



A COMPREHENSIVE GUIDE TO

BEST SHRIMP PRACTICES

Disclaimer:

This e-manual on black tiger shrimp farming is intended for informational purposes only. Farmers are advised to consult with local aquaculture experts, follow regional regulations, and adapt the recommendations as per their specific environmental conditions and farming practices.

Table of Contents



Executive Summary	4
Black Tiger Shrimp Farming	5
Modern Practices	6
Why it is more relevant today?	7
Unibio Genetics – Advantages	8
Unibio Seed Production Model	9
Quality Assurance in Process	11
Testing & Traceability	12

Counting & Controls	13
Packing & Transport	14
Pond Preparation, Water Treatment & Water Culture	15
Acclimatisation & Stocking	16
Happa survival - Disclaimer	17
Water Quality Monitoring	18
Feeds & Feeding	19
Routine Sampling	20
Partial Harvest - Context & Methods	21
Harvest & Post-Harvest Care	22
Preparation for Next Crop	23

EXECUTIVE SUMMARY

Black tiger shrimp farming has seen significant changes over the years, from traditional methods to modern, sustainable practices. This e-manual serves as a comprehensive guide for farmers, offering

insights into the latest techniques, technological advancements, and quality assurance processes. By adopting these methods, farmers can improve yield, ensure sustainability, and meet the growing market demand.



Key Takeaways:

- Understand the evolution of shrimp farming practices.
- Learn about Unibio Genetics and its benefits.
- Gain insights into quality assurance, pond preparation, and water treatment.
- Explore modern harvesting techniques and post-harvest care.

BLACK TIGER SHRIMP FARMING

Historical context

Initially, shrimp farming in India relied on extensive farming practices, where ponds were naturally stocked with wild shrimp larvae. These methods were low-input but also low-yield, with minimal control over water quality and disease management.



The lack of scientific knowledge, poor infrastructure, and limited access to quality seed were significant challenges. Disease outbreaks were common, leading to high mortality rates and unpredictable yields.

These challenges, coupled with environmental concerns such as the destruction of mangroves, led to a decline in traditional shrimp farming, necessitating the adoption of more sustainable and controlled practices.

MODERN PRACTICES

Modern shrimp farming has embraced technology, from automated feeding systems to advanced water quality monitoring tools. These innovations have increased efficiency, reduced labour costs and improved yield.

Today's practices emphasize sustainability, with a focus on reducing environmental impact. This includes the use of bio-secure ponds, better waste management, and the adoption of responsible farming practices that protect surrounding ecosystems.

Advances in genetics, such as the introduction of disease-resistant shrimp varieties like those from Unibio Genetics, have significantly reduced the incidence of disease, leading to more predictable and profitable farming outcomes.

WHY IT IS MORE RELEVANT TODAY?

The global demand for black tiger shrimp is on the rise, driven by its rich flavour and premium market positioning. India's role as a leading exporter makes it crucial for farmers to adopt modern practices that meet international standards.

Modern shrimp farming practices offer higher productivity and better returns on investment. By adopting these methods, farmers can increase their income, contributing to the overall economic development of rural areas.

The shift towards sustainable farming practices has positive environmental implications, such as the preservation of coastal ecosystems and the reduction of carbon footprints associated with shrimp farming.

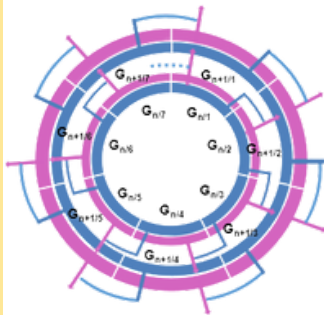
UNIBIO GENETICS

Advantages

Unibio Genetics is a leader in the development of genetically improved shrimp varieties. These shrimp are bred for faster growth, higher survival rates, and increased resistance to diseases.

Unibio shrimp are engineered to thrive in various environmental conditions, making them more adaptable and resilient. Farmers using Unibio seeds report higher yields, reduced feed conversion ratios (FCR), and better overall profitability.

By improving genetic resilience, Unibio Genetics helps reduce the need for antibiotics and other chemical inputs, promoting more sustainable farming practices.



