Application of Ten Selection Indices for Genetic Improvement of Norfa Chicken

F.H. Abdou, A.A. Enab and H.M. El-Ibiary (1997).
Proceeding of the Poultry Science Association 86th Meeting, August 3-6, 1997, University of Georgia, Athens, Georgia,USA

A newly developed chicken breed (Norfa) was initiated through crossing the native Fayoumi and White Baladi with two Leghorn strains imported from Norway.A two-generational experiment was made in order to compare the relative efficiency of applied ten selection indices which aimed to enhance the genetic improvement of Norfa. The most efficient was a general index which included age and body weight at sexual maturity and 90-day egg number and weight and its r_{IH} was .4321. The least efficient was a subindex for egg weight and its r_{IH} was .3913.

***(Key words*:** Selection indices, genetic improvement, Norfa chickens)

ANALYSIS OF A SELECTION EXPERIMENT FOR SOME ECONOMIC TRAITS IN RABBITS

A.A. Enab, A.A. Hekil and F.H. Abdou (2000)
Egyptian Journal of Rabbit Sciences, 10(2) 341353

The aim of the present study was to investigate the possibility of improving some productive traits of Californian (Cal) and New Zealand White (NZW) rabbits. Mass selection with the criterion of selecting candidates having at least x+ 2 s.d. for body weight at 24 wk of age was applied in each line and sex.
Results of selection indicated that in the base generation (G0) averages body weight at 24 wk of age were 3400 and 3466 g. for selected Cal and NZW males, while the averages of selected females were 3962 and 3750 g., respectively. Averages of body weights of the control groups were 2890 and 3068 g for Cal and NZW males and the corresponding means of females were 3303 and 3210 g., respectively. Selection differentials in standard units were 1.01 and 1.06 for Cal males and females (i.e. 510 and 659 g.), while the corresponding figures in NZW males and females were 1.01 and 0.98 (i.e. 398 and 540 g).

Offspring of selected males (G1) had selection gains equaled to 311 and 424 g for Cal and NZW, while the corresponding means of females were 351 and 553 g, in the same order. It was noticed that selection gains in males equaled to 12.2 and 16.3% relative to the control line means and the corresponding figures in females were 13.3 and 20.8 % for Cal and NZW, respectively.

Results of selection after one round with one standard unit showed that weights of carcass, and other edible parts were affected lines of NZW achieved higher dressing percentage than the control (62.9vs. 59.6 %), while in Cal rabbits both lines had almost the same dressing percentages (62.6 vs. 62.7 %).

The results of the present experiment showed that selection in general was effective to improve some economic traits in both of the two exotic breeds of rabbits under study (i.e. Californian and New Zealand White).

Key words : Rabbits, Selection, Productive traits, carcass traits.

USING SUB-SELECTION INDICES TO DEVELOP FOUR SPECIALIZED LINES IN NORFA CHIKENS

K. M. Ben Naser; A. A. Enab; M. E. Soltan and F. H. Abdou (2009).
Proceeding of the 5th International Poultry Conference,10-13 March, 2009, Taba, South Sinai, Egypt, pp:1682-1692.

Data were collected from two consequence generations of light (LBW) and heavy (HBW) body weight lines of Norfa strain. Every completely recorders of 573 and 499 pullets' progeny were used during 1st and 2nd generations, respectively. Four different traits (age at sexual maturity, ASM, body weight at maturity, BW_M, egg weight at maturity, EW_M, and egg number till 42 wk, EN_{42wk}) were used to construct the general index and four different sub-indices ($I_{s, ASM}$, $I_{s, BWM}$, $I_{s, EWM}$ and $I_{s, EN42wk}$) in each of LBW and HBW lines. The results showed that ASM had low heritability values during the two generations of LBW and HBW lines. On the other hand heritability values of BW_M, EW_M and EW_M ranged from medium to high. The relative economic values of these traits were 6.48 for + 100 g in BW_M, 2.25 for + 1 g in EW_M, and 1.00 for + 1 egg in EN_{42wk} and zero for zero days of sexual maturity. Generally, it was shown that the main trait of the sub-index had the highest value comparing to the other traits in the same sub-index during 1st and 2nd generations of LBW and HBW lines. The expected genetic change of the main trait of the sub-index was higher than that expected for the same trait in the original index during 2nd generation of LBW and HBW lines. The comparison between the expected and actual genetic gains in LBW during 2nd generation showed that there was a general agreement between the expected and actual genetic gains. On the other hand there were clear discrepancies between the actual and expected genetic changes for ASM, BW_M, EW_M, and EN_{42wk} in HBW during 2nd generation.

