

Southeast Asian Fisheries Development Center

Aquaculture Department

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Aqua Farm News

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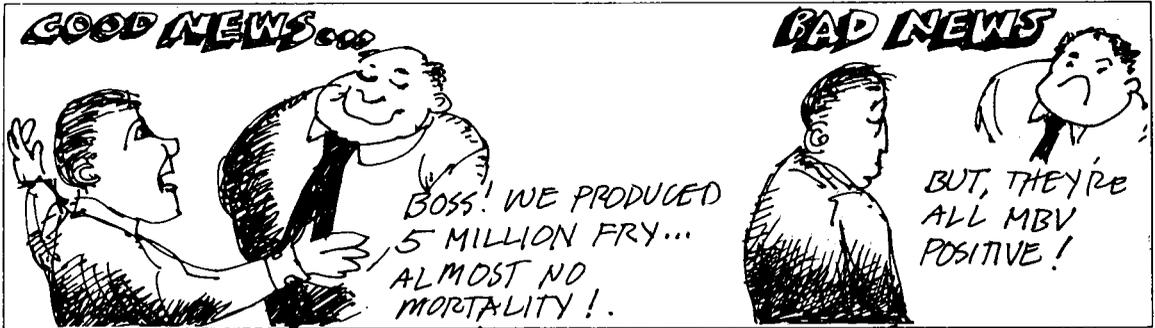
Fry quality criteria

Aquaculture Department, Southeast Asian Fisheries Development Center

Southeast Asian Fisheries Development Center, Aquaculture Department (1994). Fry quality criteria. Aqua Farm News, 12(4), 19-20.

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- Choose larvae that have not been excessively treated with chemicals, drugs, or growth hormones. These substances reduce the natural defenses of larvae to diseases. Although these chemicals have no apparent adverse effect while in the hatchery, shrimp larvae often become weak after stocking in ponds. The larvae are unable to adjust to changes in the environment and die.
- Get larvae from healthy spawners and from the first two batches of eggs after eyestalk ablation.
- Choose larvae that can withstand stress tests. Commonly used are salinity shock, temperature shock, and exposure to 100 ppm formalin (37% aqueous solution). Stress tests are performed in the hatchery, not in the pond.

The salinity stress test exposes larvae to a salinity drop of 15-20 ppt. No mortalities should occur over 2 hours and PL should recover and resume feeding within 24 hours. This has been used on commercial scale in Ecuador, Philippines, and Thailand.

In the temperature stress test, larvae are introduced to 22-24°C for 5-10 minutes. No deaths should occur and larvae should quickly recover. Larvae are normally reared at 28-32°C.

PL can be subjected to 100 ppm formalin for 2 hours. Strong, healthy PL will survive.

References: *C.P. Shrimp News*, Vol. 1, No. 2, 1993; *AustAsia Aquaculture* 8 (1), Jan-Feb 1994.

For marine fishes

Like in shrimps, a salinity stress test can evaluate the physiological condition of fish larvae. It may be assumed that weak fish will not survive in identical extreme conditions as healthy and more tolerant fish can. The differences in condition among larvae will be reflected in extended or reduced survival proportional to the capacity of larvae to bear stress. In this way, the survival time under stress of a small group of fish can be considered a good criterion for the actual physiological state of the fish population.

The stress test for *Lates calcarifer* can be made by immediate transfer of 25-day old larvae to 65 ppt from its rearing water of about 32 ppt. Mortality is monitored every 5 min. A "stress index" is obtained by adding the cumulative mortalities in the 5-min time intervals. This index is more useful than the mortality sequence -- (1) onset of mortality, (2) mortality rate, and (3) total mortality -- because it can reflect the condition of the fish by condensing the three parameters into one. The index can hence be used to test differences among different groups of larvae.

For *Siganus guttatus*, 30-day old larvae are subjected to a salinity of 70 ppt.

If the stress test is applied in nutritional studies, it seems that *Lates* needs fatty acids to combat stress. Additional fatty acids can be sourced from the *Artemia* food enriched with highly unsaturated fatty acids (HUFA). *Siganus*, however, do not benefit much from feeding HUFA-enriched *Artemia* if stressed.

Reference: P Dhert, P Lavens, and P Sorgeloos. 1992. A simple test for quality evaluation of cultured fry of marine fish. *Med. Fac. Landbouww. Univ. Gent* 57/4b.