



SILVER SABAHIA ... A NEW STRAIN OF CHICKENS

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ABSTRACT: Producing egg-type commercial breeds of chickens locally, must be done. Certain attempts had been made to develop some foundation stocks to be utilized in the process of producing egg-type commercial breeds of chickens. Performance studies for the developed foundation stocks proved that further development could be made in order to utilize the new foundation stocks for the process of producing commercial breeds of chickens. In this study, a new foundation stock was developed for egg production named as Silver Sabahia strain in El Sabahia Poultry Station. Silver Sabahia strain contributes 7/8 (87.5%) blood of Selected Lohman Leghorn (LSL) commercial strain and 1/8 (12.5%) blood of four developed strains using systems of breeding coupled with selection. The down color of the Silver Sabahia chicks is yellowish red. Adults' birds of Silver Sabahia are white in color and each feather is crossed of light bars. This strain has a columbian pattern with a single comb and white ear lobes. The beak is yellowish brown and the shanks and skin are yellow. The Silver Sabahia strain was found to be superior to the four developed strain with respect to average annual egg mass production. Average annual egg number; egg weight and egg mass were 221 eggs, 56.5 g and 12500g, respectively. This new strain of chickens could be a threshold for producing dam parents of commercial egg type breed of chickens.

Key world: Chickens-Strain-Egg production-Crossing-Develop.

INTRODUCTION

Breeding programs can play a major role in increasing producing chicken egg and meat. The most important aspect in developing a new breed of chicken is to include breed differences for adaptive traits. In order to improve production in poultry, the breeders used two tools; the first one selection of the parents of the next generation from the best producing birds of the present generation. A mating system throughout which the prospective parents can give the highest possible genetic gain. The second tool is the modern technologies in commercial strains, which used proper hygiene management, high efficiency diets and suitable housing system. Several attempts have been made to improve the performance of local breeds of chickens in Egypt such as Matrouh, Silver and Golden Montazah and Bahij (Mahmoud et al., 1974a, b, c and 1989) Mandarah (Abdel-Gawad, 1981) and Norfa (Abdou, 1996), the Fayoumi blood was introduced to the adapted foreign breeds as White Leghorn, Rod Island Red and Plymouth Rock barred to developed those breeds.

Developed foundation stocks should achieve the requirements of the breeding programs; otherwise, further development could be a must. Therefore, the previously developed foundation stocks could be utilized as gene pool, besides, other gene pool such as Lohman Brown (L.B.) and Lohman Selected Leghorn (L.S.L) were utilized to develop new foundation stocks (El-Turky, 2008).

The main objective of this work was develop egg production strain named as Silver Sabahia which a new foundation stock for the processes of producing commercial egg-type breed of chickens (APRI Golden)

MATERIALS AND METHODS

This study was conducted at El-Sabahia Poultry Station, started in 2004 to develop new foundation stocks for developing the commercial egg type- breed.

Four local strains (Silver Montazah, Golden Montazah, Mandarah and Bahij) and one commercial strain Lhoman Selected Leghorn (LSL) are used in this study,(Fig.1).

Recurrent selection programs (crossing coupled with selection) were used to establish the new foundation stock (Silver Sabahia Strain) in order to be utilized as (dam parents line) for producing a commercial egg-type breed.

The steps of developing Silver Sabahia strain were done as shown:

1. First step: crossing coupled with selection.
 - a. Generations form years 2004 to 2009.
 - i. Silver Sabahia line (S.S.L) is a cross between 1/8 Matrouh males and 7/8 LSL females (EL-Turky, 2010)Fig.1.
 - ii. Silve rIbis line (S.I) is a cross between 1/8 Mandarah males and 7/8 LSL females (Ghanem,2008)Fig.1.
 - iii. Silver Pharusline (S.Ph)is a cross between 1/8 Silver Montazah males and 7/8 LSL females. Fig.1.
 - iv. Silver Maryout line (S.Ma.) is a cross between 1/8 Golden Montazah males and 7/8 LSL females. (Abou El-Gghar, 2008) Fig.1.
2. Second step: selection coupled with crossing.
 - A. Generations from years 2010 to 2014. Selection for annual egg mass ($X \pm SD$)for each of S.S.L, G.I, Gph and G.Ma lines and stability of the color feather.
 - B. Generations from years 2014 to 2015.
 1. Crossing between S.C.G.SX S.I and the reciprocal crosses to produce silversire line.
 2. Crossing between S.phXS.Ma and the reciprocal crosses to produce silver dame line.
 - C. Generations from years 2015to 2016
 1. Crossing between silver sire line X golden dame line to produce Silver Sabahia strain (Fig.2). (Pict. 1and 2).

