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▶ **To cite this version:**

T. Gjedrem. SELECTION FOR GROWTH RATE AND POSSIBILITIES FOR GENETIC CHANGE IN ATLANTIC SALMON. Annales de génétique et de sélection animale, 1978, 10 (4), pp.602-602. hal-00893091

HAL Id: hal-00893091

https://hal.science/hal-00893091v1

Submitted on 11 May 2020

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SELECTION FOR GROWTH RATE AND POSSIBILITIES FOR GENETIC CHANGE IN ATLANTIC SALMON

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The possibility for genetic change in production traits of salmon looks good when considering the magnitude of genetic variation together with the selection differential which can be applied. At the *Fish Breeding Experimental Stations* Sunndalsøra and Averøy a selection programme is being carried out. Selection for body weight is based on strain, full- and half sibs and individuals information. Strongest selection was applied on weight after two years in the sea. The first generation respons of salmon fingerlings to selection for high weight at 190-day old was as high as 30 p. 100. This response is higher than expected and can not be explained as a direct selection response only. It is thought that part of this response is a domestication effect.

5. — *Biochemical studies*

CHOLESTEROL CONCENTRATION IN BOVINE BLOOD PLASMA RELATION WITH GROWTH RATE ALKALINE PHOSPHATASE ACTIVITY AND THYROXINE DEGRADATION

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Cholesterol concentration and alkaline phosphatase activity in blood plasma were analysed in 244 Swedish calves of both sexes and 249 young Danish bulls. Thyroxine degradation rate was in addition determined in the Danish bulls. In both animal materials, blood samples were taken one to three times per animal at different ages. The cholesterol level was higher in the heifers than in the bulls at all ages, while the alkaline phosphatase activity was higher in the heifers at 10 ans 16 months. Both cholesterol concentration and thyroxine degradation rate rose with increasing age, while the age influence on alkaline phosphatase activity was more complicated.

The repeatabilities of cholesterol concentration between ages were in the range 0.2 to 0.4. The repeatability estimates of alkaline phosphatase activity were between 0.3 and 0.5 For thyroxine degradation rate, the estimate for bulls was 0.4. When average data from the three ages were used, the following estimates of heritabilities and genetic correlations were calculated. The heritability of cholesterol concentration was 0.4 and 0.8 for the two animal materials. The heritability estimates of alkaline phosphatase activity were 0.3 and 0.7 respectively, and for thyroxine degradation rate, the estimate was 0.8. The genetic correlations between growth rate and the blood parameters were 0.7 and 0.8 for cholesterol concentration, 0.2 and 1.0 for alkaline phosphatase activity and 0.9 for thyroxine degradation rate.

Due to the positive genetic correlations in bulls between growth rate and the blood parameters studied, it may be possible to include them in an indirect selection for growth rate.

SIMULTANEOUS TYPING OF ALFA S_1, BETA, KAPPACASEINS, BETALACTOGLOBULIN, ALFA-LACTALBUMIN AND SERUM ALBUMIN IN COW MILK BY POLYACRYLAMIDE GEL ELECTROPHORESIS

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A simple method of horizontal polyacrylamide gel electrophoresis in a discontinuous buffer system (Tris-citrate-borate, pH 9.0) was described for the simultaneous phenotyping of α_{S1}-, β-, κ-caseins and β-lactoglobulin, α-lactalbumin and serum albumin in cow milk. A step gra-