SEED SELECTION FOR TRA CATFISH IN ORDER TO ENHANCE GROWTH RATE AND FILLET RATIO
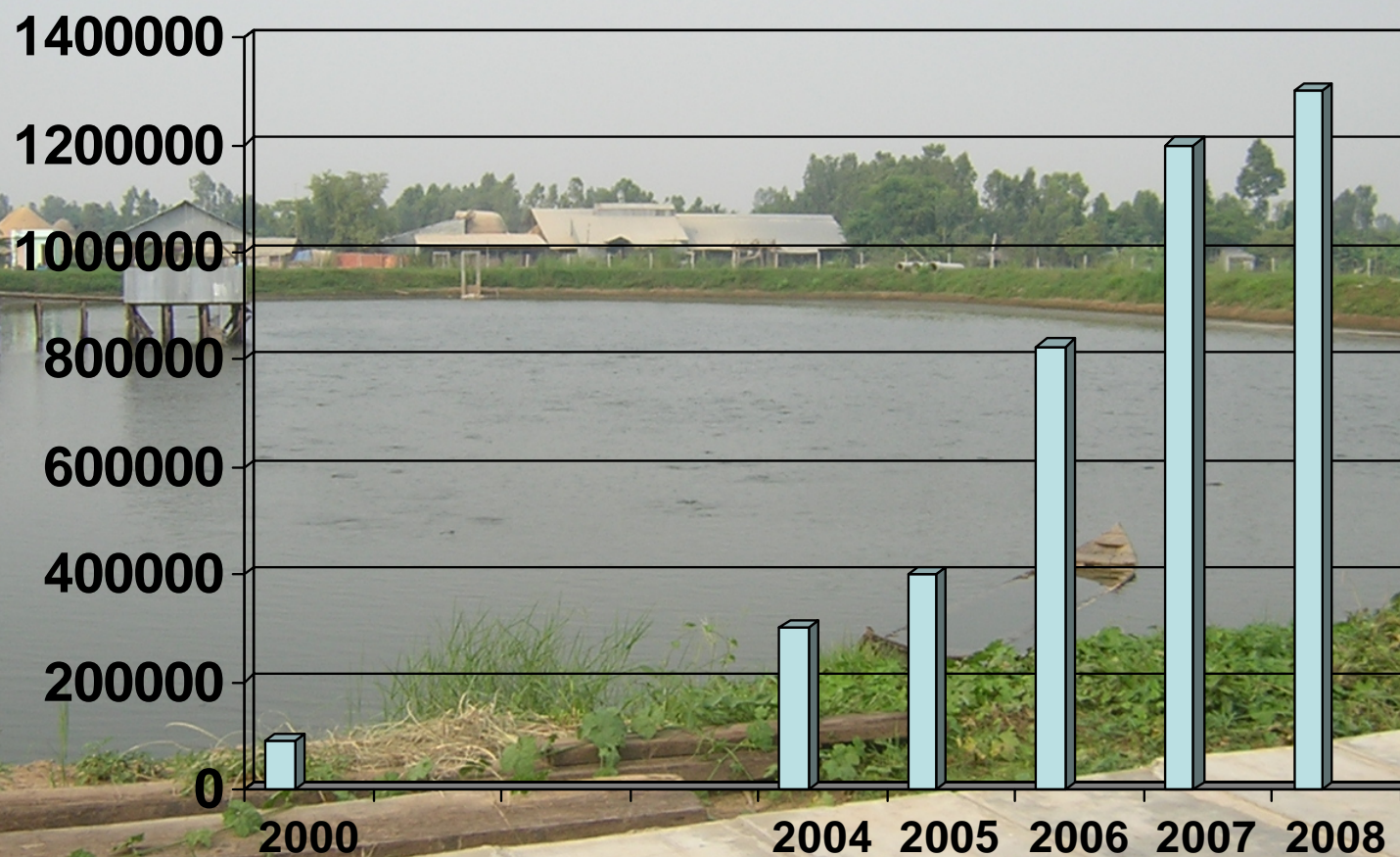

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1. INTRODUCTION

Aquaculture production

Urgency and appropriateness

+ High ability of breeding: it is easy to cause inbreeding in the future. At the moment, there have already been complaints by the farmers about low survival and growth rate.

+ Farmers: prefer fishes with high growth rate and less diseases.