The management of the stocks:

The chickens were brooded on the floor and grown in open houses up to 16 weeks of age, then were transferred to individual cages. Natural photoperiod were used in grower period and increased to 16 hour in layer period. Feeding system consisted of two period, from 2004 to 2014 a starter diet was (19.56 crude protein and 2860 kcal) up to 8 weeks of age, grower diet (15.56 crude protein and 2707 kcal) up to 20 weeks of age, layer diet (16.97 crude protein and 2777 kcal) and from 2014 to 2016 a starter diet was (23 crude protein and 2916 kcal) from 0 to 2 weeks of age, (20 crude protein and 2966 kcal) from 3 to 8 weeks of age, grower diet (15 crude protein and 2715 kcal) from 9 to 17 weeks of age, (17 crude protein and 2711 kcal) from 18 to 20 weeks of age and layer diet (18 crude protein and 2850 kcal) from 21 to 32 weeks of age, (17 crude protein and 2802 kcal) from 33 to 58 weeks of age and (15.6 crude protein and 2715 kcal) from 58 to 72 weeks of age. Feed and water were supplied ad libitum.

Morphology of the strain

- The down color of the Silver Sabahia chicks is yellowish. Averages of hatched chicks of both sexes weight were 35.87 ± 0.29 g at hatching.
- Adult birds of the Silver Sabahia have a white color, each feather is crossed by light bars. The beak is yellowish brown. The shanks and the skin are yellow in color.
- The body shape is triangle
- Single comb and white ear lobes.
- The egg color is white.
- This strain of chickens has a colombian pattern.

- The genetic make -up of this strain is :
For males CCIieeCoCoBBSS and CCIieeCoCoB-S-for females
Where:

CC: recessive white, ii:recessive white,ee: dominant wheaten, CoCo: columbian restriction patterns, BB: sex-linked barring, SS: Silver.(Somes, 1988)

The performance of the Silver Sabahia strain could be summarized as follows:

- Fertility and hatchability of fertile eggs percentages were 87.43 ± 2.9 and 88.21 ± 1.06 , respectively, viability rate was 90.45% during the period from 0 to 4 wks and 99.15% from 4-8 wks of age.
- Averages body weight at 4 wks and 8 wks were 154.7 ± 2.54 g and 435.15 ± 7.1 respectively.
- Males' body weights at 12 and 16wks of age were 980.05 ± 16.4 and 1317.37 ± 24.48 , respectively.
- Females' body weight at 12 and 16 wks of age were 822.77 ± 17.42 g and 1035.8 ± 22.0 , respectively.
- Averages egg number, egg weight and egg mass were 221eggs (ranged from 200-233 eggs), 56.5 g(ranged from 54.5-57.5g) and 12500g(ranged from 11500-12700 g), respectively.

It is interested to note that Ph.d and M.S.c degrees have been granted. Moreover, 19 scientific papers covering the activities of developing Golden Sabahia strain have been published.

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Figure (1): The plan for developing Silver Sabahia line (S.S.L), Silver Ibis line (S.I), Silver Pharous line (S.Ph) and Silver Maryout line (S.Ma).

