Evaluation Of Two Broiler Breeders Of Chicken Through The Study Of Feed

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Abstract:

The objective of this study is to evaluated two broiler Breeders of chicken on feed consumption, egg production and mortality. Hypeco and shaver were the two strains subjected for monitoring and investigation.

The study has executed at Tawarga project in Libya. The two strains were compared and contrasted for feed consumption. Egg production and mortality-under controlled condition.

The statistical analysis on various parameter showed significant difference between the two strains and it revealed that the Hypeco strain is more suitable than shaver under the controlled environment. The result on management revealed that Hypeco strain has recoded the significant probability value ($P \leq 0.05$) in most of the statistical analysis.

Introduction:

Poultry is one of the fast developing industries all over the world. It is becoming the main protein source of the people in many countries. Therefore a great scientific and technological development has been noticed in this sector over the last decade. It demands evaluation of different broiler breeders as well as handling techniques in order to improve the egg and meat production under various environmental conditions.

Objective:

Compare and contrast the performance of Hypeco and shaver during the study period specifically on feed consumption, egg production and mortality.

Materials and Methods:

The study has carried out at Tawargha which is a small city near Musrata in Libya. The project is located at the latitude 32° and longitude 15°. This is an elevated place of 7 meter, above the mean sea level. The temperatures vary between 12 and 25° in Winter and Summer, respectively and the average yearly rainfall was about 125mm.

A total number of eleven thousand hens from each Shaver and Hypeco at 24 weeks of age were used in this study . where the average of body weight for Hypeco was 3600 g and Shaver 3895 g . temperature of rooms was controlled using separate electric heaters, and ventilation was controlled using electric extractor fans. The photoperiod was 17 hours perday (5 a.m.to 10 p.m.) and Light intensity ranged from 20 to 25 Luxes by using additional incandescent Light while the humidity was from 60 to 70 %. Feed and water were available ad libitum.

All hens were kept under Similar adequate managerial and hygienic conditions until the end experimental (44 weeks of age). Egg weight (E.W.) . egg number (E.N.) and egg production calculated as (hen day and hen housed egg production) (HDP) and (HHP) were recorded daily. Feed consumption (F. C.) was recorded weekly. E. N., HDP, HHP, and F. C. were calculated periodically every 4 weeks. Dead birds were recorded daily through, hout the experimental period and expressed as percentages.

Data were collected for these two broiler breeders maintained in the Tawaragha project under controlled condition. The study period was 40 weeks of egg production during the year 2000 to 2001. Data collected were subjected to ANOVA by applying the general linear models procedure of SAS software (SAS institute. Version 6.12.1969. Duncan (1955)).

Results:

The data are Summari2ed in table (1). There were differences in daily Feed, daily protein and daily energy Consumption .

Table (1): Means of D.F.C., D.P.C. and D.E.C.

Age in weeks	D.F.C. g/h	D.F.C. g/h	D.P.C. g/h	D.P.C.g/h	D.E.C. g/h	D.E.C. g/h
	hypeco	shaver	hypeco	shaver	hypeco	shaver
24 – 28	161.4 ± 4.0	146.6 ± 9.2	23.40	21.26	448.692	407.548
28 – 32	166.6 ± 1.3	166.8 ± 2.3	24.49	24.52	464.148	464.538
32 – 36	162.2 ± 0.5	187.1 ± 1.1	24.17	27.68	453.349	544.944
36 – 40	163.8 ± 1.1	181.3 ± 0.6	24.41	27.01	457.821	506.734
40 – 44	166.6 ± 0.8	178.6 ± 2.4	24.99	26.79	466.480	500.080
44 – 48	166.5 ± 0.5	174.9 ± 0.1	25.14	26.41	466.200	489.720
48 – 52	167.8 ± 1.0	172.3 ± 3.8	25.67	26.56	495.040	482.440
52 – 56	171.1 ± 0.2	177.0 ± 0.5	26.35	26.25	479.080	495.600
56 – 60	173.0 ± 0.4	178.0 ± 0.1	26.99	26.77	484.400	498.400
60 - 64	171.5 ± 1.2	177.9 ± 0.2	26.75	27.55	480.200	498.120
Overall means	167.0 ± 0.7	176.1 ± 1.9	25.24	26.08	469.541	488.812

In broiler chicken required energy to protein ratio because the forage freely given ad libitum . But in Broiler parents gives Feed by restriction way. Therefore to be the amount of energy and protein were discussing are important . The hen – housed egg production (HHP) shows that there were significant differences in (HHP) $p \leq 0.05$ between the two

strains . However, Hypeco strain had recorded the higher (HHP) $p \leq 0.05$, Where as the lower was recorded by Shaver Strain (see Table -2).

