

EGG PRODUCTION OF DIFFERENT BREEDS AND CROSSES OF HENS FED ON CERTAIN LEVELS OF NUTRITION

By

M.I. EL-KOTOURY, A. GHONEIM, I.M. EL GINDI AND M.A. RAAFAT.

SUMMARY

There is a general trend for egg production by the different fowls of the different breeds and crosses during the laying season. The production increased during February and remained of high order between April & May after which it decreased gradually during the summer months. The production during February up to May (Spring time) ranged between 43.5 to 59.8% of the total egg production during the year. The weight of eggs of the different breeds and crosses during the first laying season ranged as follows ;

40.0 - 40.7 grams for the local breeds, 49.3 - 49.5 for the 50% cross breeds of R.I.R., 49.7 - 54.9 for the 75% cross breeds and 53.8-58.6 for the foreign breeds.

The number of eggs produced during the second laying season for the different fowls in general is less than that of the first laying one by 7.4 % - 50.7%. Accordingly the total egg weight during the second laying season was less than that of the first one by 2.77-42.4%. The starch equivalent for producing one Kg. eggs during the second laying season in general is more than that of the first one by 2.7% - 73.8%. The crosses between the foreign breeds and the local ones generally produce more eggs and cause a decrease in the starch equivalent required for egg production. Considering the total egg weight produced in the two laying seasons for Baladi Red being the lowest = 100 it would be for the 50% cross breed (R.I.R. × Baladi Red being the highest) = 202.1 and it would be for the foreign breed R.I.R. 156.2.

INTRODUCTION

Egg is the most important item in poultry production. It is, strongly recommended to get the highest production at a relatively cheaper cost if we are aiming to a better situation of poultry in the agricultural economy in Egypt. This work was carried out to study the egg production among the different breeds and crosses during two successive laying seasons using the different local by-products such as undecorticated cottonseed cake, rice and wheat bran in the rations. The starch equivalent required for the production of one kg. eggs per year for the different breeds and crosses was also studied. Such study would give us a sound information about the most economical breed or cross breed to be raised under our local environmental conditions.

EXPERIMENTAL AND METHODS**Experimental Birds**

The birds used in this study were 480 fowls of the following 16 different breeds and crosses :

- 1.—Three local breeds : Baladi Red, Baladi White and Fayoumi.
- 2.—Three 50% cross breeds between R.I.R. as cocks and the three local breeds as hens.
- 3.—Three 75% cross breeds between R.I.R. as cocks and the 50% cross breeds (R.I.R. × local breeds) as hens.
4. - Two 75% cross breeds between the foreign breed Light Sussex (L.S.) as cocks and the two 50% cross breeds (L.S. × Baladi Red and Baladi White) as hens.
- 5.—Two 75% cross breeds between the foreign breed Brown Leghorn (Br.L.) as cocks and the two 50% cross breeds Br. L. × (Baladi Red and Fayoumi) as hens.
- 6.—Three foreign breeds : R.I.R., L.S. and Br. L.

The study was carried out during two sessions. In the first session the breeds and cross breeds, available with suitable number of laying hens, included the Fayoumi and the 50% cross breeds of R.I.R. with the three local breeds. In the 2nd session the other breeds and crosses were experimented on. Fayoumi was also repeated in the second session to connect the results of the first session with those of the 2nd one. This was done to avoid the seasonal variation.

Rations given to different birds during the experimental period

Three experimental rations A, B and C as shown in Table (1) were offered.

TABLE 1.—The formula of the different experimental rations for laying hens

Ingredients	Ration A	Ration B	Ration C
Corn (Maize)	24	15	16.5
Barley	24	15	16.5
Horse beans	—	20	15.0
Wheat bran	15	25	25.0
Rice polish	15	—	—
Uncorticated Cotton seed cake	22	25	20.0
Meat meal	2.0	3.5	7.0
Lime (Calcium carbonate)	1.5	1.5	1.5
Salt (sodium chloride)	0.5	0.5	0.5
Starch equivalent	69.2	70.5	69.4
Total digestible protien	11.3	16.1	15.8

Ration "A" has been proved to be efficient for laying hens of local breeds and crosses (4). This ration contained 69.2% starch equivalent and 11.3% total digestible protein out of which 8.8% was of animal origin.

