



GOLDEN 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 Golden Sabahia strain in El Sabahia Poultry Station. Golden Sabahia strain contributes 7/8 (87.5%) blood of Lohman brown (LB) commercial strain and 1/8 (12.5%) blood of four developed strains using systems of breeding coupled with selection. The down color of the Golden Sabahia chicks is yellowish red. Adults' birds of Golden Sabahia are buff in color and each feather is crossed of light bars. This strain has a columbian pattern with a single comb and red ear lobes. The beak is yellowish brown and, the shanks and skin are yellow. The Golden Sabahia strain was found to be superior to the four developed strain with respect to average annuals egg mass production. Averages annuals egg number, egg weight and egg mass were 219 egg, 57.5 g and 12600 g , respectively. This new strain of chickens could be a threshold for producing sire 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 Golden 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 Brown (LB) are used in this study, (Fig.1).

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

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

1. First step: crossing coupled with selection.
 - a. Generations form years 2004 to 2009.
 - i. Golden Sabahia line (G.S.L) is a cross between 1/8 Baheij males and 7/8 LB females (EL-Turky, 2010) Fig.1.
 - ii. Golden Ibis line (G.I) is a cross between 1/8 Mandarah males and 7/8 LB females (Ghanem, 2008) Fig.1.
 - iii. Golden pharous line (G.Ph) is a cross between 1/8 Silver Montazah males and 7/8 LB females. (Abou El-Gghar, 2008) Fig.1.
 - iv. Golden Maryout line (G.Ma.) is a cross between 1/8 Golden Montazah males and 7/8 LB females. 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 G.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 G.S.L X G.I and the reciprocal crosses to produce golden sire line.
 2. Crossing between G.ph X G.Ma. and the reciprocal crosses to produce golden dame line.
 - C. Generations from years 2015to 2016
 1. Crossing between golden sire line X golden dame line to produce Golden 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 Golden Sabahia chicks is yellowish. Average of hatched chicks of both sexes weight were 37.54 ± 0.20 g at hatching.
- Adult birds of the Golden Sabahia have a buff 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 red ear lobes.
- The egg color is brown.
- This strain of chickens has a colombian pattern.
- The genetic make -up of this strain is :

For males C*Ci*eeCoCoBBss and C*Ci*eeCoCoB-s- for females

Where:

CC: recessive white, ii: recessive white, ee: dominant wheaten, CoCo: Columbian restriction patterns, BB: sex-linked barring, ss: golden. (Somes, 1988)

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

- Fertility and hatchability of fertile eggs percentages were 87.74 ± 2.4 and 83.91 ± 0.86 , respectively, viability rate was 87.74% 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 162.3 ± 25 g and 442.6 ± 7.0 respectively.
- Males' body weights at 12 and 16 wks of age were 1022 ± 22.7 and 1322.1 ± 24.7 , respectively.
- Females' body weight at 12 and 16 wks of age were 850.1 ± 12.65 g and 1070.1 ± 22.9 , respectively.
- Averages egg number, egg weight and egg mass were 219 egg (ranged from 200-230egg), 57.5 g (ranged from 55-59g) and 12600g (ranged from 11800-12700 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 Golden Sabahia line (G.S.L), Golden Ibis line (G.I), Golden Pharous line (G.Ph) and Golden Maryout line (G.Ma).