Genetic gains and heterosis for some egg production traits in two lines of Norfa chickens

A.A.Enab, M.E.Soltan, O. A. El-Weshahy, F.H. Abdou (2010).

Minufiya J. Agric, Res. Vol. 35 No 4:1323-1339.

The ultimate goal of this study was to develop two lines of Norfa hens (i.e. line egg number at 42 weeks of age (EN) and line body weight (BW) at maturity (38WK)] by using a selection independent culling level method during three generations of selection and crossing two purelines to get hybrid vigor for some egg production traits. A control line was randomly formed from the base population before choosing the individuals of selected line.

Generally the birds of (EN) line excelled those of (BW) line in both of ASM and EN while the birds of (BW) line were obviously heavier and laid the heaviest eggs comparing to birds of (EN) and control lines. The realized genetic gain for egg number traits during three generations of selection in (EN) line ranged from 10.2 to 26 eggs while expected genetic gain for the same trait in the same line ranged from 1.1 to 2.5 eggs. The realized genetic gains for (ASM) during three generations of selection in Norfa chickens in (EN) line ranged from -7.3 to -16.7 d while expected genetic gains for the same trait in the same line ranged from -0.66 to -1.8 d. All F_1 hyprids for studied traits exceeded the mid-parents in this study. All F_1 crosses for studied traits had positive heterosis values except F_1 crosses for age at sexual maturity (ASM) had negative heterosis value in this study. Heterosis percentages in crossline (BW×EN) for some egg production traits (i.e. ASM, BW_{SM}, BW_M, EW_{SM}, EW_M, EN_{90d}, EN_{42wk} and EN_{52wk}) were -5.1, 2.4, 6.5, 6.1, 3.1, 14.7, 13.4 and 9.2%, while these estimates in crossline (EN×BW) for the same traits were -2.5, 2.3, 3.9, 5.1, 2.9, 13.4, 6.4 and 3.9%, respectively.

From the previous results the parental lines EN and BW proved to exploited both additive and non additive variations and could be used to produce superior crosses for egg number and body weight.

EVALUATION THE VALUE OF SOME ECONOMIC TRAITS BY USING DIFFERENT REDUCED INDICES IN SELECTION PROGRAM OF NORFA LAYERS

K. M. Ben Naser; A. A. Enab; M. E. Soltan and F. H. Abdou (2010).
The Libyan Journal of Agriculture Vol. (15): No (2):15-22.

Data were collected from two consequence generations of light (LBW) and heavy (HBW) body weight lines of Norfa strain. Every completely recorders of 573 and 499 pullets' progeny were used during 1st and 2nd generations, respectively. Four different traits (age at sexual maturity, ASM, body weight at maturity, BW_M, egg weight at maturity, EW_M, and egg number till 42 wk, EN_{42wk}) were used to construct the general index and different ten reduced indices in each of LBW and HBW lines.

The results showed that ASM had low heritability values during the two generations of LBW and HBW lines. On the other hand heritability values of BW_M, EW_M and EW_M ranged from medium to high. The relative economic values of these traits were 6.48 for + 100 g in BW_M, 2.25 for + 1 g in EW_M, and 1.00 for + 1 egg in EN_{42wk} and zero for zero days of sexual maturity.

Generally, during 1st and 2nd generations of LBW and HBW lines of Norfa strain, there was a negative relationship between the relative efficiency of one or two trait(s) reduced index and the original value of the reduced trait(s) in I_G, whereas omitting one or two traits had the highest values in I_G caused the less efficient one or two traits reduced index. Furthermore, the trait which had the highest value in original index (I_G) also had the highest value in all one trait reduced indices.

Concerning to expected and actual genetic gains in the 2nd generation of LBW line there was a good agreement between the expected and actual genetic gain for EN_{42wk}, BW_M and EW_M by applying most of the reduced indices. On the other hand, there were clear discrepancies between the actual and expected genetic changes for ASM, EW_M, and EN_{42wk} in HBW during 2nd generation.

Genetic improvement achieved in immune response and some egg production traits using multi-source multi-trait selection indices in laying hens

A. A. Enab, G. M. Gebriel, F. H. Abdou, E. M. Abou-Elewa (2012).
Proceeding of the Poultry Science Association Annual meeting, 9-12 July, 2012, Athens, Georgia, USA.

