ON-FARM PERFORMANCE CHARACTERIZATION OF ECOTYPES OF THE DOMESTIC TURKEY (*Meleagris gallopavo*) IN SOKOTO STATE

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ABSTRACT
Fifteen flocks comprising 18 toms, 44 hens and 26 poults were monitored for on-farm performance characterization of domestic turkey in Dange-Shuni, Wurno and Kware Local Government Areas between August and November, 2011. Strains of the domestic turkeys found in the study flocks included: 'Baki', 'Banasare', 'Yarkada' and 'Fari'. Average flock size was 5.86 ± 5.39 birds made up of 3 ± 2.12 hens, 1 ± 1.6 toms and 2 ± 3.78 poults. The results showed that 'Baki' (Black) strain was heavier than 'Banasare' and other strains found there. It was also shown that brooding hens were heavier than resting, laying and incubating hens. Average values for live weight of toms and hens were 5588.4 ± 1437.3g and 3816.4 ± 845.5g. Poults weighed 156.36 ± 49.92g at about two weeks. Live weight of hens varied according to physiological stage (Incubating; 3611.3 ± 706.6g, Brooding; 4162.1 ± 761.7g, Resting; 3807.6 ± 909.6g, Laying; 3691.6 ± 483.2g).

INTRODUCTION
Turkey production in Nigeria has largely remained at the small holder level due to various reasons ranging from management problems to lack of incentives by government. There is obvious lack of specific requirements for turkey production in Nigeria, which may be attributed to low level of research in Nigeria. In addition, turkey production has not been given its rightful attention in Nigeria despite the fact that it is known to grow faster and bigger than other poultry breeds with high rate of return on investment (Mbanasor, 2004). Population of turkey in Nigeria was estimated to be (0.2 million), Chicken (72.4 million), Pigeon (15.2 million), Ducks (11.8 million) and Guinea fowl (4.7 million) (FDLPCS, 1992). Nigerians consume about 8.6g animal protein per day with turkey accounting for about 1.5g despite its great potentials in the supply of good quality protein and high rate of turnover of investment. According to FGN and UNICEF (1990), turkey has no consumption problems as 116 million Nigerians are active consumers (Mbanasor, 2004). Turkey is not common among poultry growers in Nigeria: a number of farms are beginning to breed the bird at commercial level owning to increasing interest as a provider of meat complementing chicken. They are mostly located in urban areas and are gradually spreading even to village farms. The fast growth in the industry requires an intensive research approach to boast its production, especially considering its potentials (Ogah, 2011). This research aimed at on-farm characterization of indigenous domestic turkeys kept by smallholders.

MATERIALS AND METHOD
The study was conducted in three Local Government Areas (Dange-shuni, Wurno, and Kware) of Sokoto State. Sokoto is located in the north-western part of Nigeria (latitude 14-15°N and longitudes 4-5°E). It has a maximum temperature of 41°C and a minimum of 13°C (attained in the months of April and January, respectively) (Mammanet *al.*, 2000). It is characterized by alternating rainy and dry seasons. The annual rainfall is about 760mm (Ojanuga, 2004). Data were collected with the aid of structured questionnaire administered by personal interview with the keepers to solicit information on the husbandry practices and permission to monitor performance. With the permission of the households the hens and their poults were weighed, during each monitoring visit to the study flocks, individually using a 10kg and 1000g weighing scales, respectively. The toms were weighed only once with 10kg scale.Between August and November 2011, each flock was visited 3-6 times fortnightly for performance monitoring during which data were collected on hen weight, poults weight, flock size and composition. Photographs of the various strains found in the flocks were taken. The data collected were analyzed using descriptive statistics such as mean, standard deviation and frequency counts. Analysis of variance (ANOVA) was used to