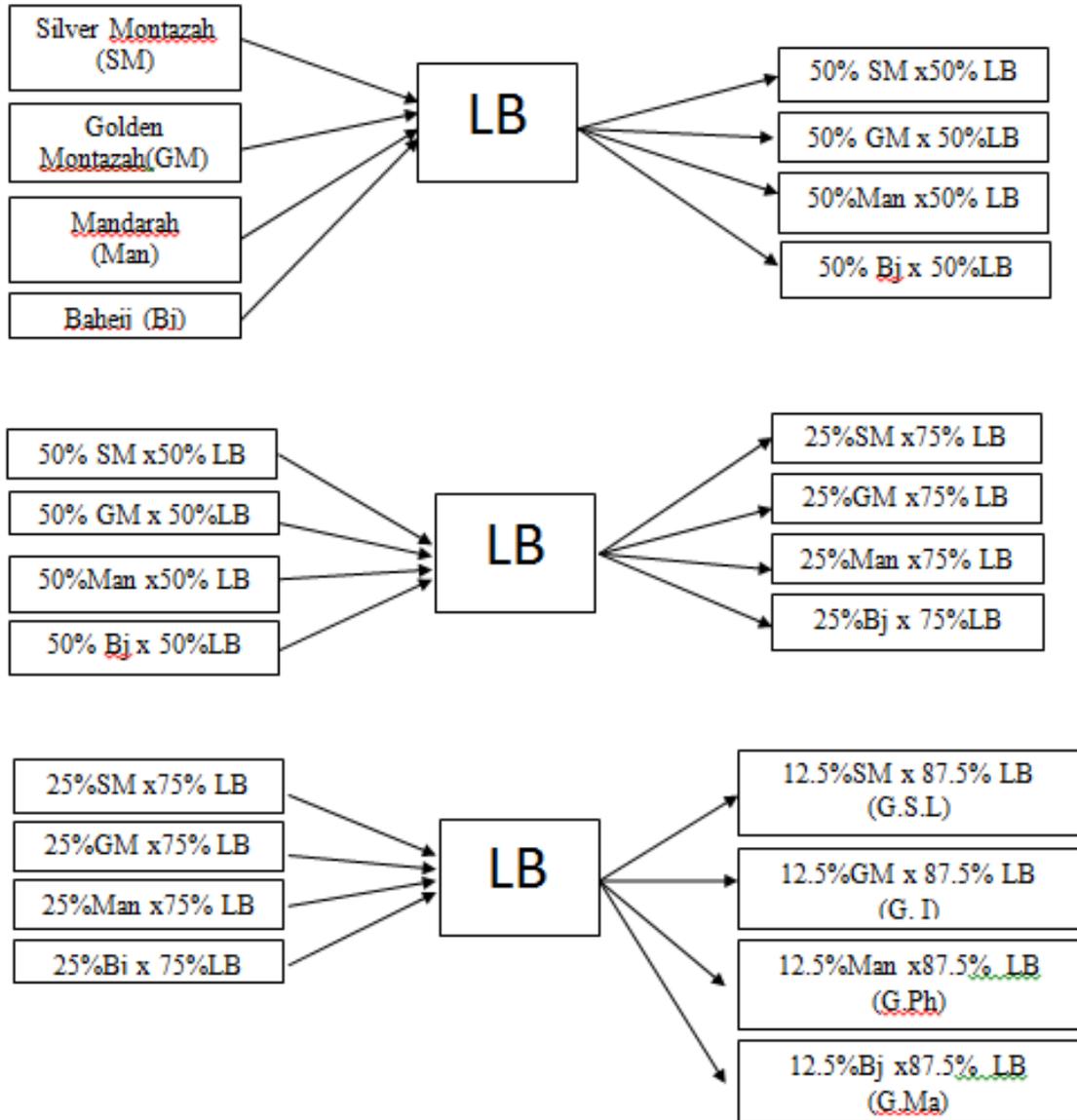


Figure (2): The plan for developing golden sire line and golden dam line
(Selected for egg mass during the first 120 day of laying after crossing for each lines)

