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AQUAFISH COLLABORATIVE RESEARCH SUPPORT PROGRAM

## RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

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**Title:** How to Produce Billions of High Quality Tilapia Fry

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**Abstract:**

Tilapia has now become a popular protein source to the poor, and also increasingly to middle class people. It serves as a typical model of a success story of farming outside its native area. Annual tilapia production was only 1.5 tons in 1950 which surpassed 1.5 million tons in 2002; increased by 1 million fold. Now it has surpassed even 3 million tons in 2010. Its production will still continue to grow exponentially, if high quality fry are readily available especially in countries like China where fry demand is in billions. How to produce and supply such a huge quantity of high quality tilapia fry has been a question for the countries which have potential to expand tilapia farming for domestic consumption and export markets. In Thailand, shortage of premium quality tilapia fry was realized as early as 1980s as the main constraint to the growth of commercial farming. Therefore, Asian Institute of Technology (AIT) developed a practical technique of mass-scale fry production through a series of onstation experimentation over a decade. The technology is basically to produce all-male fry by maintaining a large number of broodfish in hapas, collecting eggs, incubating them artificially in clean and controlled system and feeding with methyl-testosterone (MT) mixed with high quality feed as early as possible to ensure over 99% males in the fry population.

In addition to developing the production technology, AIT also successfully disseminated it applying all sorts of strategies involving public as well as private sector. However, a key turning occurred only after the success of a private hatchery in Thailand that triggering mushrooming of many others. There are over 100 hatcheries of such type in Thailand alone. Now the same trend can be seen in Bangladesh. The technology has now been adopted by many farmers and entrepreneurs of many countries especially in Asia and

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Latin America. However, in China where about half of the global tilapia is produced, most farmers use hybridization technique to produce mono-sex fry. In Thailand, three hatcheries annually produce 200 million fry each. This means, establishing about five such hatcheries could easily produce 1 billion high quality fry per year. A hatchery in Hainan island of China has been already established by a foreign company which has claimed to achieve the same level of production. However, this technology has not been widely adopted. Adoption of this technology could boost tilapia farming further increasing many folds as the demand for fish for local consumption is huge, and so the export market. Exploring potential and promoting this technology could bring a big leap in tilapia industry in China from its current level. With a view to assisting the industry, establishing functional linkages between China and Thailand and other countries that facilitate cooperation among the researchers / scholars in sharing information and organizing study visits or trainings to government officials and farm hatchery managers could serve as solutions. This paper describes the techniques and approaches applied by AIT hoping that it provokes policy makers, extension workers, researchers and educators working especially in China, and also other countries to find various ways of collaborations.

This abstract was excerpted from the original paper, which was published in Better Science, Better Fish, Better Life: Proceedings of the Ninth International Symposium on Tilapia in Aquaculture (2011) [Edited By: Liu Liping and Kevin Fitzsimmons] pg: 123-131

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