Data were collected from 381 birds of Norfa pullets produced by pedigreed mating between 30 sires and 90 dams. These data were utilized to construct and evaluate multisource multitrait selection indices and sub-indices depending on more than one source of information for each trait. The studied traits were antibody titers to SRBCs antigen (Ab), body weight at sexual maturity (BW) and egg number till 42-wk of age. The sources of information considered were individual's own phenotype value (OP), its full (FS) and half sister's (HS) averages. Three sub-indices (Is) were developed from the main multisource index. It was observed that, weighting factors of all traits in the main multisource index (Ab, BWsm and EN42) had the highest values. The variances of sub-indices (IS, Ab , IS, BWsm and IS,EN42) developed from the main multisource index were 2.576, 5513.06 and 62.35 , respectively. Genetic progress achieved was also maximum in most traits. It was concluded that an index based on three sources of information was the most efficient index to improve the studied traits and could be applied to improve egg production and immune response traits.

KEYWORDS: Genetic improvement, selection index, antibody response, Norfa chickens

EXPECTED GENETIC GAINS ACHIEVED FROM APPLYING SELECTION INDICES USING DIFFERENT WAYS OF CALCULATING ECONOMIC WEIGHTS IN NORFA LAYERS.

Abdou, F.H., A.A. Enab and E. Abou-Elewa (2012).
Proceeding of the 6th International Poultry Science Conference & 3rd Mediterranean Summit of WPSA ,26-29 March, 2012, Porto-Marina, Alexandria, Egypt.

Selection index is a convenient method to compare the overall merit of individuals by weighting their superiority or inferiority for several characteristics in a designated manner. The advantage of the selection index is that it comprises phenotypic and genetic variances and covariance of the traits plus their economic values. Therefore, the maximum gain from selection is achieved by using a selection index. In literature there are several ways to calculate the economic values. The first conventional way of the economic value of a trait is the net income expected to accrue to the flock entire price provided the trait could be improved by one unit in that characteristic, (Hazel,1943). The second way of calculating the economic value of a given trait depends mainly on its cost and income through genetic gain achieved by two-way directional selection, (Kolstad, 1975). Therefore, the economic values express the profit obtained by changing the individual trait by one unit.

Other methods were also reported in the review dealing with the vector (v) representing the relative economic values of the traits in the selection index, (Sharma, 1982) and (Lamont, 1991).

The main objectives of the present study were to illustrate and discuss different ways of calculating economic values used in selection indices. Numerical examples were used to illustrate these ways in constructing different selection indices and to discuss their accuracies and expected genetic gains achieved in Norfa layers.

Key words: Selection index, economic values, expected genetic gains, Norfa layers.

Maximizing genetic improvement for immune response trait and some egg production traits using Multi-source multi-trait selection indices in chickens

Enab, A.A.; G.M.Gebriel ; F.H. Abdou and Eman.M.A. Abou-Elewa (2012)

Proceeding of the Minia International Conference for Agriculture and Irrigation in the Nile Basin Countries, 26-29 March 2012, Minia, Egypt

Data were collected during the period from 2007-2008 on 381 birds of Norfa pullets produced by pedigreed mating between 30 sires and 90 dams. These data were utilized to construct and evaluate multi- trait selection indices and sub-indices depending on more than one source for each trait.

The studied traits were antibody titers to SRBCs antigen (Ab), body weight at sexual maturity (BW) and egg number till 42-wk of age. The sources of information considered were own performance of individual (OP), and its full (FS) and half sisters (HS) averages. Three sub-indices (Is) were constructed for Norfa chickens, which were developed from the main multisource index. It was observed that, weighting factors of all traits in the main multisource index (Ab, BWsm and EN_{42}) in own performance sources (OP) had the highest values, while half sibs sources (HS) had the lowest values. The variances of sub-indices ($I_{S,Ab}$,$I_{S,BWsm}$ and $I_{S,EN42}$) developed from the main multisource index were 2.576, 5513.06 and 62.35 , respectively.

Key words: Genetic improvement, multi-source multi-trait , multi trait ,antibody response, Norfa chickens.

Completely restricted selection index as a tool to improve immune response trait and some economic traits in chickens

Enab, A.A.;G.M.Gebriel ; F.H. Abdou and E.M. Abou-Elewa (2012).

Proceeding of the 6th International Poultry Science Conference & 3rd Mediterranean Summit of WPSA ,26-29 March, 2012, Porto-Marina, Alexandria, Egypt.

