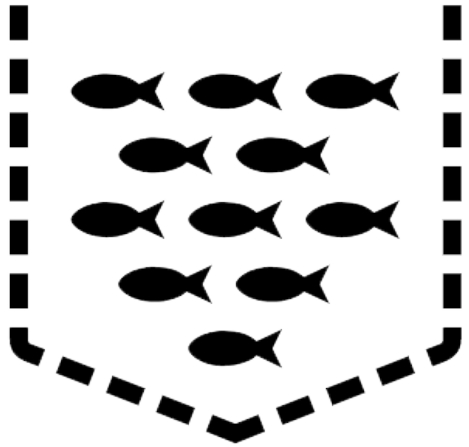
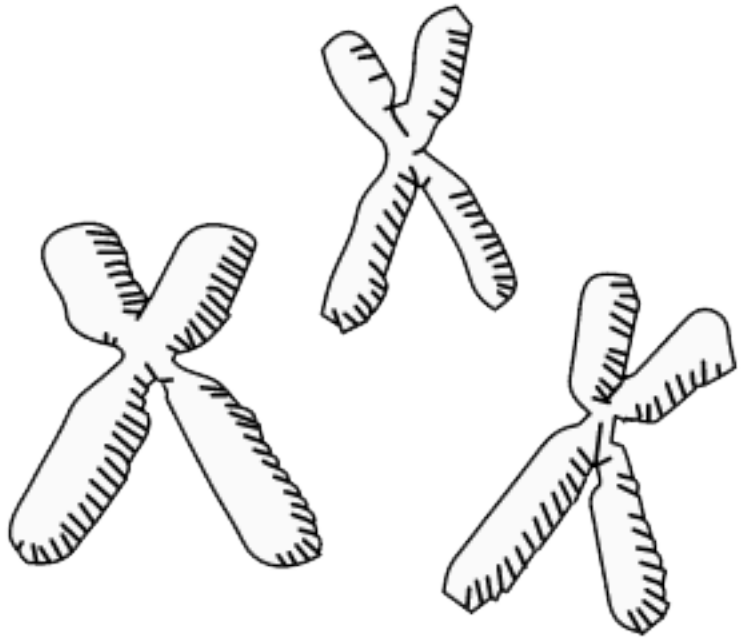
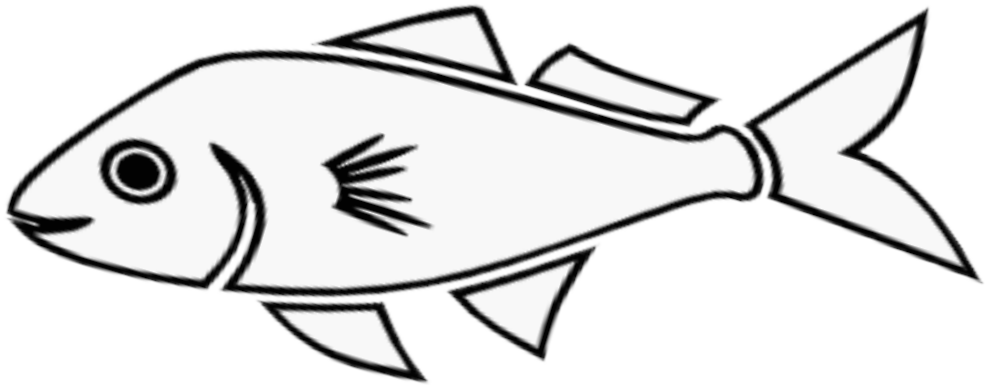


AQS 224 Fish Breeding

Dr. F. Sertel SEÇER





1. Week Domestication, Genetic Improvement Practices in Aquaculture

2. Week Selective breeding / production in seafood

3. Week Theoretical Foundations of Cultivation and Selection

4. Week Breeding Programs

5. Week Strategies for Breeding

6. Week Selection and Mating Design Methods

7. Week Estimation of Breeding Values

8. Week Genotype and Environment Interaction

9. Week Calculating the Selection Response

10. Week Side Effects in Fish Breeding Practices

11. Week Biotechnology in Fish Farming

12. Week Reproduction Techniques in Fish Breeding 1

13. Week Reproduction Techniques in Fish Breeding 2

14. Week Economic Evaluation of Fish Farming

9. Week

Calculating the Selection Response

- Control Population
- Average Breeders
- Repeated Matings
- Genetic Trend Analysis

