



PREVALENCE OF MITES AND FLEAS AS PRIMARY TURKEY ECTOPARASITES IN ODEDA LOCAL GOVERNMENT AREA OF OGUN STATE, NIGERIA

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Abstract

The study was carried out to determine the prevalence of mites and fleas as primary ectoparasites of turkeys within Odeda Local Government Area (LGA) of Ogun state. The survey was carried out in five selected localities within Odeda local government area. These areas include: Odeda village, Osiele, Alabata village, Obantoko and Eleweran. The study was carried out to establish if there was any relationship between certain management factors in turkey rearing and the prevalence of the ectoparasites. Structured interview guides were used to collect relevant data from 200 turkey owners while their birds were sampled to determine the prevalence of ectoparasites. Mites and fleas were collected, identified and enumerated. Ectoparasite species identification and enumeration were carried out in the Parasitology laboratory in the College of Veterinary Medicine, Federal University of Agriculture Abeokuta, Ogun State. Data collected were subjected to Chi-square analysis to establish significant associations. Out of the 200 turkeys examined 94.0% were infested with one or more of the ectoparasites. There were significant associations ($P < 0.001$) between housing of animals, cleaning of housing, and health management with the level of prevalence of the ectoparasites. There was no significant association between the prevalence of all the parasites with supplementary feeding ($P > 0.05$). It was concluded that mites and fleas are ectoparasites of economic importance, and that certain of turkey management practices appear to be important risk factors as they positively influence their infestation in the study area. Also routine and strategic control measures should be factored into production to increase profit in the production, health and general welfare of the turkeys.

Key word: Prevalence, Ectoparasites, Turkey.

Introduction

A turkey is a large bird in the genus *Meleagris*. One species, *Meleagris gallopavo*, commonly known as the Wild Turkey, is native to the forests of North America. The domestic turkey is descendant of this species. Males of both species have a distinctive fleshy wattle or protuberance that hangs from the top of the beak called a snood in the Wild Turkey and its domestic descendants. They are among the largest birds in their ranges. As in many galliform species, the male (tom or gobbler) is larger and much more colorful than the female (hen).

Turkey occupies an important position next to chicken, duck, guinea fowl and quail in contributing the most evolving sector, which is playing a significant role in augmenting the economic and nutritional status of varied population. They form almost 2% the total poultry population. They are reared for meat only and its meat is the leanest among other domestic avian species (Majood *et al.*, 2006). Up till now in Nigeria, there is no known discriminatory attitude towards the production and consumption of turkeys. Among Nigerians, poultry meat and eggs are to some extent still considered luxury foods. The amount of eggs and meats available from this source is usually limited by the low level of productivity of free-range birds (Adene *et al.*, 2006).

Mites and fleas can be classified into various groups based on their mode of feeding. These groups include: biting and chewing, piercing and sucking, and boring insects (Iwena, 1995). As in other poultry species such as chickens, parasites affect the turkeys by causing discomfort or significant mortalities in birds, thus reducing the birds' productivity levels. The predilection site for fowl mite is tail feathers, as well as, the fluff at the rear of the keel (Moreki, 2006).

According to (Abbas *et al.*, 2004), the ectoparasites of poultry like ticks, fleas, lice and mites plays an important role in the transmission of certain pathogens which cause heavy economic losses to poultry industry. They cause heavy morbidity by sucking blood and causing irritation to the birds which adversely affects the economical production of poultry. Ectoparasites cause weight loss at the rate of about 711 g per bird and decrease the egg yield at the rate of about 66 eggs per bird in a year. Among ectoparasites, fowl mites may cause ruffled feathers, anaemia, emaciation and lowered production. In addition, they are also known to transmit certain parasitic, bacterial and viral diseases like leucocytozoonosis, Aegyptianellosis, Pasteurellosis, Avian encephalomyelitis, Borreliosis and fowl cholera. Larval forms of these mites and fleas also cause paralysis. The factors that influence the epidemiology of parasitism includes: management practice and system, sanitation, climate, soil type and drainage. Free-range turkey rearing method requires low investment in facilities and equipments, and it is a viable and sustainable both for backyard and commercial venture from economic point of view (Majood *et al.*, 2006).

Turkey meat and fertilized eggs are commonly demanded for all over the country. So the increase in the demand for turkey meat, fertilized eggs, table eggs, feathers and droppings by the international trade market has necessitated the study of the prevalence of mites and fleas as ectoparasites of turkey in relation to the management systems. Therefore this study was aimed at investigating the prevalence of mites and fleas of turkeys in relation to the various management systems and practices carried out within Odeda Local Government Area of Ogun State, Nigeria.

Materials and Methods

The survey was carried out in five selected localities within Odeda local government area of Ogun state. These areas include: Odeda village, Osiele, Alabata village, Obantoko and Eleweran. These areas are usually characterised by high humidity and temperature. An average of 200 turkeys (both indigenous and cross breed) were examined and sampled from the different areas mentioned above in which the entire body were thoroughly check for both mites and fleas presence. The activity was carried out using a white cloth in which the turkeys were allowed to stand on and then the parasite would be brushed and picked from the body of the animals and then dropped in a sample bottles containing alcohol solution. An interview guide (questionnaire) was distributed within these areas to gather information for the analysis in relation to the prevalence from the respondents.

The mites and fleas were identified under the microscope to observe the morphological features.

Statistical Analysis: Data collected were subjected to descriptive analyses and also using of contingency tables of various associations (SAS, 1999).The contingency tables were processed for Chi square statistics using Genstat statistical software as well as tables and bar graphs were used to describe the significant relationship. The associations of various factors with the level of prevalence of the ectoparasites were analyzed using the chi square analysis.

