

# Survey Results: Culture of Sex-Reversed Tilapia in Thailand

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**T**ilapia is an important in Thailand because it is produced and consumed by the least affluent people. A two-week-long telephone survey was conducted by the authors to collect information about sex-reversed tilapia (SRT) culture and fry production, problems faced by the farmers, suitable media for promotion, and other fish species cultivated in conjunction with SRT.

## SRT Production Technology

The Asian Institute of Technology (AIT) has spent over a decade conducting station and farm trials to develop techniques for sex-reversed tilapia fry production, advanced nursing, and growout culture. Its hatchery technology has now been widely adopted by public and private sectors in Thailand, Bangladesh, Brazil, Indonesia, the Philippines, Vietnam, and China.

## Survey Results

A total of 32 growout farmers and eight fry producers were randomly selected. Most of the growers (29) were from the outskirts of Bangkok and its adjacent provinces. Ninety-one percent of the growers produced SRT, and 6% raised mixed-sex tilapia.

SRT were preferred because of their high growth by 16 respondents. Five respondents preferred SRT because of AIT's good name as a pioneer of the technology, and five because of recommendations from other hatcheries. Two respondents preferred SRT based on recommendations from the Department of Fisheries.

Twenty-eight growout farmers were satisfied with SRT culture, while two were not. The reasons for satisfaction included high growth (21.9%), easy to culture (15.6%), low risk (6.3%), at least no loss even when price is low (3.1%) and no recruits (3.1%).

## Growout Farmers

Among tilapia farmers interviewed, farm size ranged 0.5-32 ha and averaged 6.8 ha. The average experience of

tilapia farmers was 7 years at the time of survey, with a range of 1-20 years. Most farmers used greenwater ponds enhanced by manures and/or chemical fertilizers. Average stocking density was 2.65 fish/m<sup>2</sup> (range 0.94-6.25 fish/m<sup>2</sup>).

## SRT Fry

More than half (17/32) the respondents grew fry from AIT, followed by private hatcheries. Six farmers said there were no AIT SRT fry available. Other reasons were lack of contact or communications, and high price (typically 2-3 times higher) compared to mixed sex fry. The average fry purchase per farmer was 83,420 (range 10,000-200,000).

## Growth and Support

Ten growers reported that SRT fish had high and satisfactory growth. Twenty-one farmers have had fish mortality problems. Of these, eight mentioned the problems were serious, indicating that farmers need technical assistance.

All the farmers needed continuous technical assistance. More specifically, 43.5% wanted a growout manual that describes water quality management, disease treatments, and other pond management topics.

## Polyculture

Polyculture systems were common – 80% of farmers surveyed had adopted them. The silver barb (*Puntius gonionotus*), often called Thai carp, was stocked as a secondary species by 14 farmers. This species is preferred in polyculture with tilapia because it is attractive and easy to



Workers collect eggs/larvae at a commercial tilapia farm that produces SRT fry.

breed, serves as a water quality indicator, and is widely used to prepare fermented/processed fish. Another secondary species, used by 20% of farmers, was the Rohu (*Labeo rohita*), an Indian major carp.

## Demand

Among growout farmers, 21 said demand for tilapia meat is increasing, seven reported that it is constant, three

said it was decreasing, and one was not sure about the demand. Twenty-one growers indicated that SRT fish were easy to sell, and four mentioned it was difficult to sell SRT.

### Pricing

Almost all farmers said that tilapia prices were going down compared to the year before, when prices averaged 12.6 baht/kg (range 7-20) for 50-g animals, 19.4 baht/kg (range 10.5-36) for 500-g fish, and 29.2 baht/kg (range 20-50) for 800-g fish. The exchange rate at the time of the survey was U.S. \$1 = 45 baht.

### Fry Producers

Among the fry producers interviewed, average production was 1.37 million fry/month, with the range of 0.2-5 million/month. The experience of the fry production businesses ranged 0.5-20 years and averaged 5.5 years.

Five of the eight hatchery operators interviewed produced SRT with broodstock originally from AIT. Seven owners were satisfied with their SRT fry production business.

### Support

Four owners wanted help from AIT for broodstock improvement, technical assistance, and help for marketing fry to export. All owners wanted joint promotional activities, and six suggested a magazine as the best medium for promotional activities.

### Demand

Three hatchery owners believed demand for SRT fry was increasing, three were not sure, and one said it was constant. Reasons given for increased demand were seasonal flooding and few people were growing tilapia, or more producers shifted to shrimp. The main reason for decreasing or constant demand was availability of wild fish, especially in the Northeast region.

### Conclusion

Findings of this survey characterizes Thailand's sex-reversed tilapia industry and identified problems it faces. Its results should be helpful to tilapia producers, researchers, academicians, extension workers, and policy makers in Thailand and elsewhere.

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