There are several important reasons for why a breeding program should implement methods for monitoring realised genetic gain:

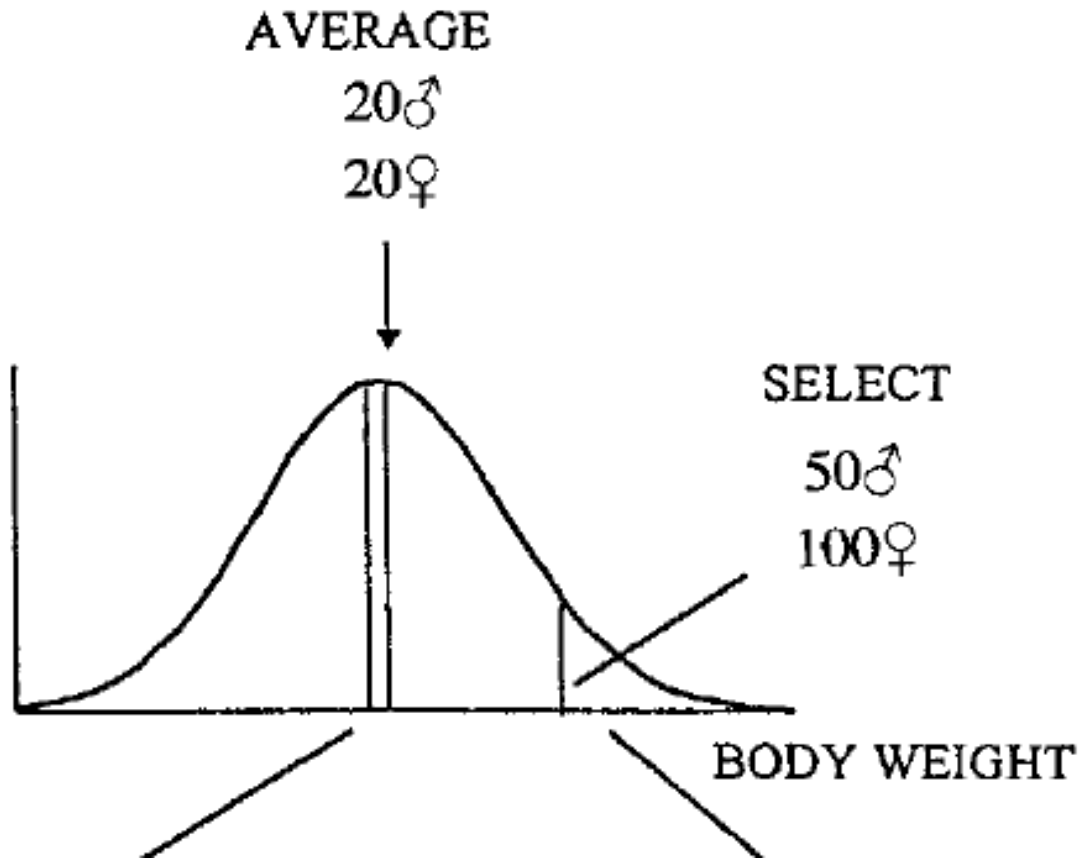
- To document the magnitude of genetic gain for each trait in the breeding goal
- To assess whether the predicted genetic gain is actually being reached
- To identify the main factors responsible if this predicted gain is not reached.