Table (2) Means ± SE of HHP , HDP , DFC (g / hen) and DEW (g / hen)

Age in weeks	HHP (%)		HDP (g / hen)		DFC (g / hen)		DEW g / hen	
	hypeco	shaver	hypeco	shaver	hypeco	shaver	hypeco	shaver
24 – 28	10.7 ± 7.7	16.8 ± 9.6	10.9 ± 7.8	17.0 ± 9.6	161.4 ± 4.0	146.6 ± 9.2	51.5	50.2
28 – 32	64.4 ± 1.5	65.7 ± 4.7	66.5 ± 1.8	67.1 ± 4.9	166.6 ± 1.5	166.8 ± 2.3	57.6	52.7
32 – 36	62.9 ± 1.8	60.2 ± 5.7	66.5 ± 1.6	63.0 ± 5.6	162.2 ± 0.5	187.1 ± 1.1	60.9	55.9
36 – 40	57.6 ± 0.5	58.3 ± 0.7	62.9 ± 0.4	62.5 ± 0.9	163.3 ± 1.1	181.3 ± 0.6	62.9	57.8
40 – 44	a 56.1 ± 0.5	b 53.3 ± 0.9	a 62.9 ± 0.4	b 62.1 ± 0.5	a 166.6 ± 0.8	b 178.6 ± 2.4	64.4	59.9
44 – 48	a 56.7 ± 0.3	b 49.3 ± 0.5	a 64.8 ± 0.5	b 57.4 ± 0.5	a 166.5 ± 0.5	b 174.9 ± 0.1	65.8	60.1
48 – 52	a 55.4 ± 0.4	b 47.4 ± 0.4	a 64.1 ± 0.4	b 56.3 ± 0.3	a 167.8 ± 1.0	b 172.3 ± 3.8	67.18	62.9
52 – 56	a 52.7 ± 0.1	b 45.2 ± 0.3	a 61.5 ± 0.1	b 54.5 ± 0.2	a 171.1 ± 0.2	b 177.0 ± 0.5	68.5	62.3
56 – 60	a 50.4 ± 0.5	b 43.4 ± 0.3	a 59.4 ± 0.4	b 53.0 ± 0.3	a 173.0 ± 0.4	b 178.0 ± 0.1	69.6	64.5
60 - 64	a 46.0 ± 1.2	b 40.1 ± 0.4	a 55.1 ± 1.3	b 49.5 ± 0.4	a 171.5 ± 1.2	b 177.9 ± 0.1	70.2	67.2
Overall means	51.3 ± 2.4	48.0 ± 2.3	57.4 ± 2.6	54.1 ± 2.3	167.0 ± 0.7	176.1 ± 1.9	63.86	59.35

a , b means with different superscripts in the same row are significantly different ($p \leq 0.05$)

SAS institute. (1996) . SAS Users Guide . version 6.12. SAS institute . Cary, N.C. Duncan . D.B. (1955) . multiple range and multiple f test. Biometrics,11: 1- 42.

The hen day egg production (HDP) also showed that there were significant
($P \leq 0.05$) differences in HDP between the two strains. The Hypeco had the higher HDP ($P \leq 0.05$), where as the lower was recorded by the shaver. The variations between strains for HDP may be due to the

management programs and genetic efficiency. Barbour et al (1996) stated that differences were also observed between meat poultry strains in HDP and daily egg weight (D. E. W.) gLh.

The data are summarized in (Table-2) revealed that there was differences in daily feed consumption (D. F. C.).

However, there were significant differences ($P \leq 0.05$) in DFC between the two strain. The shaver had the higher ($P \leq 0.05$) DFC. Where as the lower was recorded by Hypeco strain.

DFC for Hypeco strain was lowest during the 24 th to 28th weeks of age and has reached the highest after 30th to 40th weeks and was more or less same in the case of shaver strain. The shaver strain was found to consume more overall mean feed consumption (g/hen/day) than Hypeco. The variance in FC may caused by genotype differences between the two strains" (Hancock et al., 1995). The differences between strains may relate to growth potential of the two strains. (Hancock et al., 1995). The differences between strains may relate to growth potential of th two strains.

