



QUANG NINH CENTER FOR SCIENCE - TECHNOLOGY  
AND FISHERIES SEED PRODUCTION  
TAIWAN JOINT VENTURE FOR MONO- TILAPIA SEED PRODUCTION



**CAPABILITY ON HIGHLY QUALITY TILAPIA SEED PRODUCTION FOR  
COMMERCIAL FARMING TO EXPORT – OPPORTUNITIES AND  
CHALLENGES**

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**POSITION OF AQUALCUTRE SPECIES**

- In the world Tilapia is the second species aquaculture rank below shrimp.
- Tilapia products are favored in USA, EU, Africa...
- China as a the first country of the world produces and exports Tilapia:
  - + Production: 1.4 million tons (in 2014);
  - + Stable export 403,600 tons (2013), 402,000 tons (2014);
- Viet Nam gained export value in 10 months in 2014:  
27,359,000 USD, increasing 180% compared to 2013 (resource from VASEP).



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**OJECTIVES OF VIET NAM**

- Strengthen large, sustainable production scale towards export


Year	Aquaculture Area (ha)	Yield (ton)		
		Total Yield	Sufficient standard for export	Expor,
2015	21,000	140,000	50,000 (35,7%)	30,000 (21,4%)
2020	25,000	200,000	100,000 (50,0%)	80,000 (40,0%)

- Tilapia as main product for export 200-300 million USD/in 2015;
- Tilapia as a main species in restructuring plan for fisheries sector



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Seed production in 2014:

There are 235 units for tilapia seed production and business in the nation:

- There are 44 units for broodstock store (940,000 broodstock);
- Producing 455 million seed
- Adequate quantity for meeting demand;
- Inadequate quality demand for exporting

Farming and exporting in 2014:

- Low productivity and production;
- High production cost, low competitiveness;

This is a great challenge as well as a opportunity for seed production units to change technology, improve quality and effectiveness in tilapia seed production



### **CURRENT STATUS ON TILAPIA SEED PRODUCTION IN VIET NAM(2)**

Challenges from outside:

- Competition to imported seed  
(from Thái Lan previously, from China currently)
- Fraud by enterprises in non-transparency competitiveness Gian lận  
(Mix high and low quality seed)

Main reasons:

- Low quality seed:
  - + Low growth speed (Rate of commercial size is small);
  - + Thin body, Fillet Rate is low;
  - + High FCR;
  - + Ability to adaptation to the environment (temperature, resistance)
  - + Support policy of the State;



### **CURRENT STATUS ON TILAPIA SEED PRODUCTION IN VIETNAM (3)**

#### **Causes of low quality seed:**

- Vietnam only has projects to import and transfer high quality species combined with seed selection to improve seed quality ( from Egypt, Thailand, Taiwan, GIFT, Israel ...)
- There is no national program for tilapia seed selection to supply high quality post-larval stock for the hatchery;

## CURRENT STATUS ON TILAPIA SEED PRODUCTION IN CHINA



- China has a national program for tilapia seed selection and project for tilapia aquaculture improvement in China:
- + This program is ordered and funded by the seed production and processing, export enterprises;
- + At Ocean university, Shanghai, China, the tilapia seed generation grow extremely fast to be bred: Su Yen, Extremely Speed, Duong Nghiep, Cat Phu;



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## CURRENT STATUS ON TILAPIA SEED PRODUCTION IN CHINA

Phu Cat Fish is the latest breeding lines have many advantages such as:

- + species is have exceptional growth rates;
- + Small head, short body, thick body, large meat ratio (ratio of meat Fillet increased 5%);
- + High disease resistance, particularly good cold tolerant and can be grown over winter (at 10 ° C, the fish still catch bait and growth).
- + FCR lower than 1.3.

This is a suitable species to develop production of goods for export.