Data were collected from 381 birds of Norfa produced by pedigreed mating between 30 sires and 90 dams. The studied traits were antibody titers to SRBCs antigen (Ab), body weight at sexual maturity. (BW) and egg number till 42-wk of age. The expected genetic gains by applying the different completely restricted selection indices and sub indices for Antibody titer ranged from 0.486 to 1.38 HI(log_2) The restricted index of had the highest value of body weight at sexual maturity ($I_{R, BW}$) the expected genetic gain, while the restricted index of egg had the lowest value of the weight at sexual maturity ($I_{R, EW}$) .expected genetic gain

Key words: immune response, Completely restricted selection index, Norfa chickens

COMPARISON BETWEEN GENERAL AND COMPLETELY RESTRICTED INDICES BY USING DIFFERENT WAYS OF ESTIMATING RELATIVE ECONOMIC VALUES FOR SOME EGG PRODUCTION TRAITS IN SINAI FOWLS

M.E. Soltan, A.A. Enab, F.H. Abdou and N. Elgazar (2013).
Menofiya J. of Agric.Res., 38, (1):77-88.

The present experiment was carried out in the Poultry Farm, Department of Poultry Production, Faculty of Agriculture, Minufiya University at Shibin El-Kom, Egypt. The local strain used was Sinai Bedouin fowl. The experimental records lasted for eight years. The aim of the experiment was to study the response of selection for egg number at 90 day, egg weight, interval clutches and clutch size by using the selection index method of laying Sinai hens and compare different (Five) methods for calculating the economic values in economic matrices for studied traits.
The following results were obtained as :
1. Different economic values were estimated.
2. The equations of the general indices which were constructed for different four economic values:
Kolstad
IG = 0.2032 EN90d +0.1094EWM -0.1473 I + 0.5719C.
Reg
IG = 0.2326 EN90d + 0.0545 EWM - 0.1189 I + 0.0470 C.
Sharma
IG = 0.2553 EN90d +0.0860 EWM -0.2501 I + 0.8726 C.
Lamont
IG = 0.0079 EN90d +0.3209 EWM -1.103 I +3.014 C.
Soltan
IG = 0.03196 EN90d -0.0106 EWM - 0.0992 I +0.1201 C.
3. The equations of the completely I restricted indices (IR, I) using different economic values which were supposed to stabilize the performance level of pullets concerning I were:
Kolstad
IR, EWM = 0.1529 EN90d + 0.1938 EWM -0.5818 I + 1.3352 C.
Reg
IR, EWM = 0.1510 EN90d +0.1913 EWM -0.5856 I +1.2837 C.
Sharma
IR, EWM = 0.1733 EN90d + 0.2236 EWM -0.4586 I + 2.1164 C.
Lamont
IR, EWM = 0.1129 EN90d + 0.1450 EWM -0.1965 I + 1.4252 C.
Soltan
IR, EWM = 0.0154 EN90d +0.0196 EWM -0.0592 I+ 0.1419 C.
4. Generally, the results show that the general index (IG) was most efficient than each of the completely restricted index (IR,EWM) for Sinai strain. Moreover, a single restriction (IR,EWM) caused less deterioration in the net efficiency of IG.
5. There are no discrepancies between the values of expected genetic change per generation for Reg and Lamont methods. The spearman rank correlation coefficient estimated between the fowls under study on the bases of the original index by the both methods was 0.999 at 0.001.
6. The breeder can use any of two methods with some restrictions on Sharma method that it may be disturbed by abnormal values which included when calculate standard deviation. Soltan method was more related to regression method this finding may be due to the use of genetic and phenotypic variances in the way of calculations.

Study of some economic traits in broiler parent chickens (Cobb 500) during production period under the Egyptian conditions

A. A Enab, F. H Abdou, G. A Zanaty, H. A Elsayed (2015).
Proceeding of the Poultry Science Association Annual meeting, 27-30 July, 2015, Louisville, Kentucky, USA.

