 25

EPC 26



Future enrichment improvements are

- endless:**
- A pipe line of tremendous possibilities.
 - Through Internal R&D.
 - Open to further technical and commercial strategic partnerships.
 - Further enhancements of Nutritional **cocktails**
 - **High-performance** bacteria strains
 - **Phage** technology
 - (Oral) **Vaccines**



One

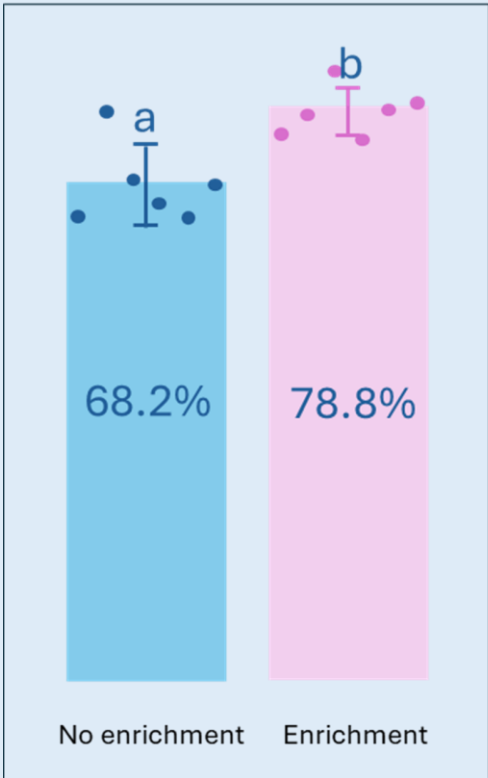
EPC 23

EPC 25

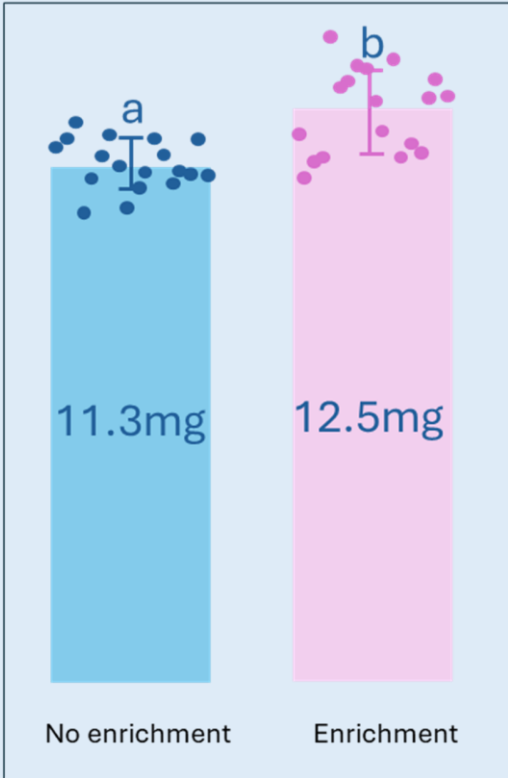
EPC 26

The enrichment with Ori- N3 resulted in a statistically significant higher survival and individual body weight at PL12.

Survival at PL12



Weight at PL12



| Molecule | Instar 1 | Instar 2 | Enriched |
|-----------|----------|----------|----------|
| DHA | ND | ND | 189 |
| EPA | 76.3 | 9.2 | 100.5 |
| Vitamin C | 66.98 | 9.4 | 117.64 |

* Mg per 100 gr.



Hatchery Trials EPC 23

Enhancement of nutritional composition of Artemia nauplii for improving industrial shrimp larval production
 Eamonn O'Brien¹, Philippe Dhert¹ & Rudi Bijnens²

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Cleaner Artemia enrichment adapted for shrimp hatcheries

Recent genetic and nutritional advances in shrimp hatchery production offers new possibilities for commercial applications. The progress made in my hatchery trials, that after a single day due to cope the whole hatchery production, makes the question about the use of Artemia in this more complex production process can be answered. Artemia enrichment has been proposed from traditional enrichment to newer, sustainable enrichment based on a 100% sustainable culture stage cycle, without any chemical and the encapsulated providing a natural advantage. Comparing this with a current ready to feed live nauplii hatchery a new level of nutrition being achieved by a better shrimp nauplii.

