Genetic studies on ducks

Moustafa Ali Ibrahim Shamara

This study was Carried out at the Poultry research farm of theDepartment of animal production, Faculty of Agriculture •CairoUniversitywith cooperation of the Department of Animal and Poultry production ,Faculty of Agriculture at Moshtohor,ZagazigUniversity •Benha Branch.It was intended to study the nature of growth and to estimate thegenetic and .non-genetic Variances. heritabilities as well as genetic,phenotypic and environmental Correlationsfor traits of body weight fromone day old up to 24 week of age on each sex of pure bred white Pekinducks produced from two Series of mating system in three genrations .The adjusted data within each generation were statistically analysedby the application of Factorial design with unequal number of subclassesdescribed by Becker (1975). Results obtained in body weight. absolute,relative gain and accumlative increase in body weight at different ages Canbe summarized as follows:1. The nature of growth of this flock could be Classified into threestages. The first stage was characterized by rapid growth during theperiod from one -day old up the age of eight weeks. Eachof absoluteand relative gain from one-day to 2 weeks of age were 100.0 gramsand 112 ” .while from 6-8 weeks of age they were 180.0 grams and36”; respectively. In addition body weght at 8 weeks of age wasabout 17 times that of one-day old.The second stage of growth from 8-14 weeks of age, wascharacterized by nearly absolute gain (about 200 grams.) in bodyweight during each period of 8-10, 10-12 and 12-14 weeks of agewith respective relative gains of 29.3’ 25. 3’ and 18. 1,. Theaccumalative increases in body weight at 10 and 14 weeks of agewere about 22 and 34 times that of one day old; respectively.The third stage was during the period from 16-24 weeks of agewhich was Characterized by a grad ute decrease in absolute andrelative gain which reached 100.0 grams and 9’ during the period of14-16 weeks of age and decreased till it reached about 33.0 gramsand 2’ during the period of 22-24 weeks of age. In addition bodyweight at 16 and 24 weeks of age were about 36 and 39 times that ofone-day old; respectively.2. Males were significantly heavier in their body weight than females atall ages. The absolute gain in body weight for males versus femalesduring the period of one- day old to 2 weeks, 6-8 weeks and 12-14weeks of age were 90 V.S.78, 196 V.S. 140 and 228 vs. 169 grams;respectively, and the respective relative gains were 114’ V.s. 104.7’, 40. 3’ V.S. 35.3’ and 20. 6’ V.S. 18.0’ . While the accmulativeincreases were 3.5 V.S. 3.2, 16.4V.S> 13.0 and 34. 3.V.s.28.7 timesthat of one-day old; respectively.3. The obtained results shoved that generation had a highly significanteffect on body weight at all age. The F3 progeny were heavier thaneach of Fland F2 Progeny. The respective absolute gain during theperiods of one-day old to 2 weeks. 6 to 8 weeks and 12 to 14 weeksof age for FI Versus F’2VersusF3 were 52 V.S.90 V.S. 156. 144 V.S.144 V.S.250 and 196 V.S.189 V.S.211 grams. While the respectiverelative gains were (84.114 and 139). (43. 34 and 36) and (23.19andI5). Meanwhile the accumulative increases were (2.3. 3.6 and5.5). 00.8.14.6 and24) and (26. 32 and 44) times that of one-daybody weight; respectively.4. The results indicated that there were no significant differencebetween sires and between group of dams for body weight or males.females and males + females at most ages within each generation .Also • the sire X group of dams interactions were not statisticallysignificantwhich means that the non-additive genetic component wasnot or significant effect on body weight . therfore • the sire and thedams were • more or less . geneticlly homozygous and therefore.inhereted their progeny almost similar genetic make up for bodyweight within each generation.5. The respective 625 and 62d (over all ages) in male progeny wererelatively higher 03.05 and 11.38). than those in female progeny(9.85 and 8.61) . In addition sires contributed by about 14.65 jand 9.78 while dams contributed by

aboutl2.77 and 10.55 or he total variance of body weight of male progeny during the firstl4 -weeks and during the period from 16-24 weeks of age •respectively ·1The respective estimates on female progeny were 9.92 I and 9.721for sires and 7.58 I and 10.76 I for dams.6. Maternal effect on male and female progeny was of negligable valuesHowever, sex linkage effect was relatively higher during the first 14weeks of age in both sexes.7. Heritability estimates of h2s m h2d and h2s+din male progeny (overall ages) overagedOA74 . 00434 and 00459 , respectively. while therespective overages in females were 0.343 , 0.317 and 0.346 . Theresults reveald that the heritability estimates were relatively higherin male than those estimated in female progeny at a relatively earlierages . Meanwhile the estimates of h2s in males and females wererelatively higher than those of h2d and the estinaltes of b2s+dwere inbetween.In addition the estimates of h2s . h2d andb2s+din male versus femaleprogeny during the first 14 weeks of age averaged 0.536 • 0.319 and00448 V.S. 0.266 • 0.500 and 0.313 , respectively. However. therespective values during the period16-24 weeks or age overaged0.380 ,0.389 and 00432 V.S. 00475. 00406 and 00410 . Tbus • bodyweigbt in males is controlled additively more than in females • andtberefore , males migbt be efficiently respond to selection thanfemales.8. The genetic and the phenotypic correlations coefficients in adjestedsex based on full-sibs among traits of body weight at different ageswere possitively low in most cases . while the enviromentalcorrelations were relatively positively high .