Gjedrem, T., & Baranski, M. (2010)

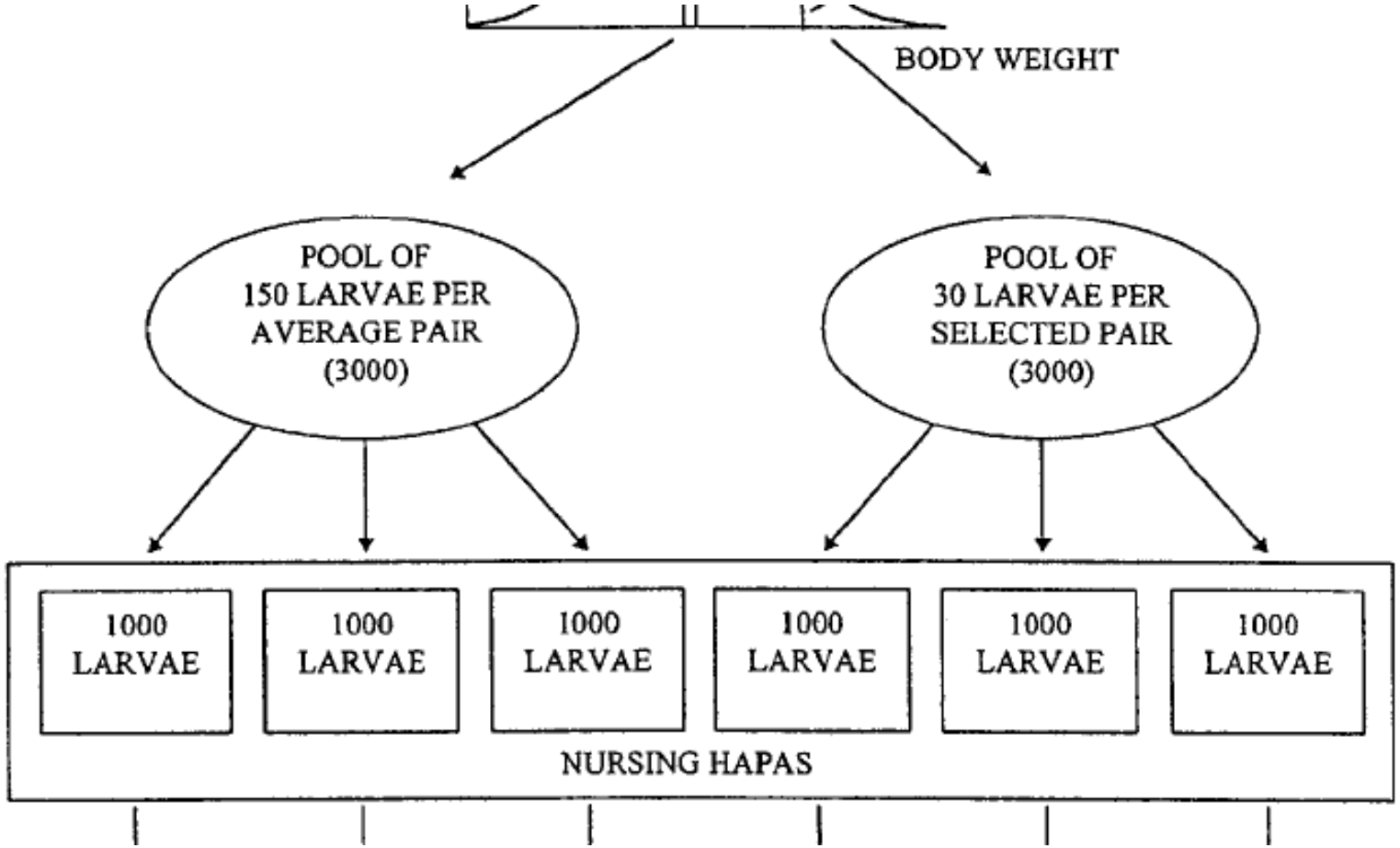
The response to selection (ΔG) is estimated as the difference in mean performance between the selected ($P_{selected}$) and control line ($P_{control}$):

