

COMPARATIVE ANALYSIS OF ECONOMIC PARAMETERS OF NOILER, NERA BLACK AND ISA BROWN LAYERS IN SOUTH WESTERN NIGERIA

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ABSTRACT

The experiment was conducted using three strains of layers; Isa brown, Nera black and Noiler (60 each) to compare the performance characteristics, economy of production, and nutrients digestibility of the three strains of layers. The birds were fed with commercial feeds and the project lasted 16 weeks. A total of 180 birds, 36 weeks old, consisting 60 each of Isa brown, Nera black and Noiler strains raised from day old at the College farm representing treatments 1, 2 and 3, respectively. The birds were allotted to three treatments with fifteen birds per replicates and four replicates per treatment. The experiment lasted twenty- four weeks. The parameters considered were egg production, egg weight, final weight, total feed intake, cost of feeds intake, price of spent layers, total revenue, total direct expenses. The feed intake, final weight, egg weight and total feed intake were affected by the strains. Noiler had highest values (132.24g/day/bird, 2.76kg/bird, 63.80g and 22.22kg/bird, respectively) which were significantly higher ($p < 0.05$) than Nera black (129.82g/day/bird, 2.06kg/bird, 59.72g and 21.81kg/bird, respectively) and Isa brown (128.40g/day/bird, 1.93kg/bird, 58.03g and 21.57kg/bird, respectively). The total expenses of isa brown was the lowest (₦2,588.54/bird) followed by near black (₦2,617.17/bird) while noiler had the highest (₦2,665.96/bird). Revenue from sales of eggs of isa brown was the highest (₦3,616.00/bird) while revenue from sales of spent layer of noiler was the highest. Noiler chicken had the best economic returns. It is concluded that noiler showed the lowest performance characteristics with better overall economic returns.

Keywords; Economy of gain, noiler, performance, poultry, strains

INTRODUCTION

A high level performance is the aim of any enterprise involved in the production of eggs. Agbam (2005) reported that poultry business is a profitable venture provided improved strains are stocked. The main performance indices essential in calculating economic gain are egg production, egg weight, weight gain, feed intake and mortality. Genetic variation in egg production between breeds, strains and lines has been reported (Hocking *et al.*, 2003). The production potential of a good layer strain is better assessed based on the number and size of eggs produced during its lifetime and its final weight as spent-hen. Although management and feeding practices are the key determining factors of egg production, the breed of laying hen affects egg production. The rate of adaptation and quality of egg production of different exotic breeds of hen vary when exposed to a variety of climate and environments. There is strong evidence that there are genetic differences in growth rate between strains or breed of chickens (Deeb and Lamont, 2002).

Significant differences in body weight due to differences in strains has been reported with the black and brown plumage (feather colour) layer strains varied in their productive capability and livability in this hot climate. Olawumi (2007) reported that parents of black layer strain had lower mortality rate and more adaptable to hot weather than parents of brown layer strain. The Kuroiler is a hybrid breed of chicken developed in India. Kuroilers are derived from crossing either coloured broiler males with Rhode Island Red females, or, White Leghorn males crossed with female Rhode Island Reds (Sandilands and Hockin, 2012). In chickens, growth rate can be improved through crossing different breeds together to utilize heterosis in their progenies.

MATERIALS AND METHODS

The experiment was carried out at poultry unit, Oyo State College of Agriculture and Technology Teaching and Research Farm. A total number of 180, thirty-six week old birds consisting of 60 each of Noiler, Isa Brown and Nera black strains were used. The birds were initially collected from two

reputable hatcheries at day old and raised to the laying phase at the poultry unit of the college farms. Each of the strains represents the treatment, thus there were three treatments with four replicates of fifteen birds each. The birds were fed commercial layer feed for the twenty-four weeks. The parameters considered were egg production, egg weight, final weight, total feed intake, cost of feed intake, price of spent layers, total revenue, total direct expenses.

RESULTS AND DISCUSSION

Hen day production was significantly affected ($p < 0.05$), Isa brown strain had the highest value (80.57%) followed by Nera black (72.45%) while Noiler strain had the least egg production with (60.47%). All the values were significantly different ($p < 0.05$) across the treatments. Hocking *et al.*, 2003 reported genetic variation in egg production between breeds, strains and lines. The result confirmed the findings of Yakubu *et al.*, 2007 which reported that egg production differed among strains of layers. In contrast, however, Hossein (1992) reported no significant strain effect in egg production

The feed intake, final weight, egg weight and total feed intake were affected by strain. Noiler had highest values (132.24g/day/bird, 2.76kg/bird, 63.80g and 22.22kg/bird, respectively) which were significantly higher ($p < 0.05$) than Nera black (129.82g/day/bird, 2.06kg/bird, 59.72g and 21.81kg/bird, respectively) and Isa brown (128.40g/day/bird, 1.93kg/bird, 58.03g and 21.57kg/bird, respectively). The values obtained for Nera black and Isa brown were similar ($p > 0.05$). Laying hens in egg producing farms are usually of small body frame and body weight compared to broilers. Egg producing chicken breeds have been bred and raised for maximum egg production (up to 300 eggs per year) rather than high meat yield (Beutler, 2007). Feed intake is a function of the body weight (Rose, 1997) hence noiler recorded higher value of feed intake compared to isa brown and near black. The total expenses of isa brown was the lowest (₦2,588.54/bird) followed by near black (₦2,617.17/bird) while noiler had the highest (₦2,665.96/bird). The lower value for isa brown was due to lower feed intake while noiler with the highest value had the highest feed intake. Revenue from sales of eggs of isa brown was the highest (₦3,616.00/bird) due to higher egg production of isa brown compared to other two strains while noiler had the lowest (₦2881.50/bird). However, revenue from sales of spent layer of noiler was the highest due to bigger size of the strain. Noiler chickens are perfect meat breed and meat is evenly distributed over the chicken's body parts. (Ahuja *et al.*, 2008). Total revenue and gross margin of noiler were the highest (₦5,381.00/bird and ₦2,715.04/bird, respectively) while black near had the lowest values (₦5,115.00/bird and ₦2,130.83/bird, respectively). It is concluded that noiler showed the lowest performance characteristics with better overall economic returns.

Table 1: Economy of production parameters of the three strains

Parameters	Nera black	Isa brown	Noiler	SEM
Hen day Production (%)	80.57 ^a	72.45 ^b	60.47 ^c	2.51
Av. Feed intake (g/day/bird)	128.40 ^b	129.82 ^b	132.24 ^a	2.68
Av. Final weight (g/bird)	1.93 ^b	2.06 ^b	2.76 ^a	0.06
Av. Egg weight (g)	58.03 ^b	59.72 ^b	63.80 ^a	1.92
Total feed intake (kg/bird)	21.57 ^b	21.81 ^b	22.22 ^a	0.30
Mortality (%)	5.00	3.33	3.33	3.16
Cost of feed (₦)	120.0	120.0	120.0	-
Total direct expenses (₦/bird)	2588.54	2617.17	2665.96	-
Total egg production (trays/bird)	4.52	4.06	3.39	0.07
Cost/tray of egg (₦)	800.00	800.00	850.00	-
Revenue from sales eggs (₦)	3616.00	3248.00	2881.50	-
Revenue from sales birds (₦)	1500.00	1500.00	2500.00	-
Total revenue (₦)	5115.00	4718.00	5381.00	-
Gross margin	2527.41	2130.83	2715.04	-

abc: Means differently subscripted are significantly different from one another ($p < 0.05$)

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