Uptake efficiency by Artemia

Emulsions: 1-3 µg

Is an adapted Artemia enrichment offering benefits for shrimp?

The experiment was carried out in 12 x 2 m tanks. 1st instar nauplii (stage 10) were stocked at 120 Artemia/L. A control (no enrichment) and two enriched Artemia (Ori-N3 and Ori-N3 + Vit C) were used. The experimental treatment was fed every 12 hours (from 10:00 to 18:00) and the control was not fed. The experiment was carried out from 10:00 to 18:00.

Survival at PL12

| Condition | Survival at PL12 (%) |
|---------------|----------------------|
| No enrichment | 68.2% |
| Enrichment | 78.8% |

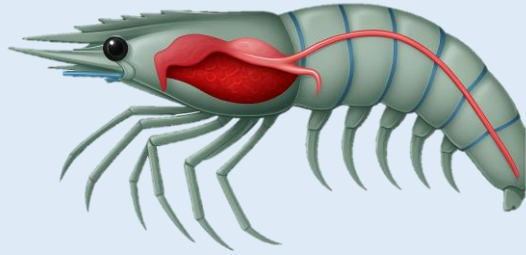
Weight at PL12

| Condition | Weight at PL12 (mg) |
|---------------|---------------------|
| No enrichment | 11.3mg |
| Enrichment | 12.5mg |

Conclusion: Instant enriched Artemia providing better quality shrimp post larvae without worries

The results of the hatchery trials are highly beneficial to a commercial hatchery. The use of Artemia as a live nauplii hatchery is a proven and reliable method. The use of Artemia as a live nauplii hatchery is a proven and reliable method. The use of Artemia as a live nauplii hatchery is a proven and reliable method.

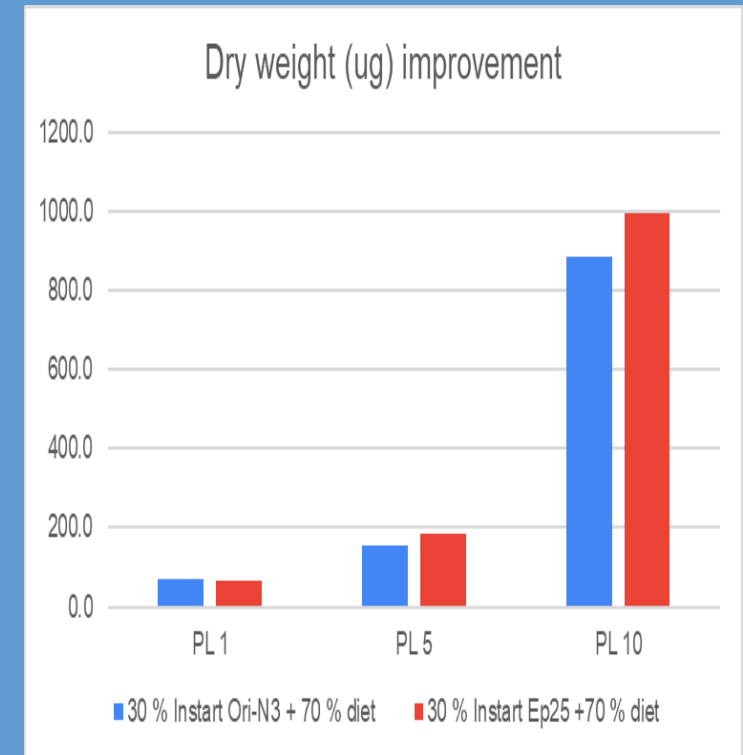
Treatment with probiotic-enriched Artemia from Post larvae 2 onwards.



- ✓ Significant improvement in growth in a few days of application.
- ✓ Improved survival in the salinity stress test
- ✓ Lower Vibrio levels measured.
- ✓ Improved early days performance at grow out stocking.
- ✓ Consistent observation of improved performance (4 runs in time)



