

PIGEON (COLUMBIA LIVIA VAR DOMESTICA) BIODIVERSITY WITHIN BAUCHI METROPOLIS

Kalla, D. J. U., Lohfa, M. M. Sale ,B., Gure, M.M. Idi,Y.

Department of Animal Production, Abubakar Tafawa Balewa University, Bauchi
Corresponding author's email: djukalla@atbu.edu.ng; 08028785578

ABSTRACT

A study was therefore carried out to assess the range of variation, within the various pigeon population in Bauchi metropolis, to ascertain the number of strains available. The data utilized from this study were generated from 58 household in Bauchi metropolises, Nigeria, between July 2016 and April 2017. Data on local names of the various strains and morphological parameters were collected. The morphological parameters measured included; Live weight (LW), breast Girth (BG), Body length (BL), shank length (SL), wing Span (WS) and Tail length (TL). Live weight was measured using an electronic weighing scale while the other body measurements were done with a measuring tape. All data collected on body measurements subjected to analysis of variance using the general linear model of IBM SPSS version 20.0 and where means differed Duncan Multiple Range Test was used to separate them. The study identified 22 unique strains of pigeons within Bauchi metropolis. Overall mean live weight of all pigeon strains was found to be 553.48g. The heaviest was the Mondain with an average LW of 1002.2g and while the Na gida strain had the least LW of 267.17g. Breast girth was also highest for the Mondain while the shantu fara had the smallest. However, the Romanian deck nail and the poulter ($p < 0.05$) had the longest body. The males were heavier and had broader breast girth and longer body length than the females. Shank length was similar for all the strains. It was concluded that there is potential for future selection and breeding for intensive squab production.

INTRODUCTION

Pigeon farming is gaining popularity in the developing countries due to its ability to serve as a cheaper source of animal protein, thereby improving nutritional stability in the society. It also has the potential to enhance economic empowerment. Pigeon, apart from being extensively used for scientific research notably in genetics, parasitology, physiology and psychology, its meat has a gamy bird taste (Fajemilehin, 2017).

Apart from body weight, a number of conformity traits are known to be good indicators of body growth and market value of poultry (Ukwu *et al.*, 2014). Poultry breeders have tried to establish the relationship that exists between body weight and body linear measurements such as shank length, thigh length, keel length, body length, chest circumference and wing length. The relationships between these traits provide useful information on the performance and carcass value of the animals. The relationship between body weight and body linear measurements is important for selection in breeding programs for genetic improvement of the breed (Dzungwe *et al.*, 2018).

Over the years little attempt has been made to capture the variability in pigeons population within Bauchi metropolis. This has retarded breeding efforts as information on their potentials is lacking. This study was therefore carried out to assess the range of variation, within the various pigeon population in Bauchi metropolis, to ascertain the number of strains available.

MATERIALS AND METHODS

Bauchi State is located between latitudes 9° 3' and 12° 3' north and between longitudes 8°50' and 11° East of the equator with a total land area of 49,119 km² representing about 5.3% of Nigeria's total land mass. Rainy season starts between April and May and last up till October, while dry season commences in November and ends in March. The mean annual rainfall ranges from 800 to 1094mm, while the mean daily maximum temperature is about 33.5^oc. (IAR/BSADP, 1996)

The data utilized from this study were generated from 58 household in Bauchi metropolises, Nigeria, between July 2016 and April 2017. Matured pigeons were used for the study. The matured pigeons of breeding age were housed by the farmers in wooden or metallic cages or empty carton attached

externally to walls (open house type) with compartment of about 35 by 35cm usually in monogamous pairs. Supplementary feed where provided consisted of mixture of grains varying from millet, sorghum, and crushed maize to kitchen scraps once or twice a day, in some cases where highly priced birds are kept, they are fed chick mash.

Data on local names of the various strains and morphological parameters were collected. The morphological parameters measured included; Live weight (LW), breast Girth (BG), Body length (BL), shank length (SL), wing Span (WS) and Tail length (TL). Live weight was measured using an electronic weighing scale while the other body measurements were done with a measuring tape.

