SOME PHENOTYPIC CHARACTERISTICS AND BREEDING METHODS OF EXOTIC BREEDS OF PIGEON IN BAUCHI METROPOLIS, BAUCHI STATE, NIGERIA

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ABSTRACT
The study was conducted to determine the characteristic and economic value of exotic breeds of pigeon in Bauchi Metropolis. Purposive sampling was employed to select farmers of exotic breeds of pigeon in Bauchi metropolis and a total of 60 respondents were used. The study revealed that 100% of the respondents were males and 50% aged between 26-35 years, followed by 16-25 years (25%) while the least (10%) aged between 5-15 years. Majority (51.67%) of the respondents had secondary school certificate while 48.33% attained tertiary education level. Majority (58.33%) of the farmers practiced inbreeding only. However, 41.67% of the respondents practiced both inbreeding and out-breeding. Furthermore this study revealed that 28 different exotic breeds of pigeon with unique features were available in Bauchi metropolis. Majority (66.7%) of the exotic breeds of pigeon with good flying ability were small size while the least (11.1%) was recorded among large ones. However, the large breed recorded highest poor flying ability (60%) followed by (40%) among average size, none of small size breed had poor flying ability. Most (75%) of them had average resistance to prevalence diseases when compared with the local breed. Female farmers should be encouraged to rear exotic breeds of pigeon. Cross breeding of exotic and local breeds of pigeon should be employed to complement each other.
Keywords: Exotic, Breed, Pigeon

INTRODUCTION
The domestic pigeon (*Columba livia domestica*) belongs to class: Aves, order: Columbiformes and family: Columbidae. Pigeons have made contributions of considerable importance to humanity especially in times of war (Levi, 1997). In war the homing ability of pigeons has been put to use by making them messengers. The homing pigeon is a variety of domestic pigeon derived from the rock pigeon, selectively bred to find its way home over extremely long distance (Levi, 1997). Members of this breed of pigeon are still being used in the sport of pigeon racing and the white release-dove ceremony at weddings, anniversaries and funerals. The wild rock pigeons have an innate homing ability (Blechman, 2007) meaning that they will generally return to their nest and mate.

Pigeon can also be reared as a meat. Young pigeons bred for meat are known as squabs. Rearing pigeons for meat is an accepted industry in overseas countries, particularly Europe and the United States (Bolla, 2007). In Kano state, the domestic pigeon (*Columba livia domestica*) is reared for meat production by some household, thereby contributing significantly to the protein need of the local populace (Rabiu and Arzai, 2012). However this aspect is yet to be optimally exploited in Nigeria as a whole. Breeding for fancy pigeon is an overwhelming aspect in pigeon production with a lot of economic and tourist potentials. There has been an insignificant development in the Nigerian fancy pigeon industry since its introduction from overseas some years ago. Most of exotic breeds of fancy pigeon have been proven to be adaptive to our local environment. Those who love bird life can find unlimited pleasure in the breeding of pigeons and besides, as they become more proficient in the art of breeding can earn a nice little income from their birds (Hazard, 1922). Pigeon can be bred for purposes which include: breeding for utility, breeding for fancy, breeding for homing and breeding for racing and show. All these provide wider areas of specialization for breeders and researchers in pigeon production. However, there is limited information today on the characteristic and availability of exotic breeds of pigeon in Nigeria. Their potentials and production are yet to be efficiently exploited in Nigeria. Therefore, this study aimed to determine the phenotypic characteristic and breeding method exotic breed of pigeon in Bauchi metropolis.

MATERIALS AND METHOD

Description of Study Location

The study was carried out from January to August 2019 in Bauchi metropolis. Bauchi state is located in the northern guinea savannah agro-ecological zone of Nigeria. The state is located geographically at approximately 10°17'N, 9°49'E and 690.3m above sea level (Kowal and Knabe, 1972).

Sampling Procedure

The Research-sampling design that was used to select the sample was non-probability purposive sampling. A total of 60 exotic breeds of pigeon farmers were used.

Methods of Data Collection

Data for this study were collected using both primary and secondary sources. The primary data (Type, size, flying ability, and relative disease resistance,) were collected through farm visitation and physical examination of the pigeons. Secondary data (breeding methods) were collected by using a questionnaire.

Statistical Analysis

The data collected were subjected to simple descriptive statistic and χ^2 test for association using SPSS version 17

RESULTS

The socio-Economic characteristic of the exotic breeds of pigeon farmers in Bauchi metropolis were presented in Table 1. The results revealed that 100% of the respondents were male and (50%) were within the age bracket of 26-35 years, followed by 16-25 years (25%) and 36-45 years (25%) while the least (10%) were within 5-15 years old, non-of the farmers was above 45 years.Majority (51.67%) of the respondents had secondary school certificate, 48.33 % were able to attained tertiary education while none of the respondent had non-formal or primary education as highest level of education. The results also showed that (50%) of the respondents were new in the pigeon farming with 0-5 years of experience followed, by 31.7% with 6-10 years of experience while the least (18.3%) had above 10 years of experience.

Table 2 presented the distribution of some phenotypic characteristics of exotic breeds of pigeon in Bauchi metropolis. The results showed that most (78.6%) of the exotic breeds of pigeon in Bauchi metropolis were fancy type while the least 21.4% were utility.With respect to size 39.3% of the breeds were medium, followed by large (35.7%) while 25% were small in size. Majority (53.6%) of the breeds had poor flying ability, 32.1% were good, while 10.7% had average flying ability. Most (75%) of the breeds had average resistance to diseases while 25% were susceptible to prevalence diseases.