+ Export processing plants: prefer fishes with high fillet ratio, with traceability records and start paying attention to quality indicators, e.g. flesh color, fat, etc. õ

+ Research capacity:
      - Learning from the experiences in seed selection programs inside and outside the country.
      - Staff training

Successful seed selection programs

- Characters
+ Growth
+ FCR
+ Sexual maturation
+ Flesh color
+ Fillet ratio
+ Disease resistance
+ Cold tolerance
+ Feed taking ability

- International Programs
    + Salmon
    + American catfish
    + GIFT Tilapia
    + Common carp
    + Rohu
    + Vannamei and tiger shrimp
    + Green giant prawn

- Programs in Vietnam
    + Common carp
    + Tilapia
    + Silver carp
    + Tra fish
    + TCX

Objective of seed selection

- To create a population of Tra catfish with high growth rate and high fillet ratio

Create population for seed selection

Estimation

Genetic ratio, genetic correlation

Application

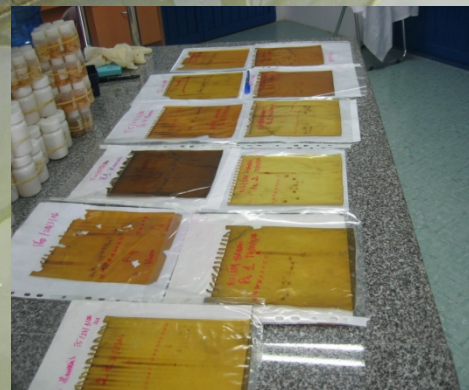Objectives and methods of seed selection

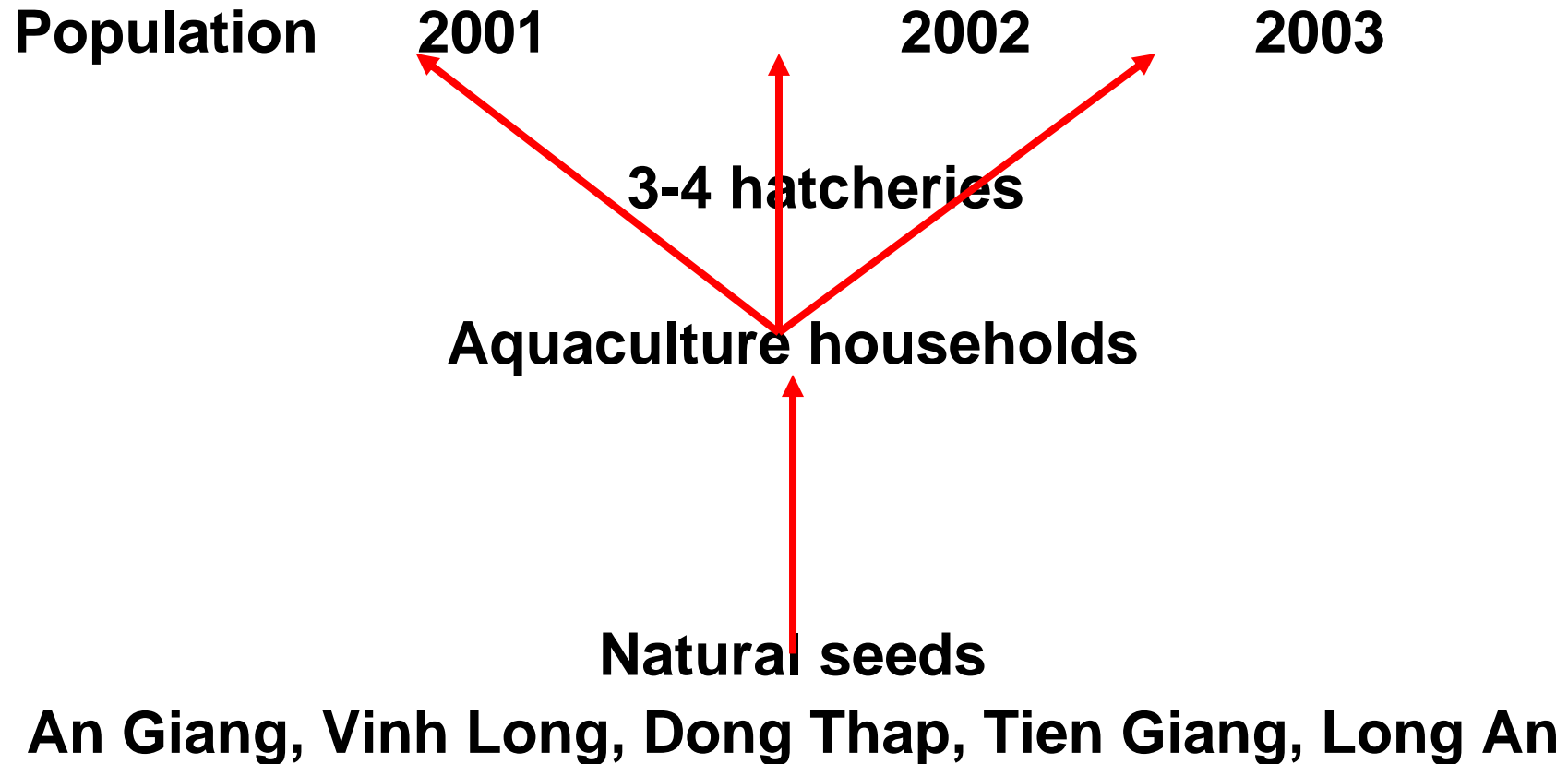Selection

