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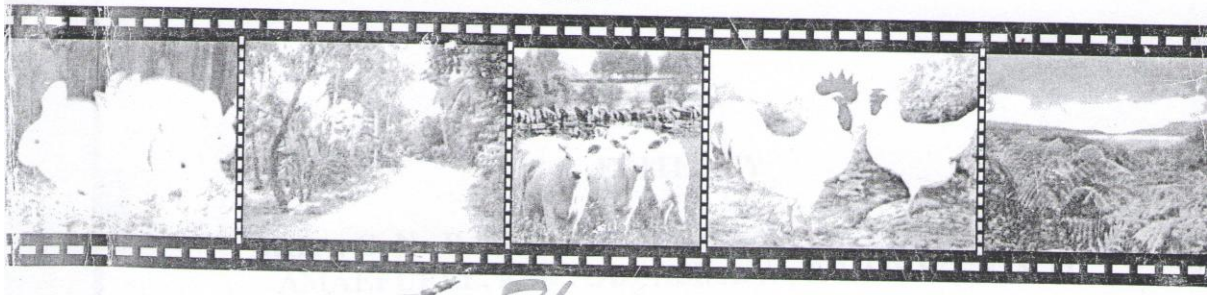

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Some Reproductive Characteristics of the Local Ducks in Nigeria

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Abstract

This study was carried out from March, 2005 to September, 2010 to investigate the breeding characteristics of the local ducks (muscovies) in Kazaure and Dutse Emirates of Jigawa State, Nigeria. Twenty eight (28) household /farmers were randomly selected in the two emirates. The study was carried out on-farms using a structured questionnaire which was supplemented with oral interviews. The data from individual farmers were pooled and analyzed using both descriptive statistics and analysis of variance. The results showed that the plumage colour distribution revealed that 33.0% of the ducks have a mixed colour of black/ white plumage. This was followed by ducks (32.0%) with grey/white colour. Other plumage colour distribution showed that grey, black, brown/white, brown/black, white and brown ducks were 12.0, 8.0, 5.0, 4.0, 4.0 and 2.0%, respectively. The breeding characteristics of ducks under scavenging and semi-intensive systems were compared. The results showed higher ($P< 0.05$) reproductive indices in terms of clutch size, number of clutch per year, fertility/hatchability and age at attainment of sexual maturity in the semi-intensive than scavenging ducks. Similarly, results on some productive indices (egg weight, weight of duckling, weaning weight and mortality rate) were significantly ($P<0.05$) better in the semi-intensive than the scavenging ducks. Therefore, this study on breeding characteristics of ducks showed reduced performance due to low use of production inputs, high mortality rate, slow growth rate and attainment of sexual maturity, among others. It is suggested that improved management of these ducks, couple with careful selection of ducklings from families with good egg production, hatchability and fertility records.

Key words: *ducks, breeding, rearing method*

Introduction

In Nigeria, the overwhelming human population growth and low animal protein production/intake are some of the major problems bedevilling the country. Encouraging poultry production and modernizing the industry will not only augment the present deficient animal protein intake but will deepen our understanding of these birds for improved performance. It has been showed that the poultry ranks highest in population among the animals on the farms; mostly 80 – 90% owned by small scale farmers (1). It has been shown that poultry production is increasing very rapidly and the consumption is increasing faster than that of other kinds of meat beside beef (2). It has also been reported that there is hardly any household in the rural and peri-urban areas that does not keep one form of poultry species or the other. Ducks rank third in population among the poultry species in the country, but neglected because little is known about them on the research circle (3, 4). Ducks are easy to raise because they are hardy and not susceptible to many of the common poultry diseases. Ducks are much easier to rear than chickens and turkeys as they do not require elaborate or elite housing arrangements and are sturdy enough to live through a more variable brooding temperature than other birds. The muscovy duck is the most widely distributed and forms the largest proportion of ducks in the country. Muscovies are the only breed that generally goes broody. It is reported that the muscovy hens naturally exhibit extraordinary broody ability in nurturing their ducklings. The duck hens attain puberty at the age of 7 months (5). It is therefore desirable to bring them into egg production at this age in order to avoid the problems of small-sized eggs and low hatchability. It has been reported that the drakes attain sexual maturity slowly than the duck hens with ranges of 29 – 3 weeks and 20 – 24 weeks, respectively, due

to photoperiodic control (6). For attaining high levels of fertility and hatchability, sex ratio of 1:6 must be maintained on the breeding farms. Muscovy ducks require 35 days of incubation, but eggs of other domestic duck breeds require 28 days. Ducks in the study area are mostly reared under the traditional management system by the local farmers. Under this system, there is reduced productivity due to low use of managerial inputs, poor record keeping, rudimentary health care and poor nutrition. In the locality, duck breeding is mainly confined to the wet season, where favourable weather conditions exist. It is estimated that about 825 million ducklings, chicks and guinea fowl keats are lost annually in Africa due to diseases and predators (7). The reduced productivity of the local ducks may be attributed to the overburdening tasks of brooding, rearing ducklings, variability in quantity and quality of feed, all of which give the duck little or no time for productive processes (8). Therefore, in order to address the numerous problems bedevilling efficient duck breeding in the country effort must be dwelled on extensive research work in nutrition, housing and good breeding programmes in order to enhance the purpose to which they are kept on the farms. This study was designed to generate some baseline information on duck reproduction for rapid selection and breeding programmes for improved productivity in selected parts of Jigawa State, the study area.