Table 1: Socio-Economic Characteristics of the Exotic Pigeon Farmers in Bauchi Metropolis.

Variables	N (%)
Sex	
Male	60 (100)
Female	Nil
Total	60(100)
Age Group (years)	
5-15	6(10)
16-25	15(25)
26-35	30(50)
36-45	9(15)
>45	Nil
Total	60(100)
Level of Education	
Non-formal	Nil

Primary	Nil
Secondary	31(51.67)
Tertiary	29(48.33)
Total	60(100)
Years of Experience	
0-5	30(50)
6-10	19(31.7)
>10	11(18.3)
Total	60(100)

N= Number; % = Percentage

Table 2: Distribution of the Characteristics of Exotic Breeds of Pigeon in Bauchi Metropolis

Characteristic	**N (%)**
Type	
Fancy	22 (78.6)
Utility	6 (21.4)
Relative Body Size	10 (35.7)
Large	10 (35.7)
Medium	11 (39.3)
Small	7 (25)
Relative Flying Ability	
Good	9 (32.1)
Average	4 (10.7)
Poor	15 (53.6)
Relative Diseases Resistance	
Average	21 (75)
Good	7 (25)

N= Number; % = Percentage

Table 3 presented the association between the body size and flying ability of exotic breeds of pigeon in Bauchi metropolis. Significant (P > 0.01) association between body size and flying ability of exotic breeds of pigeon in Bauchi metropolis was detected. Majority (66.7%) of the exotic breeds of pigeon with good flying ability were small size while the least (11.1%) was recorded among large ones. However, the large breed recorded highest poor flying ability (60%) followed by (40%) among average size, none of small size breed had poor flying ability.

Table 4 presented breeding methods employed by exotic breed of pigeon farmers in Bauchi metropolis. The results revealed that (55%) of the respondents practice only inbreeding, followed by 45% practice both inbreeding and out-breeding, while none practice only out-breeding. Out of 45% of the respondents that practice out-breeding, only few (3.33%) performed a planned cross-breeding while majority (41.67%) performed unplanned cross-breeding without targeting any trait.

Table 3. Association between Body Size and Flying Ability of Exotic Breeds of Pigeon

Body Size	**Flying Ability**			χ^2	**LOS**
	Good	Average	Poor	17.4	**
Small	6 (66.7%)	1 (25%)	0 (0.0%)		
Medium	2 (22.2%)	3 (75%)	6 (40%)		
Large	1 (11.1)	0 (0.0%)	9 (60%)		
Total	9 (100%)	4 (100%)	15 (100%)		

N= Number; % = Percentage; LOS= Level of Significance; $\chi^{2=}$ Chi-square; **P<0.01

Table 4: Breeding Method of Exotic Breeds of Pigeon in Bauchi Metropolis

Breeding Methods	**N (%)**
Inbreeding only	33(55)
Out-breeding only	Nil
Both	27(45)
Total	60(100)
Cross-breeding Planning	
Planned cross-breeding	2(3.33)
Unplanned cross-breeding	25(41.67)
Total	27(45)

N= Number; % = Percentage

DISCUSSION

The result obtained from this study that only males embarked on exotic breeds of pigeon farming in Bauchi metropolis is in line with the findings of Bakoji *et al.* (2012) and Suleiman *et al.* (2017) they reported more males participation than females in poultry farming in Bauchi and Kaduna states respectively. The (50%) of exotic breeds of pigeon farmers in Bauchi metropolis were within the age bracket of 26-35 years is similar to findings of Bakoji *et al.* (2012), who reported (48.89%) of quail birds' farmers in Bauchi Local Government were within the age bracket of 31-40 years. . The age distribution might have been influenced by the nature of the business which required highly energetic and independent youths for effective farming and marketing. The high literacy level of the respondents in this study is in line with the findings of Nurudeen (2012) that the majority of the poultry farmers had tertiary education. Bukunmi and Yusuf (2015) reported that level of education had a positive coefficient which could be because education helps the farmers to understand better the innovation introduced to them. Experience in poultry production usually determines the effectiveness of farmers' decision with respect to inputs combinations or resource allocation (Umar, 2012). The (50%) of respondents were still new in the business with 0-5 years of experience. This implied that the business was still at young stage and therefore, more studies were still needed to be done in the exotic pigeon farming for better improvement.

The majority (78.6%) of the exotic breeds of pigeon in Bauchi metropolis were fancy type. Fancy pigeon breeds are kept for their gorgeous colour, form and texture. The higher availability of fancy breeds could be an indication that exotic breed of pigeon production in Nigeria was mostly targeted for pet. Most of these exotic breeds of pigeon had average resistance to diseases when compared with the local breeds is in accordance with the findings Bunza *et al.* (2008) reported zero infestation of tick on local breed of pigeon at Sokoto central market.

The significant association observed between body size and the flying ability of exotic breeds of pigeon. Sudik (2007) reported high and positive correlations between live weight and body size in chickens. Pigeons with larger body size will likely have higher body weight which will make them have poor flying ability. Pigeon with small body size has the tendency of lower body weight and good flying ability. This might serve as vital guide line to future breeders. While selecting for racing pigeon breeding, the size of the pigeon should be considered.

Majority (58.33%) of the respondent practice only inbreeding was to maintain the breed purity and to prevent any limitation on the required features.

CONCLUSION AND RECOMMENDATION

It can be concluded that most of the farmers practice inbreeding. Therefore, Cross breeding of exotic and local breeds of pigeon should be employed to complement each other.

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