Selection effectiveness

Disseminating the selected fish

II. MATERIALS AND METHODS

Population for seed selection

Population   **2001**   **2002**   **2003**

3-4 hatcheries

Aquaculture households

Natural seeds
An Giang, Vinh Long, Dong Thap, Tien Giang, Long An

Population for seed selection

2001	2002	2003
- Selection of individuals, body weight	- Selection of individuals, body weight	- Selection of families, characters of weight and fillet ratio
F1: was produced in 2005	F1: was produced in 2006	F1: was produced in 2007
Calculation of genetic parameters: 2006	Calculation of genetic parameters: 2007	Calculation of genetic parameters: 2008

- Selected: 462
- Compared: 120

Partial factorial

95 M x 97 CF

162 families

3,000

170 days

75 ind./family
(12,190)

279 days

Reading PIT
marking

158 families

17.5 ind./family
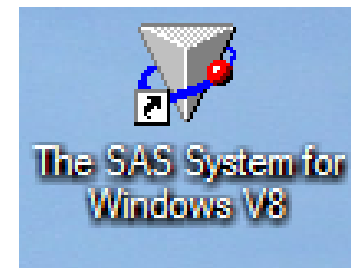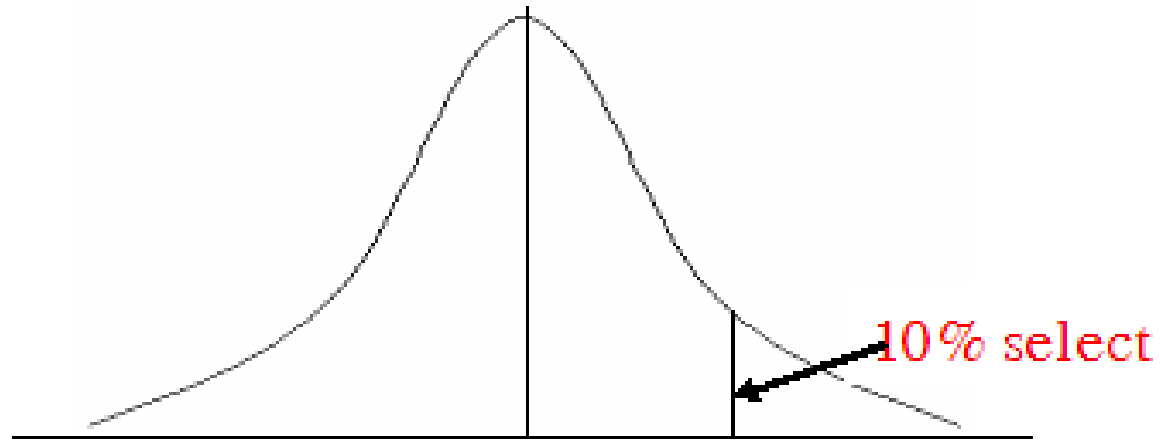(2,767)

Data processing

- Linear equation for
  combined individuals

- Genetic parameters
  + Genetic ratio
  + Genetic correlation
  + Selection effectiveness