Table 3 revealed that there were significant ($P \leq 0.05$) differences in Cumulative Mortality Rate (CMR) between the Hypeco and shaver strains (19.93 and 23.89%, respectively). The Shaver strain had the higher P value ($P \leq 0.05$) in CMR which was 3.96% more that of Hypeco strain.

Table 3 Means ± SE of CEN and CMR of Hypeco and Shaver

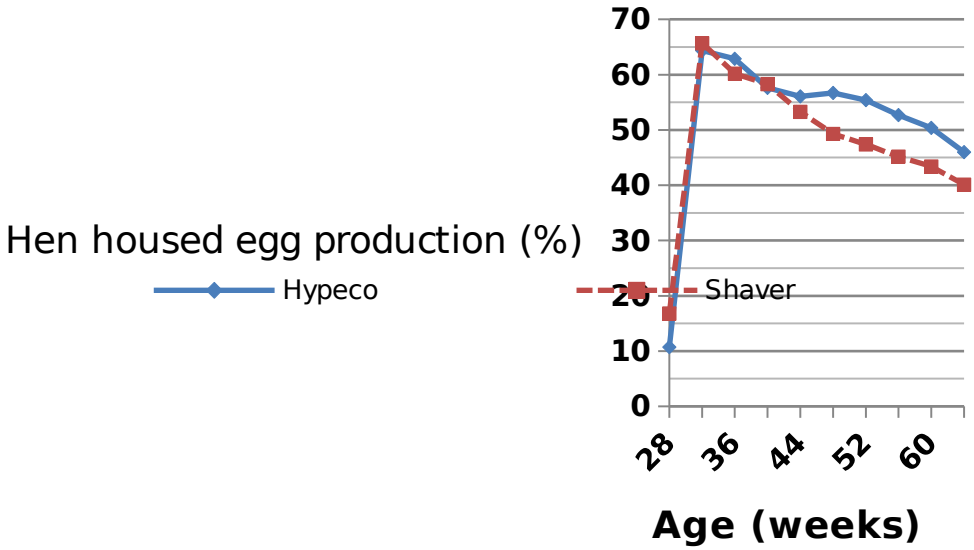
Age (in weeks)	CEN (Egg)		CMR (%)	
	hypeco	shaver	hypeco	shaver
24 – 28	0.95 ± 0.73	1.72 ± 1.11	0.69 ± 0.30	0.81 ± 0.31
28 – 32	14.58 ± 0.55	15.95 ± 3.26	3.38^{a} ± 0.39	2.07^{b} ± 0.18
32 – 36	34.19 ± 3.07	36.08 ± 2.81	5.94 ± 0.44	4.81 ± 0.64
36 – 40	53.34 ± 3.08	53.77 ± 3.05	9.41^{a} ± 0.58	7.21^{b} ± 0.38
40 – 44	72.50 ± 3.13	74.13 ± 3.31	12.18 ± 0.50	12.57 ± 0.94
44 – 48	91.90 ± 3.13	93.16 ± 2.85	14.42^{b} ± 0.24	16.44^{a} ± 0.34
48 – 52	111.29 ± 3.10	110.96 ± 2.89	15.87^{b} ± 0.21	18.73^{a} ± 0.39
52 – 56	129.72 ± 2.94	128.22 ± 2.73	16.82^{b} ± 0.16	20.56^{a} ± 0.25
56 – 60	148.14 ± 3.02	145.14 ± 2.73	18.10^{b} ± 0.29	22.26^{a} ± 0.3
60 - 64	166.53 ± 2.72	161.40 ± 2.63	19.93^{b} ± 0.22	23.89^{a} ± 0.30

a , b means with different superscripts in the same row are significantly different ($p \leq 0.05$)

It is observed that there were no significant differences in Cumulative Egg Number (CEN) per hen between two commercial strains under the study period.

The HHP showed that there were significant ($P \leq 0.05$) differences in HHP between the two strains. The highest HHP was recorded by Hypeco strain (51.3% ± 2.4), were as the lowest was recorded by Shaver strain (48.0% ± 2.3). However, the relationship between age and HHP presented in Figure 1 showed that Hypeco is slightly better then Shaver in terms of egg production.

Fig. 1 The relationship between HHP and age of two strains



The highest HDP was recorded by Hypeco (57.4% ± 2.6) where as the lowest was recorded by Shaver 54.1% ± 2.3) and its shows that relationship between age weeks) and HDP (See Fig. 2). HDP for Hypeco strain was the Highest from 40 weeks to 64 weeks of eggs compared with Shaver strain which was the lowest from 40 weeks until 64 weeks of age.

