

FS Feed™: LARVAE NEW LIVE FOOD REPLACEMENT

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Larval culture feed formulation and nutrition have improved considerably, especially due to conforming to the dietary requirement of cultured species. However, early stages of larval culture still depend on live food to survive, and this commonly consists of phytoplankton (generally *Chaetoceros*, *Isochrysis*, *Skeletonema*, *Tetraselmis*, *Chlorella*) and zooplankton (rotifer, *Brachionus*, *Artemia*). Among those, *Artemia* is widely used commercially in the form of packed dried cyst, mainly harvested from certain countries with saturated high salinity seawater ponds.

However, increasing global demands for *Artemia* has somewhat limited its supply and availability for the fast-expanding aquaculture sector. Consequently, the price of *Artemia* has been increasing yearly to present price of between USD 120–145/kilogram for high quality *Artemia* feeds. In lieu of the limitations and increasing costs of such live foods, our group have developed an artificial feed for larval culture that could potentially replace live foods as a nutritional feed in the aquaculture industry.

The FS Feed is considered to be highly nutritious and with customizable formulation based on the needs of targeted fish larvae. FS granules categorically sized from 125 μm to 500 μm , and suitable to accommodate to differences in mouth gape of early-stages of most fishes. FS Feed has been successfully tested on fish larvae such as carps (*Barbonyx gonionotatus*, *Cyprinus carpio*), catfish (*Clarias gariepinus*) and seabass (*Lates calcarifer*), and proven to be a superior feed compared to conventional *Artemia* diet with significant increase in survival rate.

FS feed can be given directly to the larvae without any need of a pre-culture treatment, rendering this feed from hassle-free pre-treatment, pathogen-free and continuously available. FS feed is furthermore easily digested and absorbed by fish larvae and prepared from 100% organic material consisted of fish oils and sustainable protein source (soya) as its main ingredient.

Live food cultures often require both time and a trained technician to ensure availability for larval requirements. But, FS feed can be used instantly and this simplifies the job of hatchery operators.

Furthermore, FS feed™ simplify the feeding process with 1.0 gram of FS feed can support 100,000 newly fish larvae stocking. By using FS Feed™ we can minimize contamination from unwanted pathogens that may be introduced through live foods.

Figure 1: Zebra fish larva on FS Feed™



Fig 2: FS Feed™ in packets



Fig 3: Highly nutritive and affordable FS Feed™



Figure 4: *Barbonyx gonionotatus* larva fed on FS Feed™