establish any significant effect across the performance of the birds considering the effects of strain, and location (Gomez and Gomez, 1984).The analysis was carried out using the Statistical Package for the Social Sciences (SPSS, 2007). There were mainly four strains of domestic turkey in the study area: 'Baki', 'Banasare', 'Yarkada' and 'Fari' based mainly on plumage colour. The 'Baki' (Black) strain is solid shiny black with a greenish patch on top and dull black under; it does not have any other colour in its plumage. Eye colour is dark brown, shanks and toes are pink, black beak, and the caruncle is red, (Plate 1). The 'Banasare' (black, white, gray and brown) strain has a numerous different colour patterns of black, white, gray and brownish colour on its tail feather and wings, almost similar to that of 'Yarkada'. Black beard, its head is red to bluish, shanks and toes are pale pink and the beak is grayish brown, (Plate 2). The 'Yarkada' (reddish brown, black and white) strain is similar to 'Banasare' only that its wings are complete black and with reddish brown colour dominating the tail feathers and with shiny black and white colour patterns. Its head and caruncle are red to bluish, shanks are pale pink and eyes are dark brown, (Plate 3). The 'Fari' (white) strain has a white plumage, its head and caruncle are red to pinkish, shanks and toes are pinkish white in colour with brown eyes, black beard and pinkish in colour, (Plate 4).

RESULTS AND DISCUSSION

Production Performance

The overall mean live weight of tom was 5679.20 ± 1073.60g (Table 1). The biggest in the present study was 6067.70 ± 728.3g in the 'Baki' strain. The least tom weight belonged to the 'Banasane' strain with mean of 4902.30 ± 1307.5g. The value recorded in the present study is higher than the value recorded by Ilori*et al*., (2010) of 2869.68 ± 46.08g for local turkey in Ogun state at 20 weeks of age. No age determination was carried out for the toms covered in this study. The overall mean live weight of hens recorded was 3816.4 ± 845.5g. The value obtained does not agree with that of Ilori*et al*. (2010). However, the 'Baki' strain with mean body weight of 3847.9 ± 771.5g was the heaviest, followed by 'Banasare' strain with mean body weight of 3705.9 ± 1.2g while the 'Yarkada' strain recorded the least mean weight of 3642.5 ± 432.2g (Table 3). The hen weight did not vary significantly between the physiological stages. The physiological stage with the biggest mean live weight was the brooding (4162.1 ± 761.7g). Plate 5 shows a brooding hen with her poults at Dange. The average mean weight recorded for hens in resting and laying stage were 3807.6 ± 909.6g and 3691.6 ± 483.2g, respectively. The least mean weight was recorded by incubating hens (3611.3 ± 706.6g). Plate 6 shows an incubating hen at wurno. The overall mean of poult weight was 609.60 ± 473.89g at about 42.90 ± 5.62 days (6 weeks) (Table 3). The highest mean weight was recorded by 'Banasare' strain (746.0 ± 557.5g) while the least mean weight recorded was 524.8 ± 398.5g for 'Baki' strain. The results obtained vary significantly with the weight at 8 weeks by Ilori*et al*. (2010).

Conclusion

The result obtained shows that 'Baki' strain is heavier than other strains. Live weight of hens was found to vary according to physiological stage.

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Plate 1: BAKI (Black)



Plate 2: BANASARE (Black, White, Gray and Brown) brown,



Plate 3: YARKADA (Reddish Black and White)



Plate 4: FARI (White)



Plate 5: BROODING HEN



Plate 6: INCUBATING HEN

Table 1: Means and standard deviations of weight of toms according to strain of turkey

Strain	No.	Mean	S.D.
Overall	15	5679.2	1073.5
'Banasare'	5	4902.2	1307.5
'Baki'	10	6067.7	728.3

Table 2: Means and standard deviations of live weight of hens by strain

Strain	No.	Mean	S.D.
Overall	143	3816.4	845.5
'Banasare'	23	3705.9	1.2
'Baki'	114	3847.9	771.5
'Yarkada'	6	3642.5	432.2

Table 3: Means and standard deviations of poult weight according to strain

Strain	No.	Mean	S.D.
Overall	60	609.6	473.89
'Banasare'	23	746.0[a]	557.5
'Baki'	37	524.8[b]	398.3

[ab] Means within the same column with different superscripts are significantly different (P<0.05)