Ration "B" had been proved to be efficient for laying hens of pure foreign heavy breeds, *i.e.*, R.I.R. and L.S. under our Egyptian environmental conditions(1). This ration contained 70.5% starch equivalent and 16.1% total digestible protein. The animal protein was 11.2% out of the total digestible protein.

Ration "C" had been recommended for laying hens of the pure foreign light breed, *i.e.*, Br. L. (2). The proportion of the animal protein was higher than in the previous rations. This ration contained 69.4% starch equivalent and 15.8% total digestible protein out of which 22.2% was of animal origin.

Sufficient vitamins were supplied to all the experimental rations by offering green maize (Darawa) during summer (not less than 50% of the daily mash) or green berseem during winter (equal in weight to the daily mash.)

Starch equivalent in kg. consumed per laying hen

The amount of food consumed daily per hen from Ration "A" was 120 gm. as recommended by Ghoneim (3). For simplicity the year was considered 360 days, so that the food consumed per year per hen equalled 36.0 Kg. The starch equivalent would equal 24.912kg.

The amount of food consumed daily per hen from both Rations "B" and "C" was 120 gm. (2). The amount of food consumed per year equalled 43.2 Kg. which was equivalent to 30.450 kg. starch equivalent for Ration "B" and 29.98 Kg. for Ration "C".

RESULTS AND DISCUSSION

Comparative study of egg production during two successive seasons of different breeds and crosses

The local breeds

During the two laying seasons the Fayoumi produced the highest number of eggs. It gave 34.1% and 9.3% more eggs than Baladi Red and Baladi white respectively as shown in Table (2).

The Fayoumi produced the highest total egg weight. It produced 45.8% and 15.9% more than Baladi Red and Baladi White respectively.

The Fayoumi hen and the Baladi white required 31.4% and 20.5% less starch equivalent than Baladi Red respectively

The 50% cross breeds of R.I.R.

The (R.I.R. × Baladi Red) gave the highest number of eggs while the (R.I.R. × Baladi White) gave the lowest. The (R.I.R. × Baladi Red) and (R.I.R. × Fayoumi) produced 46.1% and 7.9% more eggs than (R.I.R. × Baladi White) respectively. The (R.I.R. × Baladi Red) gave more eggs than the corresponding local breed Baladi Red but the other two 50% cross breeds gave less eggs than the corresponding local breeds.

The total egg weight produced by the 50% cross breeds was more than that produced by the corresponding local breeds, this is because the average weight of the egg of the 50% cross breeds was more than that of the corresponding local breeds. The starch equivalent required for producing one Kg. eggs by the 50% cross breeds was less than the corresponding local breeds. Among the 50% cross breeds of the R.I.R. the (R.I.R. × Baladi Red) required the least starch equivalent.

The 75% cross breeds

The 75% cross breeds of the R.I.R. with the local breed Baladi white gave the highest number of egg production and accordingly gave the highest total egg weight. It produced 49.3%, 26.2%, and 29.2% more total egg weight than the corresponding local breed Baladi white, the 50% cross breed and the R.I.R. respectively. The cross breed Br.L. × (Br. L. × Baladi Red) produced the lowest total egg weight.

The two cross breeds R.I.R. × (R.I.R. × Baladi Red) and R.I.R. × (R.I.R. × Baladi White) required the least starch equivalent and practically they required the same amount of starch equivalent to produce one Kg. eggs. The cross breed Br. L. × (Br.L. × Baladi Red) required the highest starch equivalent.

In general the 75% cross breeds of the R.I.R. required less starch equivalent than both the corresponding local breeds and the 50% cross breeds except the (R.I.R. × Baladi Red) which required 7.9% less starch equivalent than R.I.R. × (R.I.R. × Baladi Red).

The foreign breeds

The foreign breeds gave less number of eggs and also less total egg weight than their corresponding 50% and 75% cross breeds.

The two foreign breeds required more starch equivalent than the corresponding cross breeds. The R.I.R. required less starch equivalent than both local breeds Baladi White and Baladi Red, while the L.S. required more starch equivalent than the three local breeds.