- Softwares:
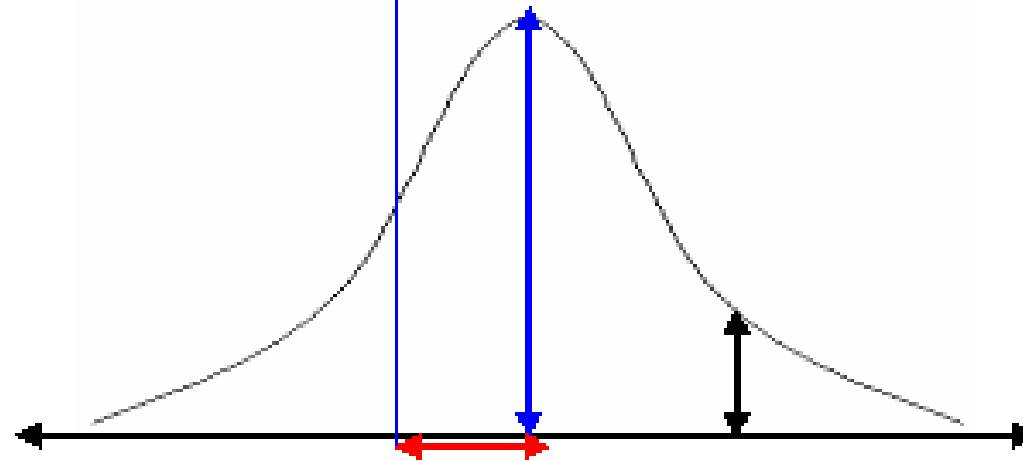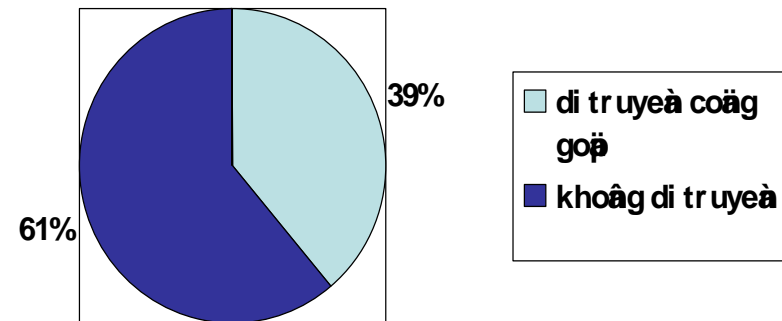
G1

10% select

III. RESULTS

G2

R=13%

Form variability

Characters	Average	STD	CV (%)
Body weight (g)	925.80	370.54	40.02
Fillet weight (g)	322.26	114.55	35.54
Fillet ratio (%)	35.60	7.00	19.66

Genetic ratio

Characters	Average
Body weight (g)	0.39 ± 0.11
Fillet weight (g)	0.40 ± 0.08
Fillet ratio (%)	0.08 ± 0.02

39%

61%

di truyeàn coäg goäp

khoâg di truyeàn

Genetic correlation

	Body weight	Fillet weight	Fillet ratio
Body weight			
Fillet weight	0.96 ± 0.02		
Fillet ratio	0.35 ± 0.18	0.61 ± 0.17	

Estimated effectiveness (R)

	i (p=15%)	h^2	STD	R	R(%)
Body weight	1.6	0.39	370.54	231.22	25.0
Fillet ratio	1.6	0.08	7.00	0.90	2.5

