

GENETIC AND PHENOTYPIC PARAMETERS FOR SPERM – EGG PENETRATION AND SOME SEMEN TRAITS FOR WHITE LEGHORN COCKS .

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ABSTRACT

This study was conducted at the Poultry Farm of the Animal Resource Department , College of Agriculture , Baghdad University , during the period from 8/10/2007 to 28/3/2009 , to study the genetic evaluation of White Leghorn flock for selection according to sperm – egg penetration , semen characteristics , fertility and hatchability traits , egg production traits (weight of first egg , egg weight , egg production at the first 100 days of production , egg mass and the body weight at sexual maturity) and histological testis traits , after the adjustment of fixed effects , and estimate of its genetic parameters.

The General Linear Model –GLM procedure ,within the SAS program was used to study the effect of fixed factors , and to determined the random effect by using Restricted Maximum Likelihood – REML, for sire (24) , dams (114) . These values were ranked in descending order for selection purpose. Results obtained can summarized as follows :

- 1- Means of sperm – egg penetration was 74.25 hole / 1.5 mm² and for other semen traits were 3.98 x 10⁹ ml for semen concentration 20.13% for spermatocrit , 0.44 ml for semen volume , 82.19% for mass motility , 84.99% for individual motility , 11.09% for percentage dead spermatozoa , and 10.41% for the percentage of abnormal spermatozoa, Whereas the heritabilities and repeatabilities for these traits were (0.79 , 0.86) , (0.34 , 0.42) , (0.25 , 0.29) , (0.19 , 0.34) , (0.26 , 0.48) , (0.18 , 0.44) , (0.14 , 0.37) and (0.36 , 0.43) , respectively .
- 2- The effect of season on traits include in this study was highly significant (P < 0.01) in winter than in summer .
- 3-There was high positive genetic and phenotypic correlations between SP with semen concentration ,(0.42 , 0.45) spermatocrit (0.89 , 0.91) , semen volume (0.34 , 0.37) , mass motility (0.92 , 0.95) , and individual motility (0.91 , 0.92)