$$\Delta G = P_{selected} - P_{control} \quad (11.1)$$

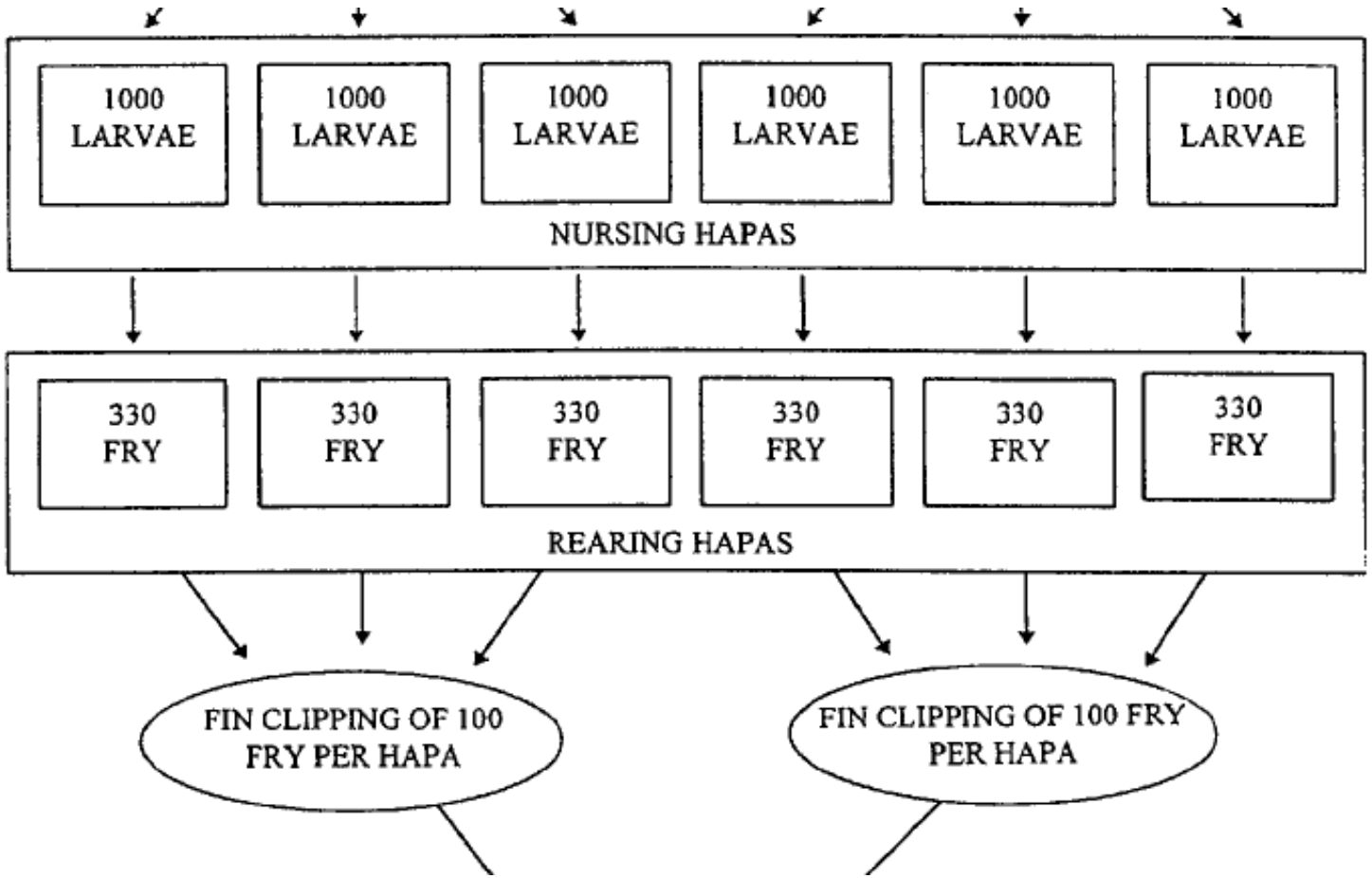
Gjedrem, T., & Baranski, M. (2010)