A total number of 5612 birds (4880 females + 732 males) one day old chicks of Cobb 500 broiler breeder chickens were randomly assigned to rearing house to evaluate their productivity under the Egyptian conditions. A step down-step up lighting program was used during brooding, rearing and production periods. Chicks were given continuous light during the first two days post hatch, then reared on 8 hours photoperiods between two days and twenty weeks of age, after that the photoperiod was increased to 16 hours in the production period which ended at 65 weeks of age. Three groups of pullets were included in this study, group1 (G1), group two (G2) and control (C). G1 pullets were photo stimulated with 12 hours of light daily at 22 weeks of age, then photoperiod was increased by one hour per week up to 16 hours daily. G2 pullets were photo stimulated with 11 hours of light daily at 20 weeks of age, then photoperiod was increased by one hour weekly up to 16 hours daily. The studied traits were age at sexual maturity, body weight, feed consumptions, mortality, fertility and hatchability. The results showed that means of age at sexual maturity were 174 days, 170 days and 164 days, means of body weight were 4227.9, 4176.3 and 4060.8 grams, means of feed consumptions were 139.4, 139.8 and 145.1 gram/bird/day, means of mortality were 3.8, 4.5 and 3.2 %, means of fertility were 89.3, 85.0 and 89.6 % and means of hatchability were 87.9, 85.9 and 85.1 %, in groups G1, G2 and C, respectively. There were significant differences ($p<0.05$) between groups for age at sexual maturity, body weight, feed consumption and mortality, but no differences for fertility and hatchability. It was concluded that Cobb 500 broiler breeder chickens have a good productivity under Egyptian conditions. This encourages the Egyptian breeders to commercially use this line in order to produce one day old chicks for the Egyptian market.

STUDIES ON SOME PRODUCTIVE TRAITS IN NORFA CHICKENS

A.A. Enab, M.E. Soltan, F.H. Abdou and Hend E. Elnoamany (2015).
Minufiya J.Agric, Res., Vol. 40 No. 4 (1): 915-923.

The current experiment had been carried out at the Poultry Farm of the Faculty of Agriculture, Minoufiya University, Shebin El-Kom, Egypt in the period of 2012 to 2014 for two generations to investigate the productive performance of Norfa strain as an indigenous Egyptian laying strain. A total of 528 birds (396 females + 132 males) of Norfa chickens were used. Artificial insemination was used as a mating system with sexual ratio 1 male / 3 females, and relatives mating was avoided. At hatching, all chicks were wing banded and pedigreed. Chicks were fed a starter diet containing 18.05% crude protein (CP) till 8th week of age and from 9th to 16th week of age, chickens were fed a growing diet containing 14.01% CP then, pullets were fed at production period a layer ration containing 17.46% CP. Cockerels were separated from pullets in brooding house at the 8th week of age and pullets were moved to individual cages in laying house at 16th week of age. A "step down-step up" lighting program was used during brooding, rearing and production periods.

Age at sexual maturity (ASM), body weight at sexual maturity (BWSM), body weight at maturity (BWM), egg weight at sexual maturity (EWSM), egg weight at maturity (EWM), egg number in first 90 days of laying (EN90d) and egg number till 42 weeks of age (EN42WK) were individually recorded for each laying hen.

Results can be summarized as follows:

1- In the first generation, Norfa layers had late ASM (193.15d), reasonable egg weights (37.99 and 46.11 g for EWSM and EWM, respectively) and low egg numbers (28.34 and 33.48 eggs for EN90d and EN42wk, respectively) with light body weights (979.70 and 1078.42 g for BWSM and BWM, respectively).
2- In the second generation, the overall average of ASM of Norfa females was 179.30 d. Average of BWSM was 919.25 g, while BWM recorded in the studied flock of Norfa layers equaled to 1073.71 g. The mean of EWSM was 32.0 g and the mean value of EWM was 45.62 g. Egg number means obtained in the second season were 39.0 and 48.02 eggs for EN90d and EN42wk, respectively.

Key words: Productive performance, Norfa chickens, economic traits.

STUDY OF SOME ECONOMIC TRAITS IN BROILER PARENTS (COBB 500) UNDER EGYPTIAN CONDITIONS

A.A. Enab, F.H. Abdou, G. A. Zanaty and H.A.A. Elsayed (2015).
Proceeding of the Poultry Science Association Annual meeting, 27-30 July, 2015, Louisville, Kentucky, USA.

A total of 5612 bird {4880 female + 732 male} 1-d-old Cobb 500 broiler breeder pullets were randomly assigned to rearing house. All chicks were brooded and reared in rearing house under similar environmental, managerial and hygienic conditions throughout the trial period. A "Step down–step up" lighting program was used during brooding, rearing periods. Chicks were given continuous light during the first 2 d post hatch, reared on 8-h photoperiods between 2 d and 20 wk of age, and were then transferred abruptly to 10-, 11-, 12-, 14-, or 15-h photoperiods at 20 wks of age. The standard of the Cobb 500 were used as a control remained on 8 h at 20 wk. The photoperiod was changed from 8 h Light/d to 15 h light/d. in order to estimate Body weight (BW), Growth Rate (GR), Feed Consumption (FC) Mortality *(M)*, Uniformity (UNI) and Water Consumption (WC) were recorded.