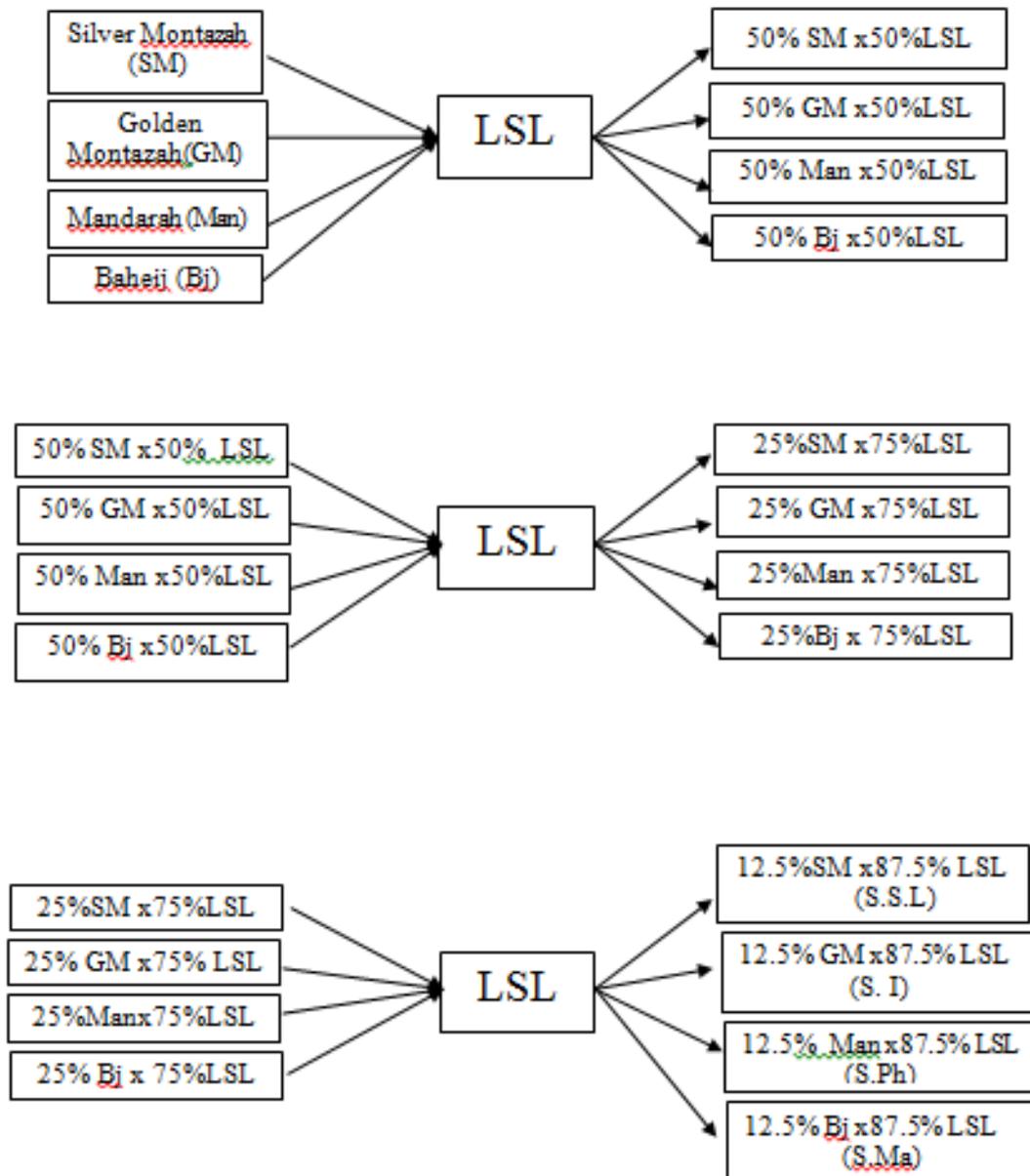


Figure (2): The plan for developing silver sire line and silver dam line
(Selected for egg mass during the first 120 day of laying after crossing for each lines)

