Scholars Journal of Agriculture and Veterinary Sciences OPEN ACCESS
Abbreviated Key Title: Sch J Agric Vet Sci
ISSN 2348–8883 (Print) | ISSN 2348–1854 (Online)
Journal homepage: https://saspublishers.com

Hybrid Chick Hatched by Local Broody Hens

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DOI: 10.36347/sjavs.2021.v08i10.002 | **Received:** 13.10.2021 | **Accepted:** 20.11.2021 | **Published:** 30.11.2021

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Abstract **Original Research Article**

Local incubating hens (2) were each offered (21) broiler eggs for hatching. The incubated eggs were hatched. The growth rate, survivability and profitability of the hatched chicks were compared with a set of 21 intensively reared broiler chicks and a set of 21 local chicks hatched. They were all reared intensively. The intensively reared broiler (IRB) attained 2.03 kg live weight in 10 weeks, with no mortalities and they yielded a profit of ₦451.67/bird. The local crossbred broiler (HCB) took 20 weeks to attain 1.173 kg, all the birds survived to that age and had a profit of ₦222.88/ bird. The local chicks (LOC) weighed only 0.970 kg at 20 weeks and the birds also survived to that age and yielded a profit of ₦118.09 per chick. Results from this study demonstrate the possibility of using local cocks to cross hybrid broiler hens so as to obtain a harder resistant strain of birds that can attain a higher live weight than the local chickens and also withstand the prevailing diseases around the environment.

Keywords: Chicken, Incubating, Rearing, Intensively reared chicken.

INTRODUCTION

The low animal protein intake in the third world countries can be improved by increasing livestock production [1]. The local chickens are quite easy to raise as they perfectly fit into the rural production system where the birds scavenge for most of their nutritional requirements [2]. Comparatively, broilers are fast growing breed of fowls. Thus, they are kept principally for meat with a quick turnover in terms of capital investment.

The adaptation of local chicken to harsh environmental vagaries yet produce optimally can be used as a criteria to develop very hardy foundation stock for poultry industry when cross with the fast growing broiler strain. It was therefore the aim of this preliminary study to compare the growth, survivability and profitability of a cross between local cock and broiler hen, local bred and exotic broilers managed intensively.

MATERIALS AND METHODS

Intensively reared broilers (IRB)

Day-old Anak broiler chicks (21) were reared on deep litter for 10 weeks using standard broiler commercial feeds and production practices. The birds were weighed weekly, daily feed consumption were recorded and conversion efficiency calculated from the data obtained.

Hybrid crossbred (HCB)

Twenty one (21) fertile eggs from a cross between exotic broilers and local cocks (hybrid crossbred were offered to the local hens for hatching. After the incubation period, all the HCB eggs incubated hatched. The chicks were reared under the same management system given to the exotic hybrid broilers obtained from the commercial hatchery except vaccination and prophylactic treatments that were not given to the chicks. The chicks were weighed at the beginning of the experiment and weekly thereafter in order to keep the track of their growth rate.

Local chickens (LOC)

Twenty one (21) local chicken eggs were incubated and hatched naturally. The chicks were given the same production practices.

RESULTS AND DISCUSSION

At 6 weeks of age, the mean live weight of the exotic broiler reared intensively was 0.980 kg and by 10 weeks, they were 2.203 kg (Table 1), having consumed 2.5 kg of feed for every kg of live weight gained. This is consistent with the expectation from this class of birds in Nigeria [3,4]. The HCB were only 0.580 kg at

10 weeks and 0.773 kg at 13 weeks, while at 10 weeks, the LOC were just approaching 0.403 kg (Table 1). Nothing has been found in literature with which to compare the growth rate of a crossbred between broiler and local chicken. For LOCs, earlier workers Hill and Modebe [5], Oluyemi and Oyenuga [6] and Nwosu [7], reported growth rate that were similar to those obtained in this study. The differences in growth rate between these classes of birds are expected. The IRB had the advantage of genetic superiority, with respect to growth rate and feed efficiency, the HCB and LOCs though confined and managed intensively could not compete with the growth rate of the exotic broiler due to the genetic handicap. Comparatively, the HCB had a better performance in daily weight gain because they were F_1 crosses where heterosis for growth was highest. The improved genetics enable the IRB to attain in just 6 weeks what it took the local chicken twenty weeks to attain.

There were no mortalities among the IRB, HCB and the LOC. This may be attributed to their protective confinement, however, the (IRB) were vaccinated against the major diseases and were given prophylactic doses of recommended drugs at the appropriate time while, the HCB and the LOC were only confined. The HCB and the LOC were not vaccinated nor given any medications. It was remarkable that, infections were not observed among the HCB throughout the period of study. This could be due to adoptive immunity acquired over time by virtue of being constantly exposed to agents of infections by the LOC which have been conferred to these HCB.

Table 1: Growth rate

Age (weeks)	Mean live weight (kg)			Age (weeks)	Mean live weight (kg)	
	EB	CB	LOC		CB	LOC
1	0.066	0.051	0.040	13	0.773	0.447
2	0.138	0.074	0.045	14	0.810	0.500
3	0.305	0.151	0.093	15	0.850	0.570
4	0.503	0.220	0.130	16	0.950	0.627
5	0.704	0.230	0.132	17	0.993	0.717
6	0.980	0.250	0.136	18	1.100	0.800
7	1.266	0.273	0.167	19	1.140	0.900
8	1.580	0.390	0.217	20	1.173	0.970
9	2.030	0.477	0.317	21	1.193	1.000
10	2.203	0.580	0.402	22	2.033	1.030
11	2.210	0.680	0.147	23	2.253	1.043
12	2.370	0.733	0.437	24	2.283	1.060

EB= Exotic broiler
CB= Crossbred
LOC= Local chicken

Cost benefit Analysis

Cost benefit estimates are contained in Table 2. The performance of various classes of birds show up in stark contrast. The superior productivity of the modern hybrid broiler when reared intensively was glaring yielding over 2 and some fraction times as much revenue as the crossbred and three and a half times that of the local chicken, even after all expenses have been offset. The local chicken and crossbred also have their merits as illustrated by the fact that, profits were obtained from them despite the long stay in the research house.

Table 2: Cost /benefit analysis

Cost of bird	EB	CB	LOC
Production cost (₦)			
Day-old chicks	2520	2520	2520
Feed	10,000	7000	5000
Others**	2670	500	500
Total	15,190	10,020	8020
Mean sale price	1175	700	500
Revenue***	24,675	14,700	10,500
Gross margin	9485	4680	2480

Vaccines, Medication etc * sales price x number of birds
EB= Exotic broiler
CB= Cross bred
LOC= Local chicken

CONCLUSION

The study revealed that even under the same intensively management system of the crossbred and the local chicken, the potentials for high productivity of the crossbred was still evident, since they accumulated more than twice as much live weight as the local chicken over the same 24 weeks period, so it should be encouraged. Further study is therefore recommended so as to raise a strain of birds that can not only withstand the environmental vagaries that have been one of the major challenges in our environment in raising broilers but also have a better weight than the popular local chickens we have, so as to assist reduce the wide gap of animal protein intake.

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