Actual effectiveness
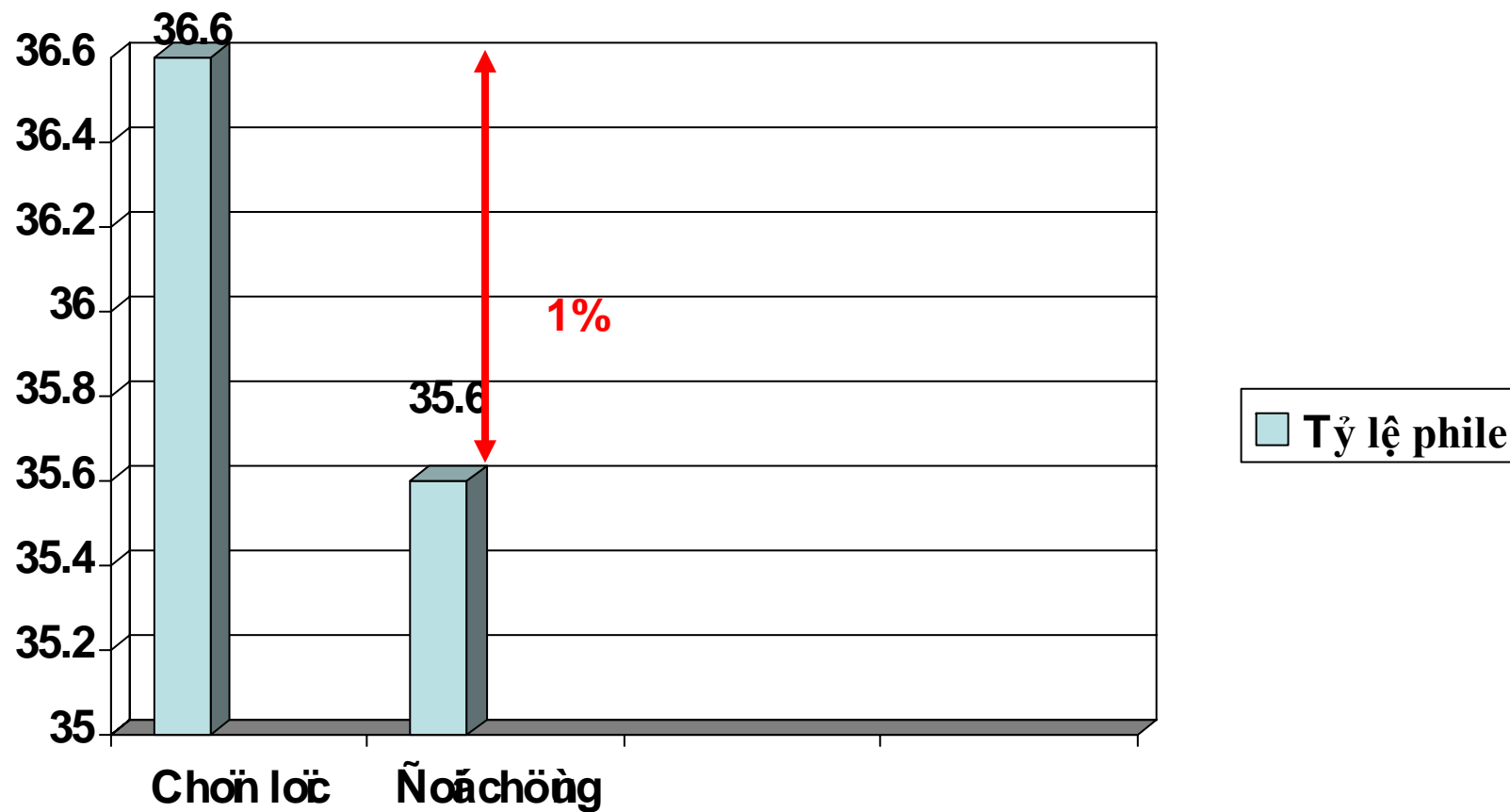
Initial effectiveness at household level ä

- **Nursing households:**
  - Less disease, high survival rate
  - High growth rate

- **Farming households:**
  - High growth rate
  - Less disease

# Characteristics of the population for seed selection

- High genetic variability: tolerance

- Traceability

- High growth rate and high fillet ratio.

Application possibility

✓ Population for selecting the next generation: 600 individuals/year

✓ Distribution of broodstocks for experimental production: 10,000 broodstocks

✓ Possibility to provide seeds and fish for seed selection:

➢ Seeds: 10,000 ind./year
➢ Larvie: 20 mill.
➢ Fries: 500 mill.

IV. CONCLUSIONS

- - High genetic ratio for body weight and fillet weight.

- - The selected population possessed 12.4% higher growth rate than the unselected one.

- - The selected population is ready for production and distribution
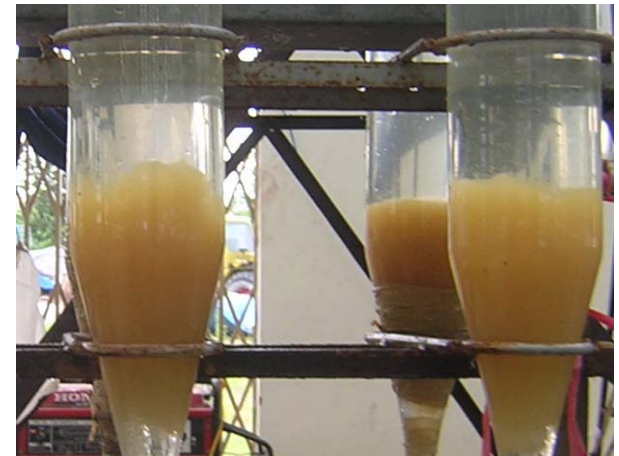
Recommendations

- To continue seed selection, based on the characters of growth rate and fillet ratio.

- To include the characters of disease resistance for pyoderma liver and kidney.

- Application of molecular biology in seed selection.

- Selection of a large number of seeds for distribution.

CÁ TRA BỐ MẸ

CÁ CÁI

Thank you very much!

CÁ TRA GIỐNG

CÁ TRA BỐ MẸ HẬU BỊ