The main results obtained can be summarized as follows:

1. Significant differences ($P \leq 0.05$) between the male and female body weight in different stages of life, feed consumption and mortality were obtained.
2. The average body weight (BW) during the growth period were 1542, 1610, 1612 g for (C), second (G2) and initial (G1) groups, respectively.
3. Significant differences ($P \leq 0.05$) between groups in feed consumption and, mortality, Water consumption.
4. The phenotypic correlations between measurements of body weight and mortality, uniformity, feed consumption and water consumption were positive and ranged from (0.71: 0.853).
5. There was a highly significant difference in the different age stages in BW, GR, FC and all the growth traits during the period of study.
6. There is no difference between each of the sex and age group in BW, GR, FC and all the traits during the growth period.

Key words: *Cobb 500, Body weight, Feed Consumption, Mortality, Growth Rate*

SEXUAL MATURITY OF MALE CHICKENS ACCORDING TO EARLY RESPONSE OF SEMEN MILKING

Abou-Elewa E.M.; A.A. Enab and Abdou, F.H (2016).
Proceeding of the 9th International Poultry Conference, 7 – 10 November 2016, Hurghada, Red Sea – Egypt.

Determination of age at sexual maturity trait is very important before selection of breeding males of chickens without depending on female. A total OF 44 males and 84 females at 13wks of age of Norfa chickens were used for this study. The aim of this study was to determine age at sexual maturity of cocks depending on the first response of semen milking and to characterize the semen parameters at the same time .Semen was collected by abdominal massage method. Studied traits were age at sexual maturity, body weight at sexual maturity, fertility, hatchability, egg weight at sexual maturity .Also, semen parameters included volume ,PH, concentration of sperms per ml, motility and percent of normal shape were studied. Males were divided into three groups; the first of was early sexual maturity (G1)≤ mean-1S.D,the second was the moderate sexual maturity (G2)which equal to mean or not significant with mean and the third was the late sexual maturity (G3)≥mean+1S.D. Results concluded that:--Male age at sexual maturity trait (first response of semen milking means were (AFR)) 91±0.0, 104.7±0.55 and 120.17±1.2d. of G1,G2 and G3 respectively, and there were highly significant differences among three groups.Female age at sexual maturity trait means were 144±162.05 d., 162.05±0.4 d. and 196±6.3 d. of G1,G2 and G3 respectively, and there were highly significant differences among three groups.There were no significance differences in semen quality traits at sexual maturity among all groups. Fertility in early group was greater than others.Hatchability in early group was greater than others. Males showed earlier than females in sexual maturity, but differences between female groups were greater than male groups.

(Key words:,Norfa, chicken, sexual maturity, semen parameters)

Sexual Maturity of Male Chickens according to early response of semen Collection

Abdou,F.H; A.A. Enab and E.M. Abou-Elewa (2017).
IOSR Journal of Agriculture and Veterinary Science, 10 (7):53-68

Determination of age at sexual maturity trait is very important before selection of breeding males of chickens without depending on female. A total 44 male and 84 female 13wks old of Norfa chickens were used for this study. The aim of this study was to determine age of sexual maturity of cocks depending on the first response of semen milking and to characterize the semen parameters at the same time .Semen was collected by abdominal massage method. Studied traits were age at sexual chicken maturity, body weight at sexual maturity, fertility, hatchability, egg weight at sexual maturity semen parameters included volume ,PH, concentration of sperms per ml, motility and percent of normal shape. Males and females, separately, were divided into three groups the first was early sexual maturity (G1)≤ mean-1S.D,the second was the moderate sexual maturity (G2) equal to mean or not significant with mean and the third was the late sexual maturity (G3)≥mean+1S.D.

Results concluded that:-

-Male age at sexual maturity trait means of G1,G2 and G3 were 96.33±0.66, 111.18±0.55 and 120.17±1.16 respectively, and there was highly Significant differences between three groups.

-female age at sexual maturity trait means of G1,G2 and G3 were 142.75±1.178, 161.59±0.678 and 201.29±6.887 respectively, and there was highly Significant differences between three groups.

-Semen quality traits at sexual maturity hadn't significant differences between all groups.

-In comparison male and female: Male earlier than female in sexual maturity, but differences between female groups were greater than male groups.

(Key words: chicken, sexual maturity, male, semen)