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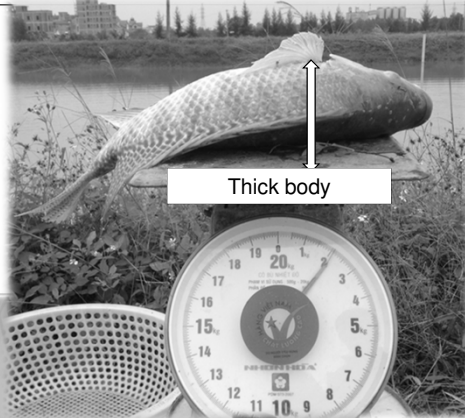


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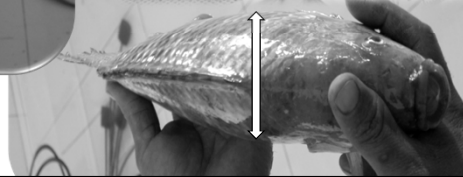
### CAT PHU MONO-TILAPIA



Small head



Thick body



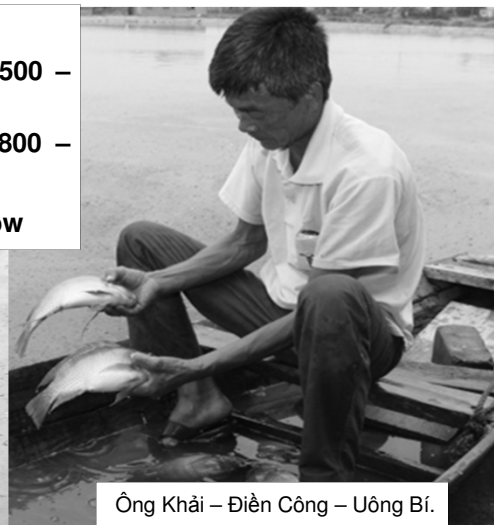
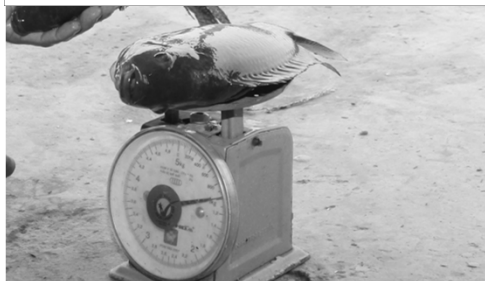
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### CAT PHU MONO-TILAPIA

- Seed 200 - 300 units/kg
  - + 4 culturing months, weight of 500 – 700 g/fish,
  - + 6 culturing months, weight of 800 – 1.100 g/fish.
- At 10°C, fish still catch bait and grow



Ông Khải – Điền Công – Uông Bí.



### **TILAPIA PRODUCTION IN UNIT**

- Taiwan Joint venture of mono-tilapia seed production is a collaboration between Quang Ninh center for science - technique and fishery seed production, Taiwan specialist on tilapia seed production .
- Joint venture has applied the advantaged technique of Taiwan and China in tilapia seed production.



### **TILAPIA PRODUCTION IN UNIT**

- Since the year 2006-2012, seed production facilities have mono-tilapia production of Taiwan by the way of crossing generation between *Oreochromis niloticus* X ♂ (*O. Aureus*) Taiwan line
- Results gain the seed with rapid growth, thick body and tasty meat.

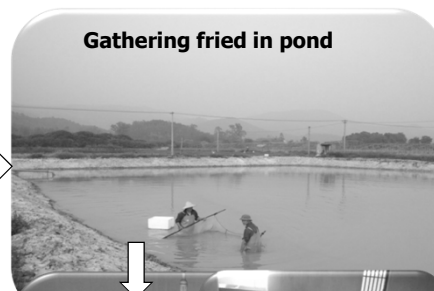
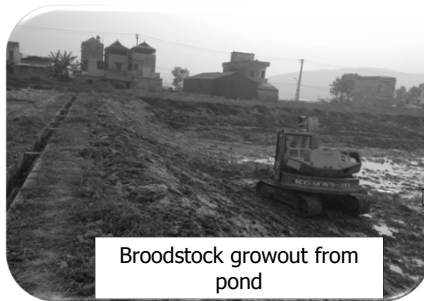


### TILAPIA PRODUCTION IN UNIT

- Since 2013, the facility has improved basically seed production methods and replace broodstock of Phu Cat breeding line of China:
- Currently, the facility has produced 80-100 million larva/ year mainly supply the Northern provinces, some Mekong Delta provinces and partly exported to Malaysia.