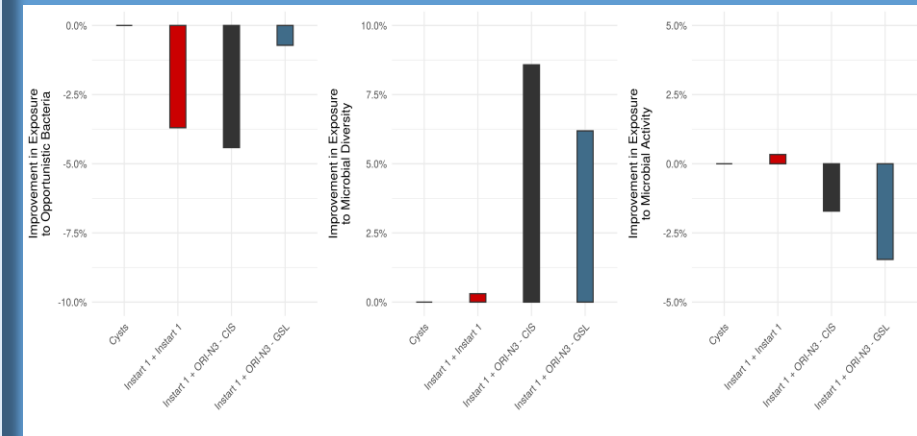
Hatchery Trials EPC 25





The use of enriched Artemia Ori-N3 results in a significant improvement of the microbiome of the shrimp hatchery tanks compared to the use of traditional use of Artemia cysts.

Hatchery trials: Improved microbiomes observed



% reduction to
opportunistic bact

% increase to micro
diversity

% reduction to
exposure to active
bact.

5

4

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2

1

Commercial trials during the Nursery and Grow out



Enriched Artemia use beyond the Hatchery Phase (EPC 23)

- Recommended use of 14 trays (800 gr) per million PL
- Use for 4 to 7 days (highly variable)



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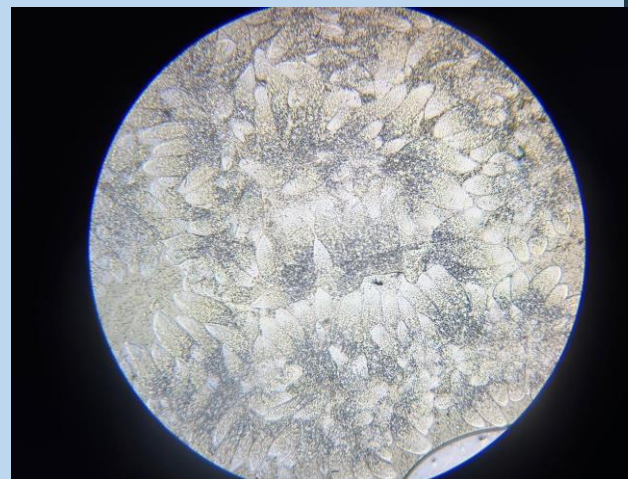
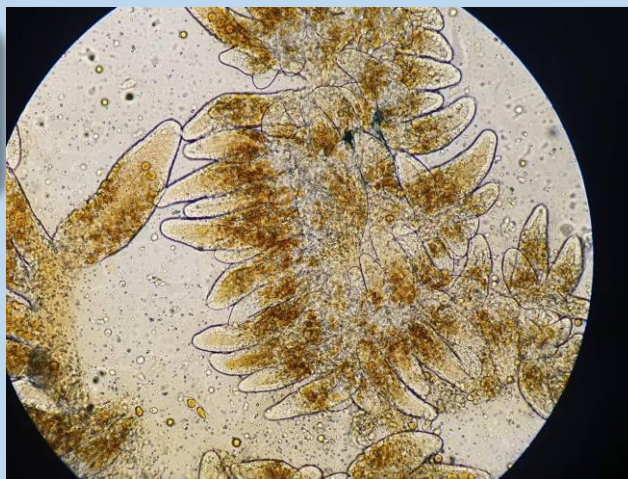
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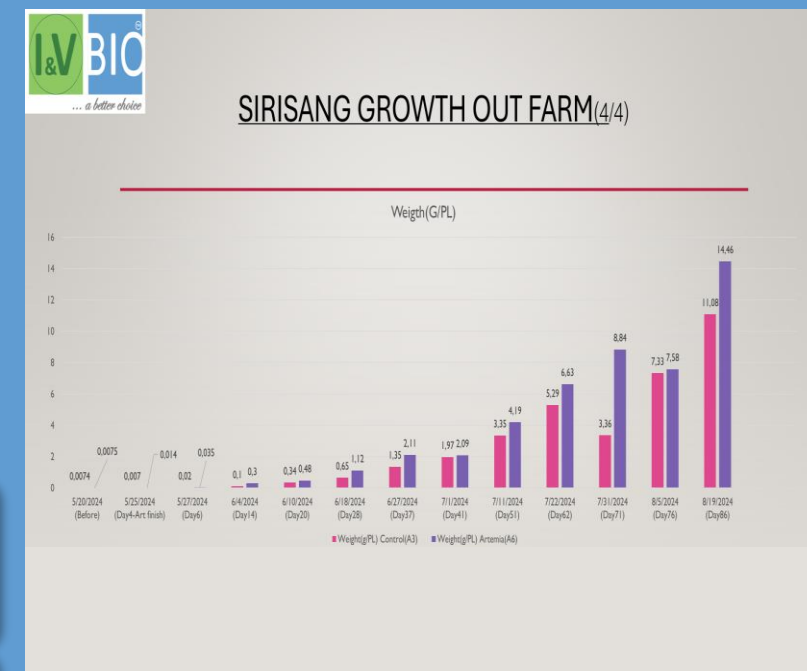
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The use of enriched Artemia for a few days after stocking results in better PL performance