TABLE 2.—Relative egg production among the local breeds, the different crosses and the foreign breeds during the two laying seasons

Breed	Average No. of eggs		Total egg weight		Starch equivalent for producing one kg. eggs	
	Absolute	Assuming the Baladi Red = 100	Absolute	Assuming the Baladi Red = 100	Absolute	Assuming the Baladi Red = 100
Baladi red	135.0	100.0	5.317	100.0	9.371	100.0
Baladi white	165.5	122.7	6.688	125.8	7.450	79.5
Fayoumi	181.0	134.1	7.750	145.8	6.427	68.6
(R.I.R. × Baladi Red).	197.3	146.1	10.747	202.1	4.636	49.5
(R.I.R. × Baladi white)	145.7	107.9	7.913	148.8	6.292	67.2
(R.I.R. × Fayoumi)	148.4	109.9	7.858	147.8	6.341	67.7
R.I.R. × (R.I.R. × Baladi red)	181.7	134.6	9.896	186.1	5.035	53.7
R.I.R. × (R.I.R. × Baladi white)	183.3	135.8	9.986	187.8	4.989	53.2
R.I.R. × (R.I.R. × Fayoumi)	169.4	125.5	9.195	172.4	5.419	57.8
L.S. × (L.S. × Baladi red)	166.9	123.6	9.117	171.5	5.476	58.4
L.S. × (L.S. × Baladi white)	174.5	129.3	9.843	185.1	5.062	54.0
Br.L. × (Br. L. × Baladi red).	171.1	126.7	8.615	162.0	5.783	61.7
Br.L. × (Br. L. × Fayoumi)	182.9	135.5	9.634	181.2	5.172	55.2
Rhode Island red	146.0	108.1	8.305	156.2	7.334	78.3
Light Sussex	104.7	77.6	5.869	110.4	10.379	110.8

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انتاج البيض من انواع وخطان مختلفة مغذاة على علائق مختلفة
محمد القظورى ، احمد غنيم ، ابراهيم الجندى ومحمد على رافت

الملخص

قدمت لطيور هذه التجربة ثلاث علائق :

الاولى تحتوى على ٦٩٧٪ معادل نشا ، ١١٣٪ بروتين كلى مهضوم
وقدمت للطيور البلدية والخليط .

والثانية تحتوى على ٧٠٥٪ معادل نشا ، ١٦١٪ بروتين كلى مهضوم
وقدمت للدجاج الاجنبى الرود ايلاند رد واللايت ساسكس .

والثالثة تحتوى على ٦٩٤٪ معادل نشا ، ١٥٨٪ بروتين كلى مهضوم
وقدمت للدجاج الاجنبى البروان لجهورن .

وذلك علاوة عن المادة الخضراء والاملاح المعدنية فى كل . ومن نتائج هذه
التجربة ان انتاج البيض يزداد عادة فى شهر فبراير ويستمر فى الزيادة حتى نهاية
شهر مايو ثم يأخذ الانتاج فى الانخفاض التدريجى فى اشهر الصيف ويتراوح
انتاج البيض فى شهر فبراير حتى نهاية شهر مايو ما بين ٤٣٥٪ - ٥٩٨٪
من مجموع البيض الناتج سنويا .

وقد وجد ان القيمة النسوية اللازمة لانتاج كيلو جرام بيض تزداد
فى السنة الثانية عنها فى السنة الاولى بمقدار يصل الى ٧٣٨٪ .

وقد لوحظ بصفة عامة ان الدجاج الخليط يعمل على زيادة انتاج البيض
وبالتالى يعمل على خفض القيمة النسوية اللازمة لانتاجه اى تقل تكاليف انتاجه
وذلك بالنسبة لكل من الدجاج البلدى والاجنبى .

وباعتبار ان انتاج الدجاج البلدى الاحمر وهو اقل السلالات انتاجا =
١٠٠ كان انتاج الدجاج الخليط ٥٠٪ (رود ايلاند رد x بلدى احمر) = ٢٠٢١ .
والرود ايلاند رد النقى ١٥٦٢ بينما كان انتاج السلالات الاخرى الخليط والبلدية
والاجنبية تقع بين الرقمين الاولين .