### IMPROVEMENT OF PROGRESS





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**21 Culturing – day process**



**Pair combination**



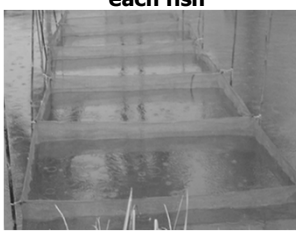
**Egg selection from each fish**



**Experiment of same development period of egg**



**Hatchery at the tray**



**21 - day hatcherring**

- Long production time;
- High production cost;
- low seed production;
- Hard Goods Production



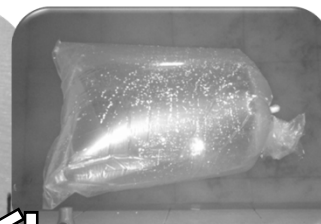
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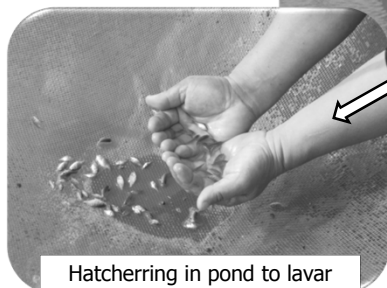
**Gather fries in pond in the morning and afternoon**



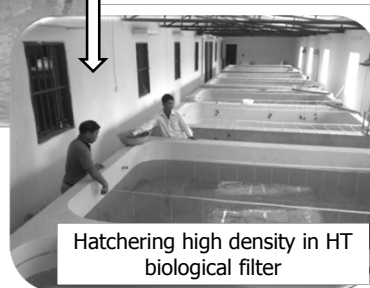
**Filter 14-day lavars**



**Put into water at 17a MT  
T° 32 °C**



**Hatcherring in pond to lavar**



**Hatcherring high density in HT  
biological filter**





In summary, the ability on high quality tilapia seed production to export of seed production facilities in the country is totally feasible.



### PROPOSALS (1)



- (1) It should have a national program for tilapia seed selection to provide high quality larval stock for seed production facilities in the country;
- (2) In short term, when there is no supplying resource of standardized domestic broodstock, the State should support seed production facilities to import tilapia broodstock to produce timely supply to ensure quality seed to farmers;
- (3) Strengthen the State management of tilapia seed quality to limit the production and supply of insufficient standardized quality tilapia. Introduce and orient of market to use ensured quality tilapia seed for farmers;



### **PROPOSALS (2)**

(4) The state should enact policies on support to reduce seed production and grow-out cost of tilapia, boost exporting markets, increase the competitiveness of tilapia of Vietnam (support to feed, infrastructure, farming areas, free supply for clean water to farming areas, export processing aids ...);

(5) planning and good management of tilapia farming plan in the country. Build and implement the project on improvement of tilapia farming in Vietnam in which has the important contents:

- Tilapia farming under rules of VIETGAP and other international standards required by importers in both forms of ponds and cages for tilapia development towards a sustainable way;



### **PROPOSALS (3)**

-Tilapia culturing in the area intensive areas combined with the research and evaluation of environmental impacts through measuring water quality and farming systems (ponds, reservoirs), assess disease risks and recommend prevention and treatment measures.

- Organize conferences to strengthen capacity of the supply chain on feed, drug, chemical, biological products, seed varieties and farmers; introduce to farmers the standards and requirements of the procurement and processing facility, for the tastes of the importers in particular raising awareness of farmers on environmental issues;



Thank you !