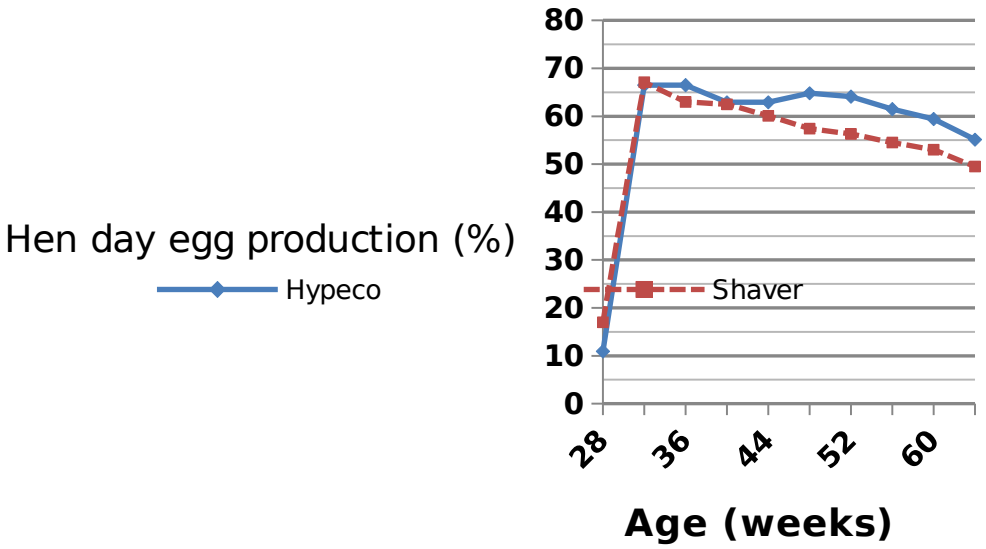
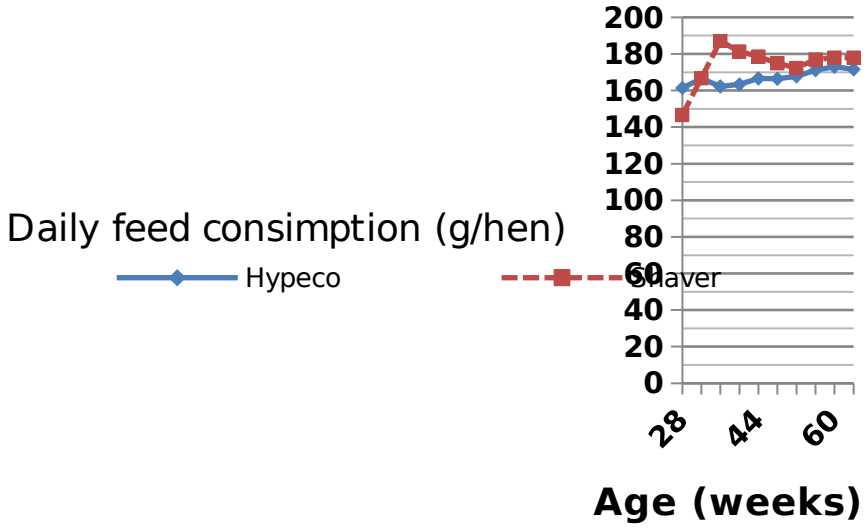


Fig. 2

The relationship between HDP and age

There were significant differences in DFC between the two strains ($P \leq 0.05$). The Hypeco strain had the lowest amount of FC were as the highest was recorded by Shaver strain ($P \leq 0.05$). Figure 3 show the relationship between age and DFC for the two strains. The total FC for Shaver strain was highest (l76.1 g±1.9) and lowest for Hypeco 1167.0 g ± 0.7).

Fig. 3 The relationship between DFC and age



There were significant differences in Cumulative Mortality Rate (CMR) between the two strains ($P \leq 0.05$), where as shaver strain had the highest CMR ($P \leq 0.05$) and lowest was recorded by Hypeco strain and Figure 4 revealed the relationship between the age and CMR.