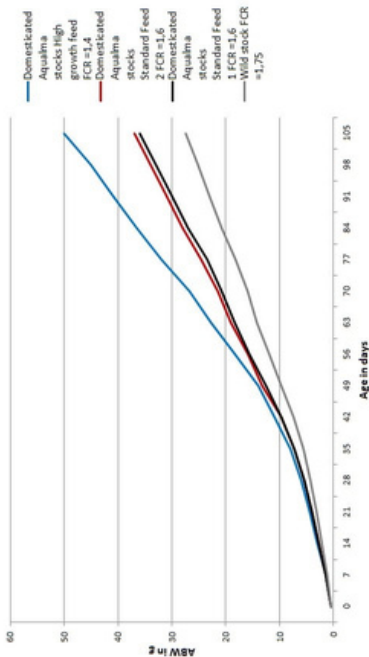
UNIBIO SEED PRODUCTION MODEL

The Unibio seed production model is designed to ensure the consistent production of high-quality shrimp larvae. The model includes rigorous selection criteria, controlled breeding environments, and advanced hatchery techniques.

Unibio's model incorporates multiple layers of quality control, from genetic testing of broodstock to regular health checks on larvae. This ensures that only the best-performing shrimp are selected for farming.

The use of Unibio seeds provides farmers with a more reliable start, reducing the risks associated with poor-quality seed. This leads to higher survival rates, faster growth, and ultimately, better returns.

Potential Growth rate of UniBio SPF *P. monodon*



QUALITY ASSURANCE IN PROCESS

Quality assurance in shrimp farming involves adhering to strict standards at every stage of the production process. This includes the use of certified feed, maintaining optimal water conditions, and regular health monitoring of the shrimp.

Farmers should implement continuous monitoring of key parameters such as water temperature, pH, dissolved oxygen, and ammonia levels. Automated systems can provide real-time data, allowing for quick adjustments to maintain ideal conditions. Keeping detailed records of all farming activities is essential for traceability and quality assurance. This includes recording feed types, feeding schedules, health checks, and any treatments administered.

TESTING & TRACEABILITY

Testing and traceability are critical components of modern shrimp farming. They ensure that the shrimp are free from diseases, contaminants, and residues, which is essential for meeting both local and international market requirements.

Methods:

- **Water Testing:** Regular testing of pond water for parameters like salinity, pH, and ammonia is crucial. Use portable water testing kits or send samples to accredited labs for detailed analysis.
- **Shrimp Health Testing:** Routine health checks should be conducted to detect signs of disease early. This can include visual inspections and lab tests for pathogens.

Traceability: Implement a traceability system that tracks the shrimp from hatchery to harvest. This can be done using barcodes or digital systems that record every stage of the production process, ensuring transparency and accountability.

COUNTING & CONTROLS

Accurate counting of shrimp at different stages is essential for managing stock density and feed requirements. Techniques such as manual counting using sieves, or automated counters, can be used depending on the scale of the operation.

Implement control measures to maintain optimal stock density, which can help prevent overcrowding, reduce stress, and minimize the risk of disease outbreaks. This includes regular monitoring and adjustments based on shrimp growth rates.

PACKING & TRANSPORT

Proper packing is crucial to ensure the shrimp remain in optimal condition during transport. Use insulated boxes with adequate ice packs to maintain a consistent temperature. Shrimp should be packed in layers, with minimal movement to prevent damage.

Coordinate transport logistics carefully to minimize travel time and ensure the shrimp reach their destination quickly. Monitor temperature throughout the journey using data loggers, and ensure that the transport vehicle is equipped with refrigeration if necessary.



POND PREPARATION

Start by removing any leftover organic matter from previous crops. Use lime to disinfect the pond and adjust pH levels. Allow the pond to dry completely before refilling with water.

WATER TREATMENT

Treat the water to remove harmful pathogens and ensure it is of the correct salinity for black tiger shrimp. Use probiotics to enhance water quality and promote a healthy microbial environment.

WATER CULTURE

Introduce beneficial algae and microorganisms into the pond to create a balanced ecosystem. This helps maintain water quality and provides a natural food source for the shrimp.