All data collected on body measurements subjected to analysis of variance using the general linear model of IBM SPSS version 20.0 and where means differed Duncan Multiple Range Test was used to separate them.

RESULTS AND DISCUSSION

Plates 1 to 22 shows the different strains of pigeons found within Bauchi Metropolis indicating a wide variation in the strains available. The study identified 22 unique strains of pigeons within Bauchi metropolis. Apart from the Na gida strain which is used for meat all the other strains were basically kept as ornamental birds. Table 1 show a summary of body measurements of the different strains. Overall mean live weight of all pigeon strains was found to be 553.48g which was higher than the average body weight of 283.32 ± 1.43 g reported by Fajemilehin, (2017) but similar to the 340 - 680 g reported by NRC (1991). The heaviest was the Mondain with an average LW of 1002.2g and while the Na gida strain had the least LW of 267.17g. Breast girth was also highest for the Mondain while the shantu fara had the smallest. However, the Romanian deck nail and the poulter ($p < 0.05$) had the longest body. A clear sexual dimorphism was noted; the males were heavier and had broader breast girth and longer body length than the females. The body length depicts bone growth while chest girth describes the muscularity of the birds (Fajemilehin, 2017). Shank length was similar for all the strains. The Romanian deck nail also had the widest ($p < 0.05$) wing span. The Russia and England fan tail had the longest ($p < 0.05$) tail length.

Table 1: Comparison of body measurements of pigeon strains in Bauchi metropolis.

