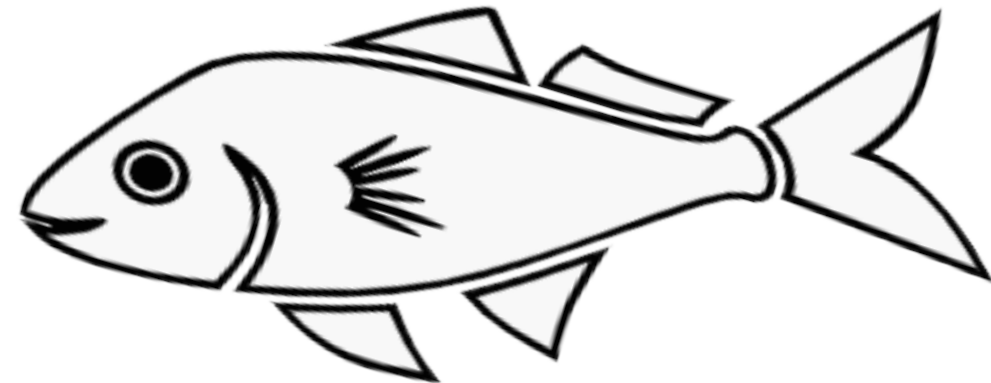
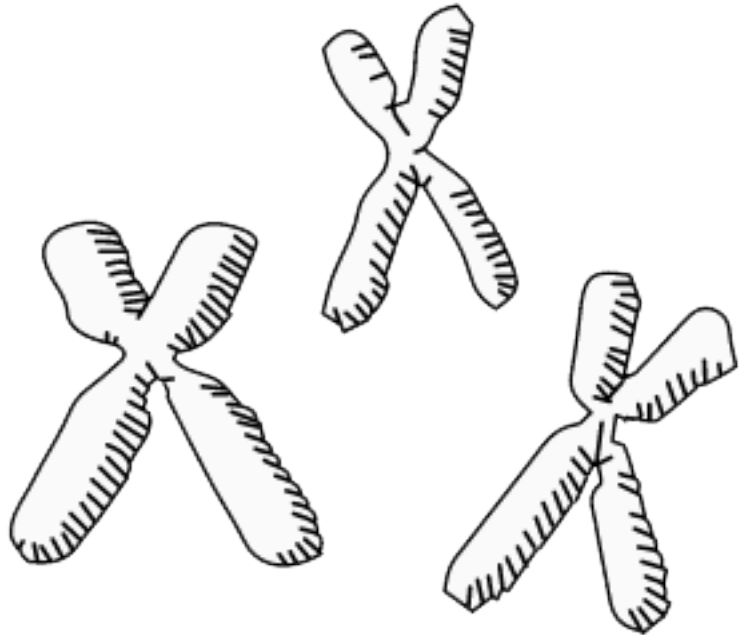