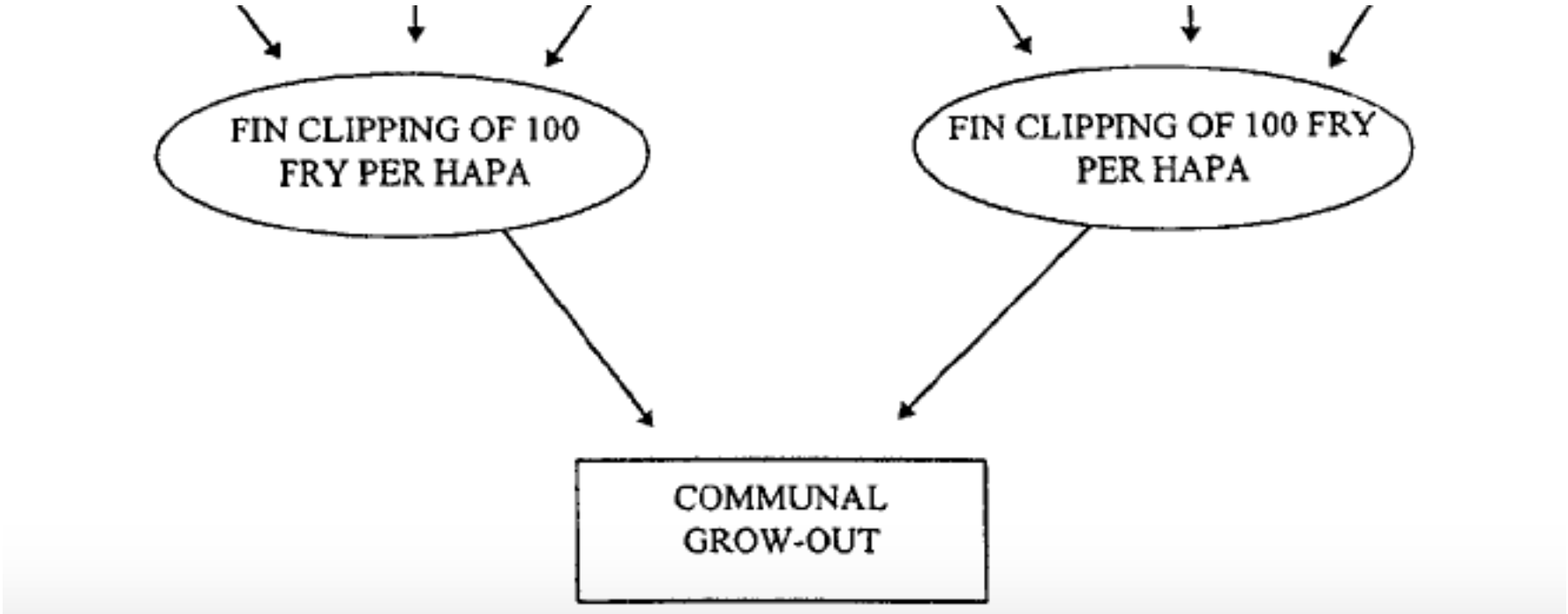
Gjedrem, T., & Baranski, M. (2010)



Gjedrem, T., & Baranski, M. (2010)



Gjedrem, T., & Baranski, M. (2010)



Gjedrem, T., & Baranski, M. (2010)

- The difference between the groups will represent half of the genetic gain since the sire represents only half of the genetic contribution:

$$1/2\Delta G = P_2 - P_1 = (G_2 + E_2) - (G_1 + E_1) \qquad (11.3)$$

when $E_1 = E_2$ then

$$1/2\Delta G = G_2 - G_1 \qquad (11.4)$$

and

$$\Delta G = 2(G_2 - G_1) \qquad (11.5)$$

Gjedrem, T., & Baranski, M. (2010)

Reference

- Gjedrem, T., & Baranski, M. (2010). *Selective breeding in aquaculture: an introduction* (Vol. 10). Springer Science & Business Media.