ACCLIMATISATION & STOCKING

Acclimatize the shrimp larvae to the pond conditions gradually. This can be done by slowly mixing pond water with the water in which the larvae were transported, allowing them to adjust to temperature, salinity, and pH changes.

Once acclimatized, stock the shrimp larvae evenly across the pond. Aim for an optimal stocking density to promote healthy growth and reduce competition for resources.



HAPPA SURVIVAL

The Happa method involves using small enclosures or nets (happas) within the pond to improve the survival rate of shrimp larvae. These enclosures provide a controlled environment, reducing predation and competition.

Disclaimer: Implement a traceability system that tracks the shrimp from hatchery to harvest. While the Happa method can significantly improve survival rates and simplify management, its effectiveness can vary based on environmental conditions and pond management practices. Farmers should use this method in conjunction with other best practices for optimal results. It's essential to monitor the happas regularly and adjust practices based on observed outcomes.

WATER QUALITY MONITORING

Monitoring Techniques:

Use test kits to measure parameters such as pH, salinity, dissolved oxygen (DO), ammonia, nitrite, and nitrate levels. Regular manual testing helps ensure water quality is within optimal ranges.

Consider investing in automated water quality monitoring systems that provide real-time data and alerts. These systems can be linked to mobile apps or computers for convenient monitoring.

Key Parameters:

- Maintain a pH range of 7.5-8.5.
- Keep salinity levels appropriate for black tiger shrimp, typically around 15-25 ppt (parts per thousand).
- Ensure Dissolved Oxygen levels are above 5 mg/L.
- Aim for ammonia levels below 0.1 mg/L.
- Keep nitrite levels below 0.1 mg/L and nitrate below 20 mg/L.

FEEDS & FEEDING

Feed Types:

Commercially available pellets are the most common feed. They come in various sizes to match the growth stages of the shrimp. Incorporate natural feeds like phytoplankton and zooplankton into the diet to provide additional nutrients.

Feeding Schedules:

- Feed larvae small-sized pellets multiple times a day.
- Transition to larger pellets as the shrimp grow, feeding 2-3 times a day.
- For mature shrimp, provide larger pellets or a mix of pellets and natural feeds. Adjust feeding frequency based on growth rates and water quality.

ROUTINE SAMPLING

Sampling Methods:

- **Net Sampling:** Use a net to collect a representative sample of shrimp from different pond areas. This helps assess overall health and growth.
- **Sub-sampling:** Take smaller samples from the netted shrimp to examine in detail, such as for disease or size distribution.

Data Recording: Keep detailed records of sampling results, including shrimp size, health status, and any abnormalities. This data helps track growth trends and make informed management decisions.

PARTIAL HARVEST

Context & Methods

Partial harvesting is often done when shrimp reach a certain size or when market conditions demand. It helps reduce stock density, preventing overcrowding and improving growth rates for remaining shrimp.

Harvesting Techniques:

- **Seining:** Use a seine net to gather shrimp from the pond, separating them from the water.
- **Trap Harvesting:** Employ traps or cages to catch shrimp selectively, minimizing stress and damage.
- **Grading:** After harvesting, sort shrimp by size to ensure uniformity in marketable batches.

HARVEST & POST-HARVEST CARE

Harvesting Process:

- Harvest shrimp during cooler parts of the day to reduce stress.
- Minimize handling to avoid injury. Use clean, dry containers to transport shrimp from the pond.

Post-Harvest Handling:

- Rinse shrimp to remove any pond debris or mud.
- Sort shrimp by size and quality.
- Immediately chill shrimp to preserve freshness. Store in a refrigerator or ice-packed containers until they reach the processing facility.

PREPARATION FOR NEXT CROP

Pond Cleaning:

- Drain the pond completely to remove residual organic matter and waste.
- Clean and disinfect the pond using lime or other approved agents to kill pathogens.

Drying and Maintenance:

- Allow the pond to dry thoroughly. This helps in the natural eradication of harmful organisms.
- Inspect and repair any damage to the pond infrastructure. Ensure that all equipment is in good working order before refilling the pond.



Unibio - The Genetics behind 2023 Seafood Excellence Global Awards