AQS 224 Fish Breeding

Dr. F. Sertel SEÇER

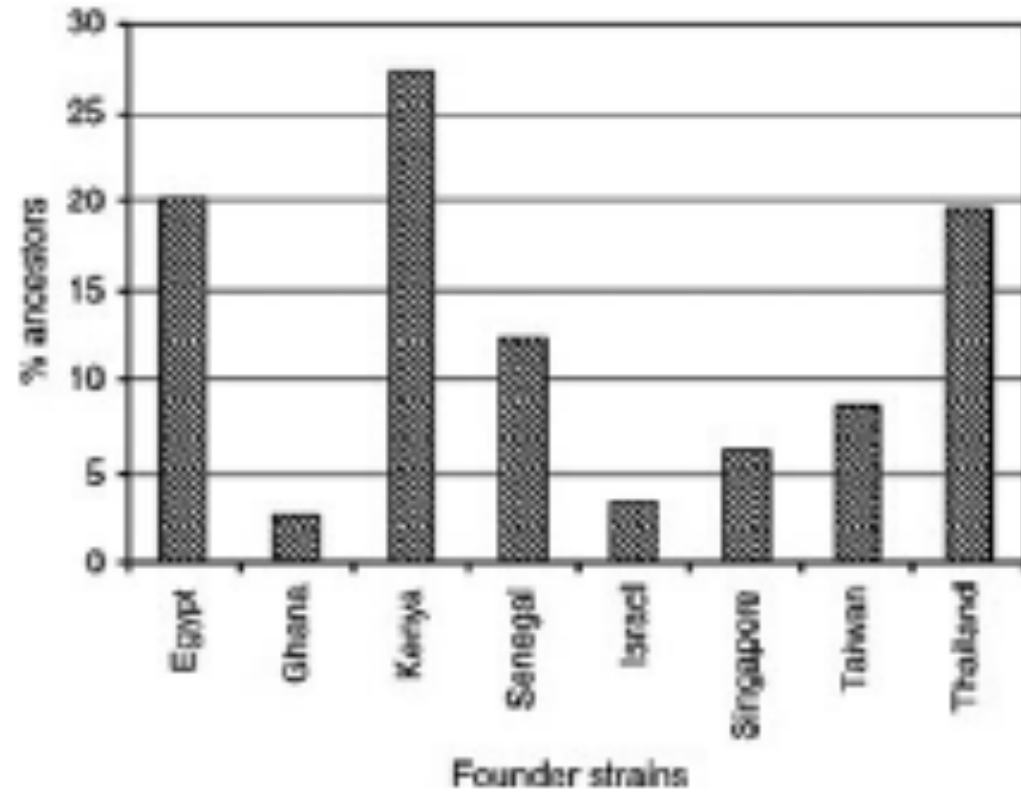


1. Week Domestication, Genetic Improvement Practices in Aquaculture
2. Week Selective breeding / production in seafood
3. Week Theoretical Foundations of Cultivation and Selection
- 4. Week Breeding Programs**
5. Week Strategies for Breeding
6. Week Selection and Mating Design Methods
7. Week Estimation 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

4. Week

Breeding Programs

- The Fundamental Basis of a Breeding Program
- Establishment of a Base Population
- Breeding Goal
- Registration of Records
- Adjustment of Data