Fig. 4 The relationship between CMR and age

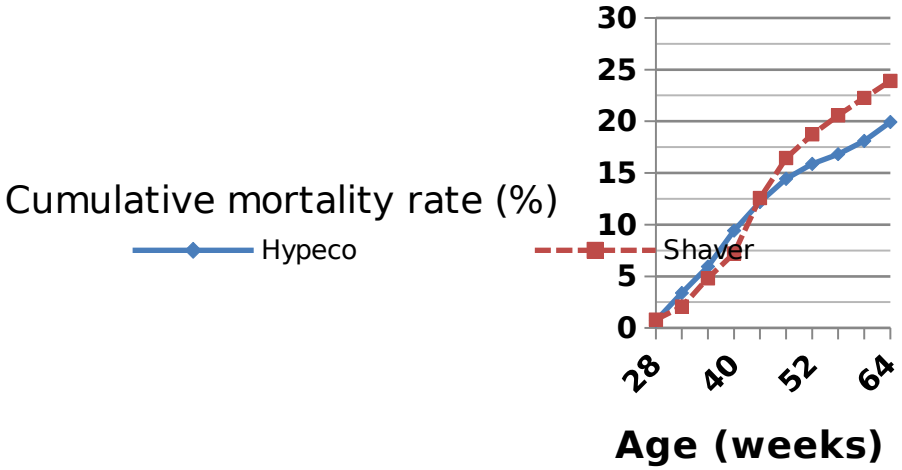
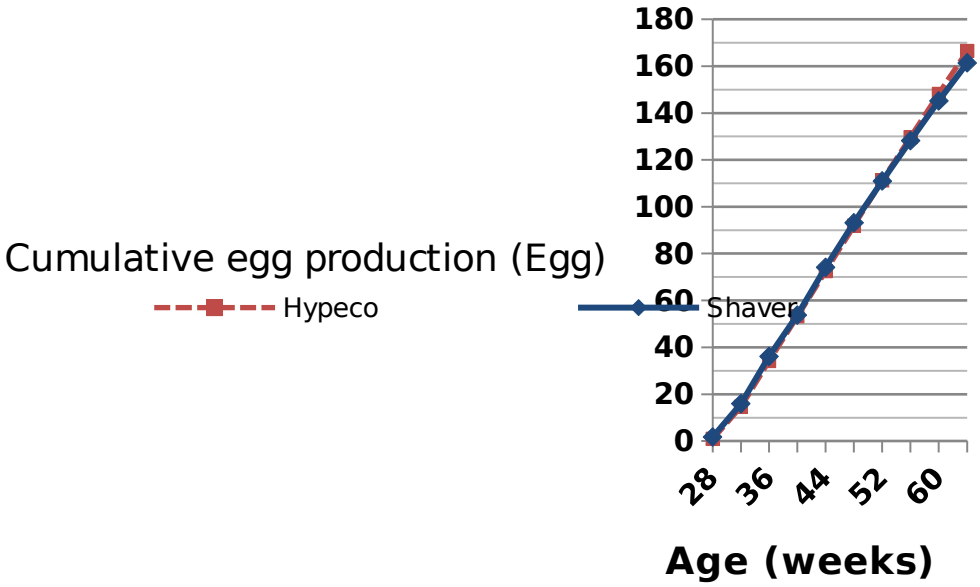


Fig.5 concludes that there were not much difference between the Cumulative Egg Number (CEN) and no significant differences between these two strains has noticed in the statistical analysis also.

Fig. 5 The relationship between CMR and age



Discussion

HHP for shaver strain was lowest from 40 to 64 weeks of age and then later Hypeco had the highest HHP from 40 to 64 weeks of age. There were significant ($P \leq 0.05$) differences in HDP between two strains. The Hypeco strains had the highest amount of HHP ($P \leq 0.05$) where as the lowest was recorded by Shaver strain.

HHP is found stable in the initial few months of production and is fluctuating in the last months for the two strains. This situation caused by the differences in the management circumstances.

There were improvement in the Hypeco breed performance that gave the HHP signal and lower CMR compared with Shaver strain ($P < 0.05$).

Hypeco strain exhibited high egg day production (HDP) from the middle of the trial until the end whereas Shaver exhibited decrease in performance during the above months ($P < 0.05$). from this study that appears the Hypeco strain were more adaptive and resistant to the native environment compared with Slaver strains.

The actual feed consumption quantity (DFC) depending on many factors such as housing condition, feed quality. Body weight. Uniformity break timing and flock health. The Hypeco strain were recorded the lower DFC when compared with Shaver strain ($P < 0.05$). The result of this study showed significant difference between two commercial strains. These difference may caused by daily feed practice, flock six. hygienic condition and housing density.

The lower cumulative mortality rate recorded by Hypeco strain is nearly at stable range in all breeds, where as shaver strain had ascending rates. The overall result shows that Hypeco is more suitable to the Libyan Environment.

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