Enriched Artemia use beyond the Hatchery Phase (EPC 23)



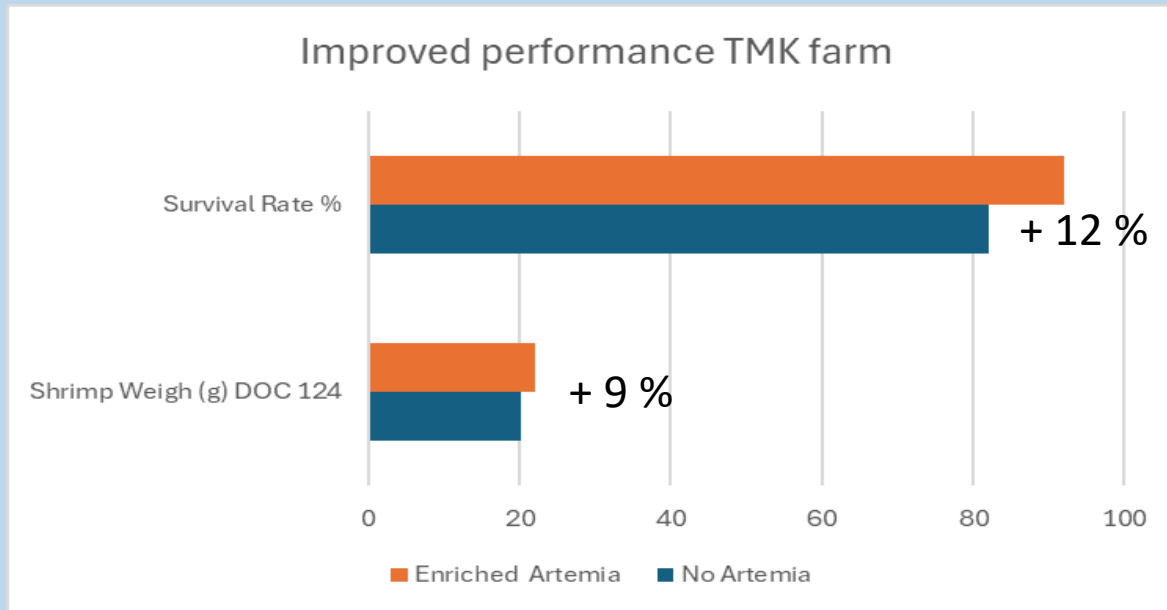
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The use of enriched Artemia for a few days after stocking results in better PL performance



Enriched Artemia use beyond the Hatchery Phase (EPC 23)



- DOC 124
- 5 rai pond size
- 216,000 PL per rai
- **27 % increased income from this crop**

5

4

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2

1



... a better choice

In Conclusion...a better choice

Artemia Cysts use

- A daily effort and **struggle**.
- A **standstill** technology
- **Variable** outputs & yields
- Reduced viable and damaged nauplii
- **Labor**-intensive
- Costly investment and maintenance
- High risk for **contamination**

Direct Artemia Nauplii

- Clean, **bio secure**, and consistent quality product.
- Proper **enrichment** protocols result in significant and improved efficiencies in PL production
- A **cost-efficient** way to improve both larval survival and weight
- Extended use in nursery systems results in **fortified Post Larvae** that cope better during the first weeks of grow out conditions.

