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ARABIC SUMMARY.....

SUMMARY AND CONCLUSION

EFFICIENCY OF SELECTION IN LAYING HENS BY USING SUPPLEMENTARY INFORMATION ON FEED CONSUMPTION.

This experiment was carried out at the Poultry Farm of the aculty of Agriculture, Minufiya University, Shibin El-Kom, Egypt s a part of the Norwegian Egyptian project of laying hens (Norfa), uring four generations through the hatching seasons 1997-2001. he aim of the experiment was to study the effect of selection for sidual feed consumption on performance of laying hens. The udied traits were residual feed consumption (R), feed consumption, ge at sexual maturity, body weight, egg weight and egg number.

Results obtained and conclusions can be summarized as llows:-

First generation cycle of selection (G_0-G_1):-

Selected line showed some improvements in most of the traits ıder study except body weight. The means of (R) in the base and ntrol lines were 11.5 and 12.3 g, respectively, while it amounted 2.9 g in the selected line.

The means of feed consumption were 90.4, 97.2 and 99.5 g / bird lay for selected, base and control lines, respectively. These results owed that selected line had the lowest feed consumption while the ntrol line had the highest.

3- Age at sexual maturity in days were 158.2, 160.1 and 162.2 d. for selected, base and control lines, respectively. It was clear that selected line had the earliest sexual maturity.

4- Selected line had the lowest body weights at sexual maturity and maturity (i.e. 1297.9 and 1387.2 g, respectively). However, control line had the heaviest body weight at the same period (i.e. 1324.7 and 1419.5 g, respectively).

5-The means of egg weight at sexual maturity and maturity were lowest for base line, where the means of egg weight at sexual maturity were 40.4, 40.7 and 40.7 g for base, control and selected lines, respectively, while they reached 49.0, 49.3 and 49.4 g at maturity, in the same order.

6-The averages of egg numbers in the first ninety days of laying were 46.8, 46.2 and 43.9 eggs for selected, base and control lines, respectively and egg numbers till 42 weeks of age were 74.7, 72.3 and 68.4 eggs, in the same order. The results showed that selected line had egg number more than other lines.

2-Second generation cycle of selection (G_1-G_2):-

1-It is obvious that selected line had less residual feed consumption than the control line. The average of (R) was 6.1 g for selected line, while it was 6.8 g for control line. Genetic gain of residual feed consumption in absolute scale was -0.7g and it was equal to -0.11 standard unit.

2- Selected line showed low feed consumption than control line (*i.e* 73.3 and 79.1 g / bird / day, respectively). The genetic gain of feed consumption expressed as deviation from the control line was -5.8 g and it was equal to -0.48 standard unit.

3- The means of age at sexual maturity were 169.5 and 168.9d for selected and control lines, respectively. The genetic gain of feed consumption expressed as deviation from the control line was 0.6 g and it was equal to 0.4 standard unit.

4- Selection for residual feed consumption decreased body weight. The averages of body weight at sexual maturity were 1222.5 and 1246.7 g for selected and control lines. At maturity, the means were 1294.2 and 1311.9 g, respectively. Genetic gains of body weight were -24.2 and -17.7 g for body weight at sexual maturity and maturity, respectively.

5- The averages of egg weight at sexual maturity were 40.3 and 40.2 g for selected and control line, respectively, while egg weight at maturity were 47.5 and 48.2 g, respectively. Genetic gains for egg weight at sexual maturity and maturity in actual scale were 0.1 and -0.7 g relative to control line and it was equal to 0.02 and -0.16 standard units, respectively.

6- The averages of egg number in the first ninety days of laying were 47.0 and 41.7 eggs for selected and control line, while egg number till 42 weeks of age were 67.9 and 62.1 eggs, respectively. Genetic gains of egg number in the first ninety days of laying and till 42

weeks of age expressed as deviations from control line were 5.3 and 5.8 eggs and equal to 0.39 and 0.31 standard units.

3- Third generation cycle of selection (G_2-G_3):-

1- It was clear that selected line had less residual feed consumption. The averages of residual feed consumption were 2.7 and 3.4 g for selected and control lines, respectively. Genetic gain of residual feed consumption in actual number relative to control line was -0.7 g and this genetic gain in standard unit equal to -0.09.

2- Selection for low residual feed consumption increased age at sexual maturity. This may be due to the negative correlation between residual feed consumption and age at sexual maturity.

3- Genetic gains as deviation from control line were 42.7 and 62.7 g for body weight at sexual maturity and maturity, respectively.

4- The averages of egg weight at sexual maturity were 37.1 and 36.3 g for selected and control line, respectively. While means were 45.8 and 45.1 g at maturity, in the same order.

5- Egg numbers in the first ninety days of laying and till 42 weeks of age in selected line were more than control line. The averages of egg number in the first ninety days of laying for selected and control lines were 46.3 and 40.1 eggs, respectively. These means till 42 weeks of age were 64.3 and 59.4 eggs, in the same order. Genetic gains as deviations from control line were 6.2 and 4.9 eggs for egg

number in the first ninety days of laying and till 42 weeks of age, respectively.

4- Fourth generation cycle of selection (G_3-G_4):-

1- Direct selection for residual feed consumption was clear in fourth generation cycle of selection. The mean of (R) for the selected line was -2.6 g and 10.9 g for the control line. Direct selection response on residual feed consumption expressed as deviation from control line was -13.5 g and it was equal to -1.19 standard unit.

2- It was obvious that control line consumed 9.2 g ration more than selected line (73.8 vs 64.6 g / bird / day). The genetic gain for feed consumption in absolute scale was -9.2 g and equal to -0.82 standard unit.

3- The results showed that selected line reached sexual maturity earlier than control line (i.e.171.3 and 181.1 d) for selected and control lines, respectively. Genetic gain for age sexual maturity as a deviation from control line was -9.8 d in absolute scale and it equal to -0.56 standard unit.

4- The averages of body weight at sexual maturity were 1150.5 and 1116.7 g for selected and control lines, while they were 1314.3 and 1301.6 g at maturity, in the same trend. Genetic gains for body weights at sexual maturity and maturity were 34.1 and 12.7 g in absolute scale and equal to 0.24 and 0.07 standard units, in the same order.

5- The averages of egg weight at sexual maturity were 38.2 and 39.1 g for selected and control line and were 48.3 and 49.9 g at maturity, in the same order.

6- The averages of egg number in the first ninety days of laying for selected and control lines were 49.3 and 44.0 eggs, respectively. These means till 42 weeks of age were 65.7 and 57.3 eggs, in the same order. Genetic gains for egg number in the first ninety days of laying and till 42 weeks of age as deviations from control line were 5.3 and 8.4 eggs, respectively and equal to 0.5 and 0.58 standard units, in the same order.

It was clear that selection for low residual feed consumption in Norfa chickens might provide a significant role in decreasing feeding cost and hence increasing output.