Materials and Methods

This study was carried in Jigawa State covering different parts. The area falls within the sudan savannah ecological zone of Nigeria. The State has an estimated human population of 5 million, using the 3 % annual growth rate (9). The rainfall ranges from 500 mm to 1200 mm, and the mean minimum and maximum temperatures of 15.9 and 33°C, respectively. The harmattan is experienced between December and February (10). The society is mainly agrarian with abundant livestock resources. The period of the study covered from 2005 – 2010. Twenty eight (28) farming households were randomly selected across the State. The study was carried out on-farms using a structured questionnaire which was supplemented with oral interviews. The information required from them included productive and reproductive traits such as clutch size, number of clutch per year, age at first lay, number of eggs hatched, egg weight, weight of duckling, weaning weight and mortality rates, plumage colour distribution as influenced by method of duck rearing. The data collected were subjected to analysis of variance and simple descriptive statistics to describe breeding characteristics, as described by (11).

Results and Discussion

Table 1 presents the plumage colour distribution among the ducks studied. The results revealed that about 33.0% of the ducks have a mixed colour of black/ white plumage. This was followed by ducks (32.0%) with grey/white plumage. Other plumage colours showed that grey, black, brown/white, brown/black, white and brown were 12.0, 8.0, 5.0, 4.0, 4.0 and 2.0%, respectively. Table 2 depicts data on duck breeding characteristics (the scavenging and semi-intensive compared). The results showed lower reproductive indices in terms of clutch size, number of clutch per year, fertility/hatchability and attainment of age at sexual maturity in the scavenging than the semi-intensive method. There were significant ($P< 0.05$) differences in all the reproductive parameters studied in the two systems. Similarly, data on productive indices (egg weight, weight of duckling, weaning weight and mortality rate) were significantly ($P<0.05$) better in the semi-intensive than the scavenging ducks, as shown in Table 2. Jigawa State is endowed with a very large population of ducks with variations in the colour of their plumage. The predominate black/white plumage colour of ducks in the present study confirms earlier report by (4) who reported black/white as the commonest plumage colour of ducks in their study in two locations (Makurdi and Katsina-Ala) of Benue State. This variation can be of paramount importance in selection of breeding ducks. The relationships of body dimensions with other productive traits in the duck species have been extensively studied by (3). Some of the traits obtained in this study are comparable to the reports of other

workers elsewhere. For instance, egg weights of 60.7 and 61.3g in the present investigation is lower than the value (70g) reported by (4) using the same local duck breed (muscovy). This variation in egg weight of ducks in the two studies is attributed to differences in ecological niche of the two studies. The earlier study was conducted in the southern guinea savannah ecological zone of Nigeria and the latter in the Sudan savannah, where there is less food and other insects available to the ducks coupled with low rainfall and vegetation cover. These and few other reasons might have accounted to the lower egg weight in the present study. Conversely, the egg weight in this study was much higher than the values reported by (3) using a different duck breed (Pekin). This shows that variation exits in egg weight between genotypic ally different duck breeds. However, other traits (productive and reproductive) such as clutch size, number of clutch per year, weaning weight and mortality rates were lower in the sudan savannah (present study) compared to the findings of (4) in the southern guinea savannah zone of Nigeria. However, fertility/hatchability in the present study was higher than the values (56 and 58%) reported in Katsina- Ala and Makurdi, respectively. However, these traits were significantly better in the semi-intensive than the scavenging ducks. This difference is probably a reflection of increased use of resources in the rearing of these ducks, in terms of better feeding, housing and health care. This was also similarly reported by (12) reported that clutch size differs significantly between species and sometimes even within the same genus. It may also differ within the same species due to many factors including habitat, health, nutrition, predation pressures and time of year. Clutch size variation can also reflect variation in optimal reproduction effort of the birds. Age at attainment of sexual maturity is longer in the scavenging ducks (25.0 weeks) than those reared under semi-intensive system (23.0 weeks). This was similar to the findings of (6) who reported between 20 to 24 weeks of age at sexual maturity in the duck hens.

Conclusion

This study on duck breeding in the area revealed several barriers to effective reproduction. These were low use of production inputs, low hatchability, low egg production, high mortality rate, slow growth rate and attainment of sexual maturity. It is therefore suggested that these barriers should be removed through improved management couple with careful selection of ducklings from families with good egg production, hatchability and fertility records. Also, broody hens must be exercised daily and be provided with feed and water near their nest in order to enhance their breeding capability.

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Table 1: Duck plumage colour distribution in selected parts of Jigawa State

Plumage type	Household	Percentage	Ranking
Black/white	66	33.0	I
Grey/white	64	32.0	II
Grey	24	12.0	III
Black	16	8.0	IV
Brown/white	10	5.0	V
Brown/black	8	4.0	VI
White	8	4.0	VI
Brown	4	2.0	VII
Total	200	100.0	

Table 2: Mean productive and reproductive parameters of ducks as influenced by management system

Parameter	Scavenging	Semi-intensive	LOS
Clutch size	10.3	15.8	*
Clutch number/year	1.5	1.8	*
Number of eggs hatched	9.9	12.8	*
Age at first lay (weeks)	25.0	23.0	*
Egg weight (g)	60.7	61.3	*
Weight of duckling (g)	73.7	89.0	*
Weight at weaning (kg)	1.96	2.3	*
Mortality rate (%)	57.6	10.9	*

* P< 0.05, LOS = Level of Significance