STRAIN	LW(g)	BG (cm)	BL(cm)	SL(cm)	WS(cm)	TL(cm)
Tukunya	769.16±16.62 ^b	37.33±1.66 ^b	40.08±1.62 ^b	3.00±0.00	72.87±1.38 ^{efg}	11.50±0.52 ⁱ
Snake fantail	274.50±4.90 ^o	27.66±0.77 ^{hi}	30.33±0.49 ^j	3.00±0.00	75.75±0.75	14.41±0.51 ^d
Bullet	629.16±31.26 ^e	29.50±0.79 ^f	19.75±0.86 ⁿ	3.00±0.00	73.58±1.72 ^e	11.91±0.28 ^h
India	613.33±18.10 ^f	34.08±2.60 ^c	20.00±0.00 ⁿ	3.00±0.00	50.83±2.16 ⁿ	11.33±0.49 ^j
Eagle	588.41±10.00 ^g	30.08±0.79 ^{de}	28.58±1.24 ^l	3.00±0.00	64.08±1.62 ^k	11.00±0.00 ^j
Created	473.41±12.28 ^l	27.16±0.84 ⁱ	32.91±0.67 ^h	3.00±0.00	72.41±1.08 ^{fg}	10.00±0.00 ^k
Lahore	570.22±8.01 ^h	31.03±1.04 ^d	29.48±0.52 ^k	3.00±0.00	65.47±0.52 ^j	10.57±0.49 ^k
Umbrella	325.91±6.08 ⁿ	28.50±0.52 ^g	31.50±0.52 ⁱ	3.00±0.00	62.58±0.67 ^l	14.00±0.00 ^e
Na gida	267.16±9.83 ⁿ	25.66±1.30 ^j	26.75±1.37 ^m	2.90±0.00	53.83±1.94 ⁿ	6.750±0.86 ^l
Arch Angel	525.08±7.64 ^j	28.17±0.94 ^{gh}	34.05±1.03 ^g	3.00±0.00	69.14±0.95 ⁱ	13.96±0.00 ^e
Poulter	586.25±15.31 ^g	29.50±0.52 ^{ef}	41.00±1.04 ^a	4.00±0.00	75.00±1.04 ^d	15.83±0.39 ^b
Shantu para	451.41±6.99 ^m	25.33±0.42 ^j	35.08±0.99 ^f	4.00±0.00	69.41±0.67 ⁱ	13.71±0.60 ^e
Carporcheng	526.91±7.07 ^j	27.50±0.52 ^{hi}	33.33±1.04 ^h	3.00±0.00	42.16±0.39 ^{gh}	12.00±0.00 ^g
Frill back	540.08±3.71 ⁱ	28.47±0.52 ^g	38.88±0.00 ^c	3.00±0.00	72.47±0.42 ^{fgh}	13.96±0.00 ^c
German owl	491.23±9.48 ^k	27.47±0.52 ^{hi}	30.49±0.51 ^j	3.00±0.00	62.05±0.88 ^l	11.95±0.00 ^g
Romanian deck nail	670.97±8.95 ^d	30.46±0.51 ^d	41.09±1.03 ^a	3.00±0.00	80.82±0.20 ^a	14.94±0.00 ^c
Mondain	1000.28±15.85 ^a	38.07±1.03 ^a	35.05±1.03 ^f	4.00±0.00	77.84±0.60 ^b	13.96±0.00 ^e
Fantail India	701.71±14.14 ^c	28.04±0.33 ^{gh}	35.92±0.00 ^e	3.00±0.00	72.91±0.50 ^{ef}	15.98±0.00 ^b
Fantail	495.64±7.83 ^k	27.46±0.51 ^{hi}	39.43±0.52 ^b	3.00±0.00	73.24±0.84 ^e	16.94±0.00 ^a
Russian Fantail	521.97±6.55 ^j	27.46±0.51 ^{hi}	38.09±1.03 ^d	3.00±0.00	71.24±0.83 ^h	16.94±0.00 ^a
England Crested	625.28±10.61 ^e	33.47±0.54 ^c	38.45±0.54 ^c	3.00±0.00	75.84±0.48 ^c	12.96±0.00 ^g
bullet cross						
Jacobin	527.78±8.02 ^j	27.48±0.53 ^{hi}	33.04±1.06 ^h	3.00±0.00	72.17±0.48 ^{fg}	11.97±0.00 ^g
Overall mean	553.44± 0.55	29.53±0.06	33.32±0.04	3.17±0.00	69.34±0.06	13.03±0.02
Male	563.01±0.76	30.13±0.07	34.02±0.04	3.16±0.00	70.10±0.07	13.19±0.03
Female	543.85±0.84	28.92±0.08	32.60±0.05	3.16±0.00	68.56±0.08	12.86±0.03

CONCLUSION

Twenty two distinct strains of pigeons were identified within Bauchi Metropolis, with this wide variation in biodiversity, there is potential for future selection and breeding for intensive squab production. Sexual dimorphism was also noted in the pigeon population with the males being heavier than the females. Further studies on molecular characterization and reproductive potentials of the pigeon population can be done.

REFERENCES

- Dzungwe, J. T., Gwaza, D. S. and Egahi, J. O. (2018). Statistical Modeling of Body Weight and Body Linear Measurements of the French Broiler Guinea Fowl in the Humid Tropics of Nigeria. *Poultry, Fisheries and Wildlife Sciences*, 6: 197. doi: 10.4172/2375-446X.1000197
- Fajemilehin, S. O. K. (2017). Phenotypic Characteristics of Pigeons (*Columbia livia* var *domestica*) found in Rain Forest Zone of Nigeria. *World Journal of Research and Review (WJRR)* 4 (5): 30-35.
- IAR/BSADP (1996). Diagnostic survey on Agriculture in Bauchi State, Executive Summary, BSADP (Bauchi State Agricultural Development Program), Bauchi, 180p.
- NRC (1991). National Research Council. Micro livestock: Little known Small Animals with Promising Economic Future. National Academy Press, Washington DC.440
- Ukwu, H. O., Okoro, V.M. O., Nosine, R. J. (2014). Statistical Modeling of Body Weight and Linear Body Measurements in Nigerian Indigenous Chicken. *Journal of Agriculture and Veterinary Science*, 7: 27-31.