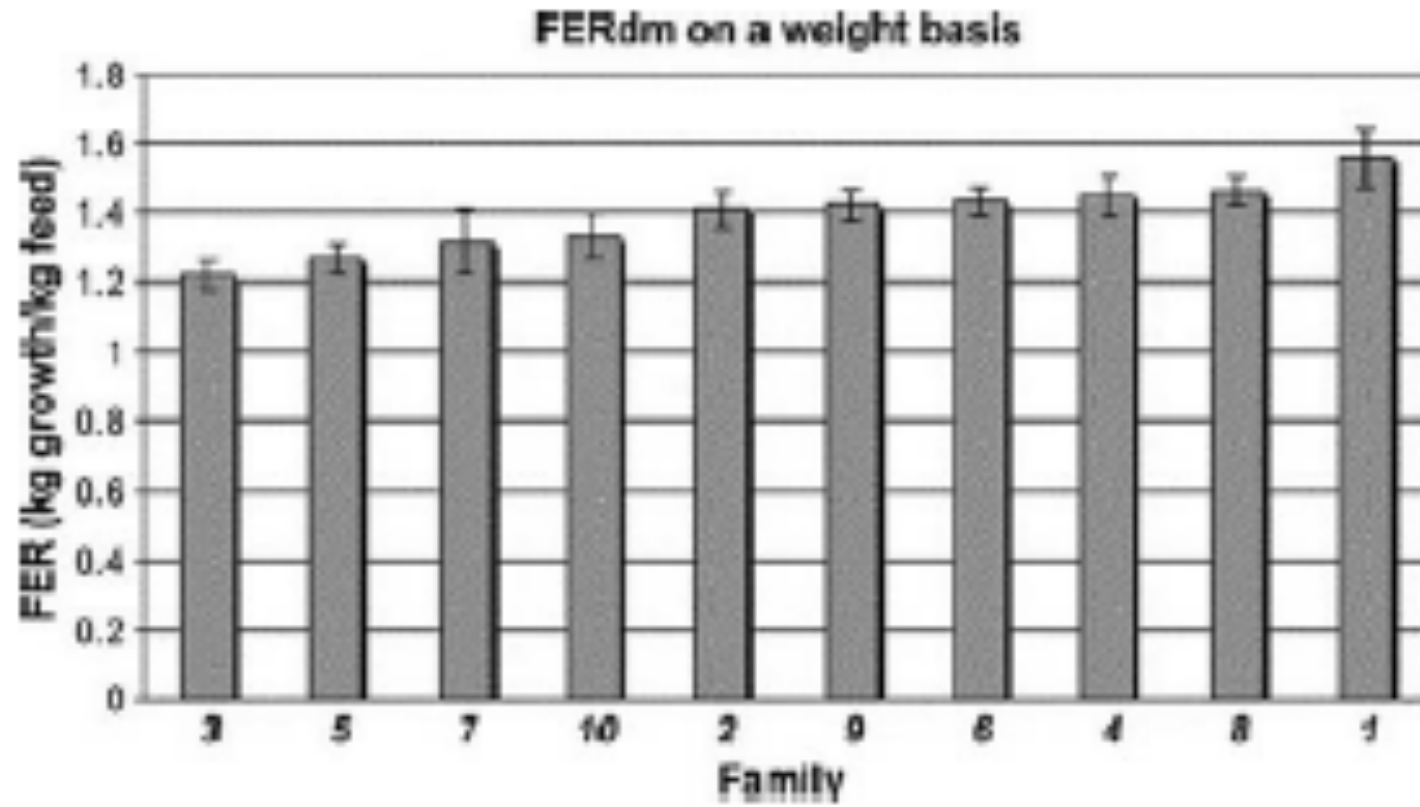


Table 5.1 Genetic correlations between different measurements of survival and growth rate

Trait	Genetic correlation	Reference
Survival, fingerlings, brook trout	0.3	Robison and Laemp. (1984)
Coldwater vibriosis., adult, salmon	0.18	Standal and Gjerde (1987)
Survival, fingerlings, Atlantic salmon	0.37	Rye et al. (1990)
Survival, fingerlings, rainbow trout	0.23	Rye et al. (1990)
Furunculosis, challenge, Atlantic salmon	0.30	Gjedrem et al. (1991b)
Survival, fingerlings, Atlantic salmon	0.30	Jonasson (1993)
Fungal infection, Arctic char	0.50	Nilsson (1992)
Survival, fingerlings, Nile tilapia	0.20	Eknath et al. (1998)
VHS, fingerlings, rainbow trout	-0.14 to -0.33	Henryon et al. (2002)
Taura syndrome, challenge, <i>P. vannamei</i>	-0.12	Fjalestad et al. (1997)
Survival pond/tank, <i>P. vannamei</i>	0.40 to 0.42	Gitterle, et al. (2005)
WSSV, challenge, <i>P. vannamei</i>	-0.55 to -0.64	Gitterle, et al. (2005)
No. of sea lice, Atlantic salmon	0.37	Kolstad et al. (2004b)