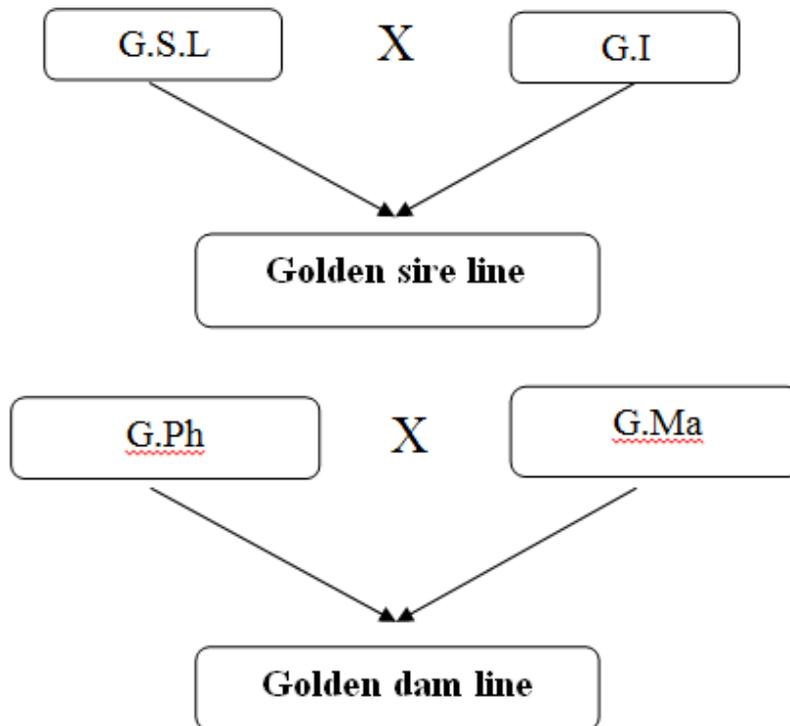
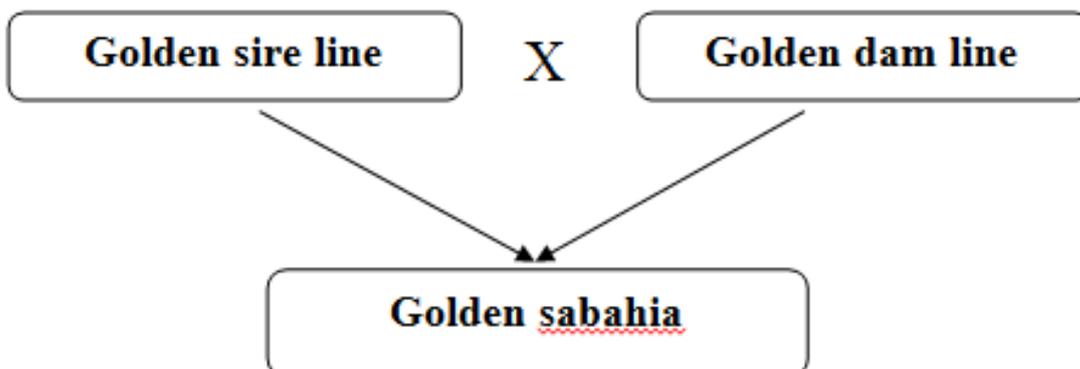


Figure (3): The plan for developing Golden Sabahia strain





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الملخص العربي

صبيحة ذهبى.....سلالة دجاج جديدة

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معهد بحوث الانتاج الحيوانى - مركز البحوث الزراعية

اصبح من الضرورى انتاج سلالة تجاريه لانتاج البيض و لقد اجريت بعض المحاولات لاستنباط قطعان تأسيسية ليتم استخدامها فى انتاج نوع من دجاج البيض التجارى و لقد اثبتت الدراسات التى تمت على تلك القطعان المستنبطه انه لا بد من استنباط قطعان تأسيسية جديدة لانتاج سلالة تجارية.

و فى هذه الدراسه تم استنباط قطيع تأسيسى جديد لانتاج البيض يطلق عليه سلالة الصبحة الذهبى و التى تم استنباطها فى محطة بحوث الدواجن بالصبحية. تتكون سلالة الصبحة الذهبى من 8/7 لوهمان براون و 8/1 من اربع سلالات مستنبطة و تم استخدام برنامج التربية و الانتخاب لانتاج هذه السلالة.

يتميز لون كتاكيت الصبحة الذهبى باللون الاصفر المحمر بينما لون الدجاجات البالغة ذهبى مخطط و نمط الريش لهذه السلالة النمط الكولمبى و تتميز بالعرف المفرد و لون شحمة الأذن حمراء و لون المنقار و الجلد و الساق اصفر اللون. و قد وجد ان سلالة الصبحة الذهبى أكثر كفاءه من السلالات الأربع المستنبطه و خاصة فى صفة انتاج البيض السنوى. و قد بلغ متوسط عدد و وزن و كتلة البيض السنوى 219 بيضه، 57.5 جم، 12600 جم، على التوالى. و تعتبر هذه السلالة مقدمة لانتاج أباء سلالة انتاج البيض تجارية.