

Social and technical assessment of fish grow-out culture practice in the frame of cooperative  
in Tan Yen district, Bac Giang province

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## **1. Introduction**

In the last ten years, along with rapid aquaculture development of the country, freshwater aquaculture in mountainous regions has been significantly changed, and contributed greatly to improve nutritional diet and income of local families. Apart from family consumption, cultured fish are also sold in local markets and neighbor provinces.

As of a northern mountainous region, Bac Giang province has advantages for development of aquaculture including small ponds, rain-fed rice fields and other types of water bodies. In recent years, it has shown clearly. In 2006, the total area of fish farming in Bac Giang province was 10,000 ha with production reached 11,000 tons. By the end of 2009, cultured area rose up to 12,000 ha, and its production increased to 16,000 tons. The rapid increase in culture area recently can be explained by better recognition of aquaculture role and a new policy of the government which allows shifting the land from low to higher productivity activity.

Tan Yen is one of districts of Bac Giang province where aquaculture has been

developed far more in comparison with other districts. According to Agriculture Department (DARD), a total of fish cultured areas in 2008 reached 800 ha. However, aquaculture production is still limited due to low productivity and mostly practiced at small scale production. And aquaculture activities are mainly at family scale with an average productivity of 3.5 ton/ha. Recently, establishment of aquaculture cooperative has been shown as a better model of aquaculture production. However, only a few fisheries co-operatives have high productivity and output, most of them are under poor organization and management giving low production efficiency. In the effort to define more clearly advantages of the model, an investigation on “*Social and technical assessment of fish grow-out culture practice in the frame of cooperatives in Tan Yen district, Bac Giang province*” was conducted under the internship program.

## **2. Objectives**

- Assessing social and technical aspects of grow out fish culture model in the context of cooperative production.

- Suggesting solutions to promote effectiveness of aquaculture activities under cooperative operation and management.

### **3. Methodology and Study sites**

The research was conducted in aquaculture cooperatives in Tan Yen district, Bac Giang province.

Secondary data was gathered from provincial DARD, Tan Yen districts and from cooperatives including annual reports, relevant documents, while primary data was collected from local farmers and manager's interviews. Collected data was treated and analyzed using Excel 2003.

## **4. RESULTS**

### **4.1. Reality of aquaculture models**

#### *Fingerling and its source*

At the beginning of fish pond application, fingerling was normally of low quality from wild collection and local vendors without any information of origin. However, since establishment of cooperative, all members have discussed to define better seed sources. And better quality of fingerlings was purchased together from well-known hatcheries in the province. For traditional carps, monosex tilapia and hybrid common carp, the cooperative often contracted to purchase from the National Broodstock Center of Freshwater Fish (RIA.1).

#### *Feed and feeding practices*

Traditionally, individual farmers applied extensive culture with low investment of feed and resulted in low productivity. Aware of the issues, farmers under cooperatives had contracted with DABACO feed production company (based in Bac Ninh province) to supply farmers with a large amount of feed of high quality feed and lower price.

#### *Fish pond management*

All members from cooperative participated in fish pond management including feeding and water exchanging. In the early stages, fish were fed mainly at 3-6% of their total body weight, and reduced to 2-3% of their body weight when its size reaches 500-600g.

#### *Harvest*

Harvesting fish was implemented on the alternative basic. A single of fish pond harvested and then prepared for the next culture season.

#### *Consumption market*

Harvested fish was sent to consumers via focal points inside province and outside to neighboring provinces including Thai Nguyen, Ha Noi, Hai Phong.

#### *Cost-Benefit Analysis*

With the pond model of 3000 m<sup>2</sup>.

Input costs:

Fingerlings: Mono sex tilapia: 5000 fish = 3.200.000VND

Other fish species: 1.500.000 VND

Feed: 2.500 kg = 25.000.000 VND

Other expenses: 5.000.000 VND

Total input: 34,700,000 VND

Harvested fish: Tilapia: 2,200 kg x  
17,500VND/kg = 38.500.000VND

Other fish: 1.200kg x 16.000VND =  
19.200.000VND

Total income from the model:  
57.700.000VND

Net Profit: 23.000.000VND (Twenty-  
three million VND) within six months.

#### *Social and community impact*

Aquaculture practices in the studied area has attracted all members from cooperative and created jobs and employments for farmers thus avoiding social disorders and evils due to unemployment issue. On the other hand, fish farming in cooperatives helps people more united, and when a household had work to be done, the cooperatives would help.

#### *Economic outcome*

The fish farming model was far more profitable than rice cultivation. A family could have an income ranging from 20 to 25 million VND in the six months of rising. Thus a year's income for a farming family would be of up to 40 million VND.

#### *Efficiency of aquaculture co-operatives development*

Building a model of fish farming with the link between the families through the cooperative is an indispensable requirement of the society. There are many encouraging policies from Central

party and local government for households to focus on enhancing production capacity. The fish farming practice under a frame of cooperative would be likely to approach exporting purpose like cooperative model of Tra and Basa catfish farming in Southern Vietnam.

#### 3.2. Suggested solutions

From the results of investigation some solutions would be drawn as followings:

##### *Technical solution*

Fingerlings with better quality should be provided for the model's production. Apart from traditional species, it is necessary to put more species of higher economic value such as riverine catfish, snakehead.

More investment on water supply system and infrastructure need considering for more convenience of seed production, feed distribution and products marketing. Besides, there is a need to organize technical trainings on fish culture techniques for farmers, local extension staff.

##### *Fish seed production*

Hatcheries should be developed at families if there are households having necessary conditions. This would be a good solution to increase farmers' income as well as actively providing the source of fingerlings for grow-out culture models.

##### *Extension work*

There is a strong requirement to conducts more technical trainings, transfer of

technology in aquaculture to farmers, as well as setting up more demonstration models widely to communities within the province, organizing exchanged visits and technical seminars to share aquaculture experience and its operation under a cooperative.

*Market solutions:*

It is necessary to promote links between business people with farmers so that they will feel more secure when there is greater consumption from markets.

*Government policies for aquaculture development*

Longer land allocation should be assigned to local people for sustainable investment in aquaculture practices, and many fish framings are relatively large in scale would be formed for higher fish production. There is still a need for more capital support from government in the form of credit loan, more establishments of associations and cooperatives of aquaculture farmers would give a great support to farmers.

## **5. Conclusions**

- The establishment of aquaculture cooperatives brought much benefit to farmers in aquaculture activities.

- The members of cooperatives were more knowledgeable, effective and secure in fish culture practices from breeding to marketing their products resulting safe and sustainable fish framings.

- Local government line management bodies should take measures and promulgate the suitable policies to develop aquaculture cooperative model.

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*Some pictures taken during investigation*