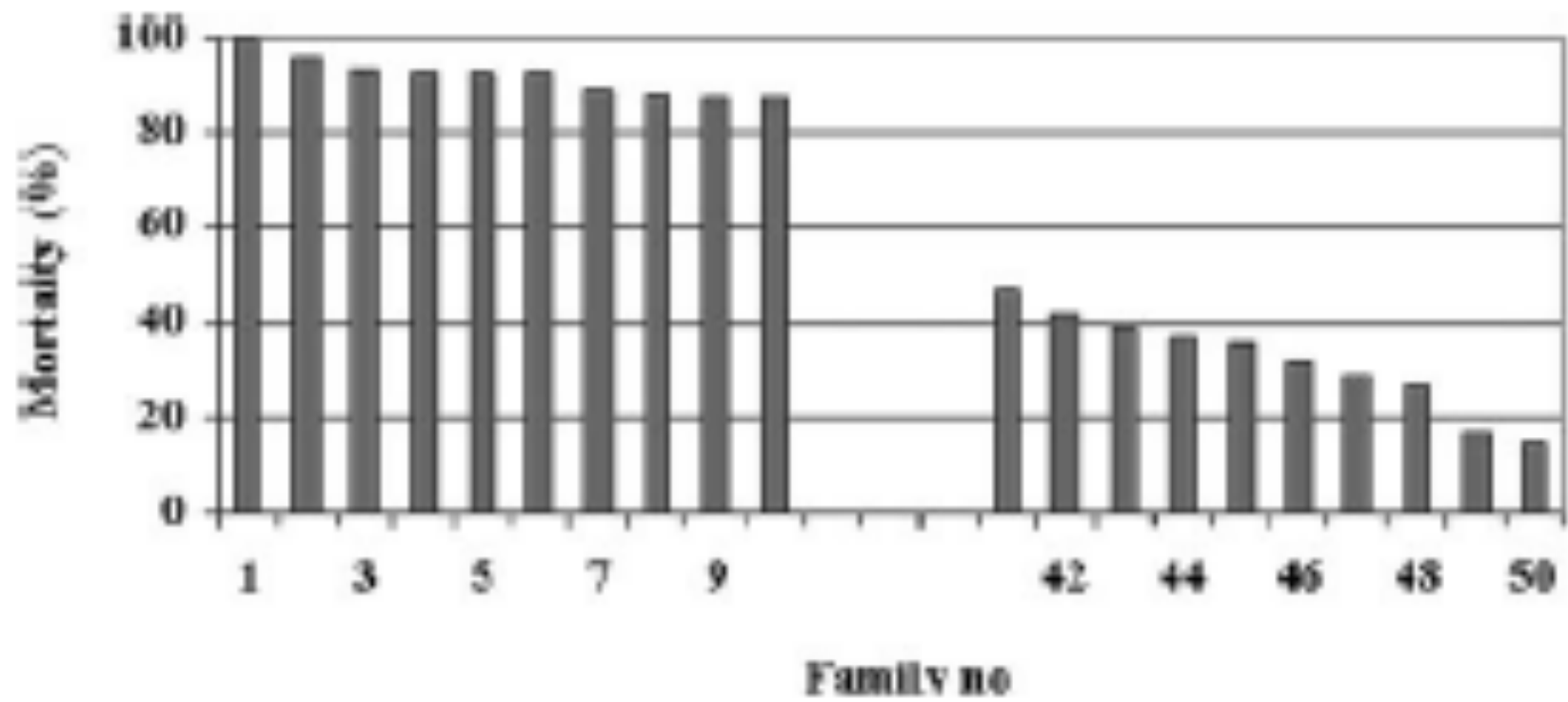


Table 5.2 Yield of Atlantic salmon carcass. Reproduced from Kittelsen et al. (2002) by permission of Gan forlag

Part of fish carcass	Percent
Whole fish	100
Gutted carcass	85
Gutted without head	75
Fillet without backbone	69
Fillet without backbone and earbone	61
Fillet without backbone, earbone and pinbone	60

In aquaculture farming:

- Growth rate
- Disease resistance
- Quality traits
- Age of sexual maturation (for some species).

In sea ranching:

- Recapture frequency
- Growth rate.

Table 5.3 Average body weight (kg), standard deviation (σ) and CV for female, male and immature rainbow trout and Atlantic salmon

Sexes	Rainbow trout			Atlantic salmon		
	Body weight	σ	CV	Body weight	Σ	CV
Female	3.71	0.85	23	4.75	1.09	23
Male	4.16	0.95	23	5.75	1.38	24
Immature fish	3.08	0.98	32	3.61	1.26	35

Reference

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