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Popular Article

How to select superior quality shrimp seed

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Introduction

The quality of shrimp seeds plays a pivotal role in the success of shrimp farming. Selecting high-quality seeds is essential for achieving optimal results and maximizing profitability. The process of seed selection, often referred to as breeding stock selection, is a fundamental aspect of shrimp farming, significantly influencing production outcomes. Research indicates that seed quality contributes to approximately 70% of the success in shrimp farming.

Various methods are employed to evaluate shrimp seed quality, including visual inspections, stress tolerance tests, health assessments of post-larvae, and the reputation and reliability of hatcheries. Additionally, disease detection protocols are crucial for ensuring the health of shrimp stock. As detailed by Kumaran et al. (2016), specific criteria must be met for effective seed selection.

Failing to adhere to these established standards can adversely affect the overall success and productivity of shrimp farming operations, underscoring the importance of selecting seeds with care.

Criteria for seed selection

- **Uniform Shrimp Size**
  Maintaining a uniform size among shrimp seeds ensures synchronized growth rates and consistent nutritional demands. Uniformity minimizes challenges like competition for resources and reduces cannibalism within the group (Fortuna).

- **No Physical Deformities**
  High-quality shrimp seeds must exhibit fully developed and intact body parts. Traits such as straight tails, well-formed pleopods, properly developed eyes and stalks, and appendages free from fouling or necrosis are indicators of superior quality. Post-larvae (PL) at stage 13 are ideal, characterized by four or more rostral spines, a healthy hepatopancreas with fine lipid droplets, and the absence of any signs of infection.

- **Gut Fullness**
  A full gut signifies active feeding behavior in shrimp seeds, indicating good health. Healthy seeds, typically 8–10 mm in size, should exhibit a dark, thick digestive tract. Ideally, 20–30% of the shrimp should release visible feces in water. Seeds showing undigested food but lacking feces may indicate stress caused by poor water quality or contamination (Yang and Lachans, 2019).

- **Stress Tolerance Testing**
  Stress tolerance is a vital indicator of shrimp seed quality, as healthy seeds respond actively to environmental changes. Two commonly used tests are:

- **Salinity Stress Test**: Place 100 post-larvae (PL) in tank water maintained at optimal salinity. Add freshwater to halve the salinity and monitor for 30 minutes. Reject the batch if mortality occurs.
- **Formalin Stress Test**: Submerge 100 PL in a 100 ppm formalin solution for one hour. Seeds with a survival rate above 90% are deemed fit for stocking (Kumaran et al., 2016).

- **Disease-Free Certification**
  Ensuring that shrimp seeds are disease-free is critical for successful farming. Pathogens such as White Spot Syndrome Virus (WSSV) and Enterocytozoon hepatopenaei (EHP) can severely impact yields. PCR testing is commonly employed for disease screening, complemented by microbiological assessments to detect Vibrio bacteria in the hepatopancreas.

- **Vitality Assessment**
  Vitality testing evaluates the overall health and vigor of shrimp seeds. In this test, shrimp are placed in a bucket of water and swirled. Healthy seeds will initially gather in the center and then spread evenly along the bucket walls as they adapt to the water movement (Yang and Lachans, 2019).

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