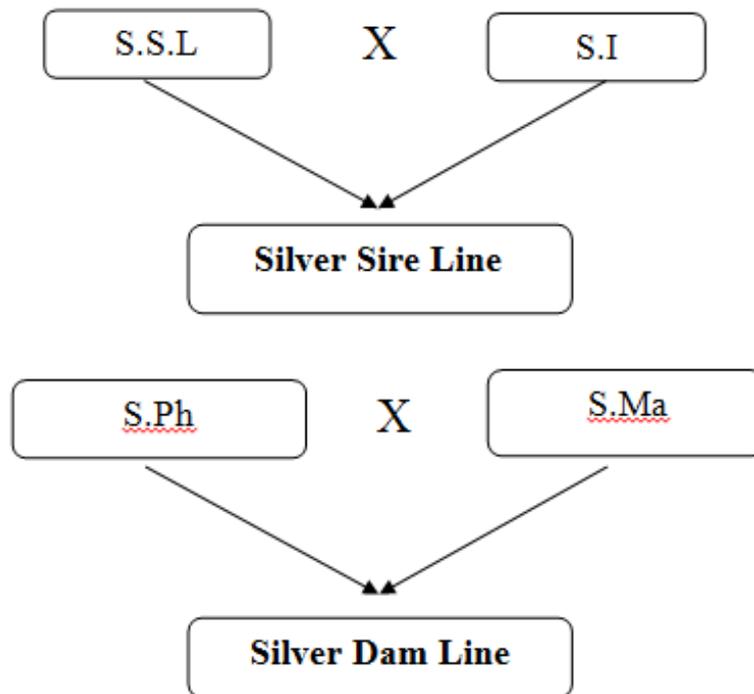
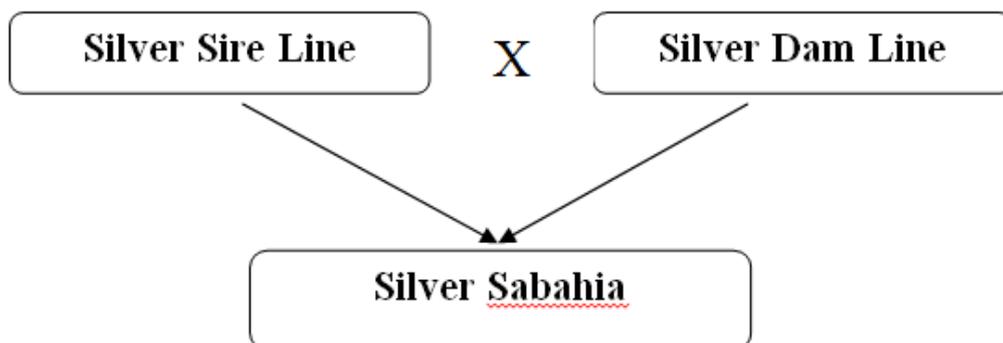


Figure (3): the plan for developing Silver Sabahia strain





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المخلص العربي

صبحية فضى.....سلالة دجاج جديدة

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معهد بحوث الإنتاج الحيواني – مركز البحوث الزراعية

أصبح من الضروري إنتاج سلالة تجارية لإنتاج البيض و لقد أجريت بعض المحاولات لإستنباط قطعان تأسيسية ليتم استخدامها في إنتاج نوع من دجاج البيض التجاري و لقد أثبتت الدراسات التي تمت على تلك القطعان المستنبطة أنه لا بد من استنباط قطعان تأسيسية جديدة لإنتاج سلالة تجارية.

و في هذه الدراسة تم استنباط قطعان تأسيسية جديد لإنتاج البيض يطلق عليه سلالة الصبحية الفضى و التي تم استنباطها في محطة بحوث الدواجن بالصبحية. تتكون سلالة الصبحية الفضى من 8/7 لوهمان سلكتت لوجهورن و 8/1 من أربع سلالات مستنبطة و تم استخدام برنامج التربية و الانتخاب لإنتاج هذه السلالة.

يتميز لون كتاكيت الصبحية الفضى باللون الأصفر بينما لون الدجاجات البالغة فضى مخطط و نمط الريش لهذه السلالة النمط الكولمبي و تتميز بالعرف المفرد و لون شحمة الأذن بيضاء و لون المنقار و الجلد و الساق أصفر اللون.

و قد وجد أن سلالة الصبحية الفضى أكثر كفاءه من السلالات الأربع المستنبطة و خاصة في صفة إنتاج البيض السنوى. و قد بلغ عدد ووزن و كتلة البيض السنوى 221 بيضة، 56,5 جم، و 12500 جم، على التوالي. و تعتبر هذه السلالة مقدمة لإنتاج أمهات سلالة إنتاج البيض تجارية.