Results and Discussion

Level of prevalence of ectoparasites on turkey at the various locations: Most of the turkeys examined had mites and fleas. Result showed that both mites and fleas had 94.0% prevalence rate. Ectoparasites identified on turkeys were: mites (40.7%), fleas (34.2%) while lice (23.5%) and tick (1.6%) are the other ectoparasites encountered (observed) as shown in Figure1.

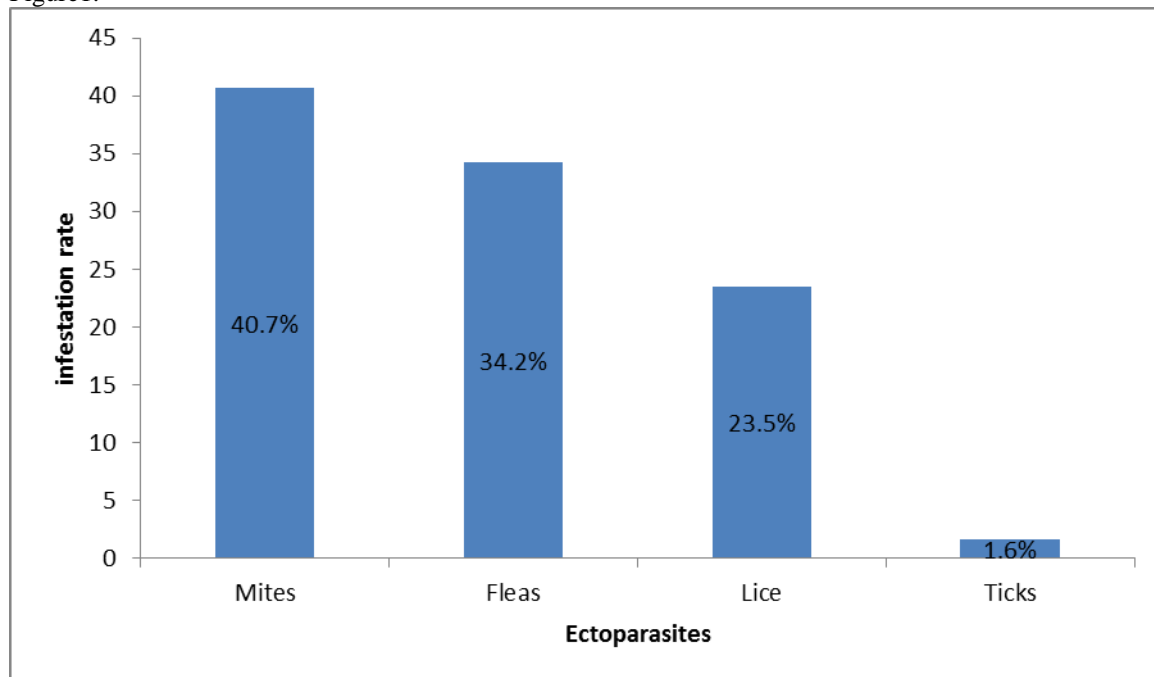


Figure 1: Prevalence rates of ectoparasites of Turkeys in Odeda Local Government Area of Ogun Sate, Nigeria.

The level of education bears out on the general management practices embarked upon by the respondents. Three management systems were identified in the study area were intensive, semi-intensive and free range (extensive). Among the respondents the commonest was semi-intensive (54.5%). This is a system where the birds are allowed to move about the homestead freely in the day and confined under a shelter at night. 1.5% of the respondents practiced free range system where the birds were allowed to fend for themselves and there was no provision of shelter. Forty-four (44.0%) of the respondents practiced intensive system of housing and the birds were not allowed to leave the pen at all.

According to the respondents, 60% fed their turkeys twice daily, 33.5% fed their turkeys once daily, 2.0% fed their turkeys thrice while 4.5% did no feed their turkeys at all. 75.5% of the respondents interviewed got their initial stock from market, 14.0% as contractual agreement, 6.0% as gift while 4.5% got their initial stock from parents as inheritance and cultural purposes.

64.5% of the respondents kept their birds in a cage at night, 10.5% at the backyard and 24.5% in an open shed area while 1.0% of the respondents provide no housing. 95.5% of the respondents interviewed cleaned their pen and 47% had access to drug and vaccination.

The result also showed that 50.0% of the respondents prevented the infestation through sanitation and cleaning, 34.5% sprayed with parasiticide while 15.5% did not prevent the infestation. There were significant association between the

management systems and the level of prevalence. There was no significant association of prevalence of all the parasites with supplementary feeding ($P > 0.05$). However, (Table 1) showed some management factors had significant association with prevalence.

Table 1: Chi square analysis of some management factors associated with prevalence of mites and fleas
 *- Significant associations at respective probability levels ($P < 0.05$)

Management factors	Prevalence of ectoparasites	
	Mites	Fleas
Housing	5.29 ($P < 0.001$) *	6.43 ($P < 0.001$)*
Cleaning of Housing	20.13 ($P < 0.001$)*	19.34 ($P < 0.001$)*
Health Management	49.1 ($P < 0.001$) *	31.9 ($P = 0.002$)
Supplementary Feeding	0.93 ($P = 0.93$)	0.00 ($P = 1.0$)

Three breed of turkeys were identified in the study area. These were pure local (41.5%), cross breed (30.0%) while 28.5% were exotic breed (Figure 2). Most of the respondents (50%) kept their turkeys for income, 30.5% for household consumption, 18.5% for festivity and 1.0% for cultural purposes.

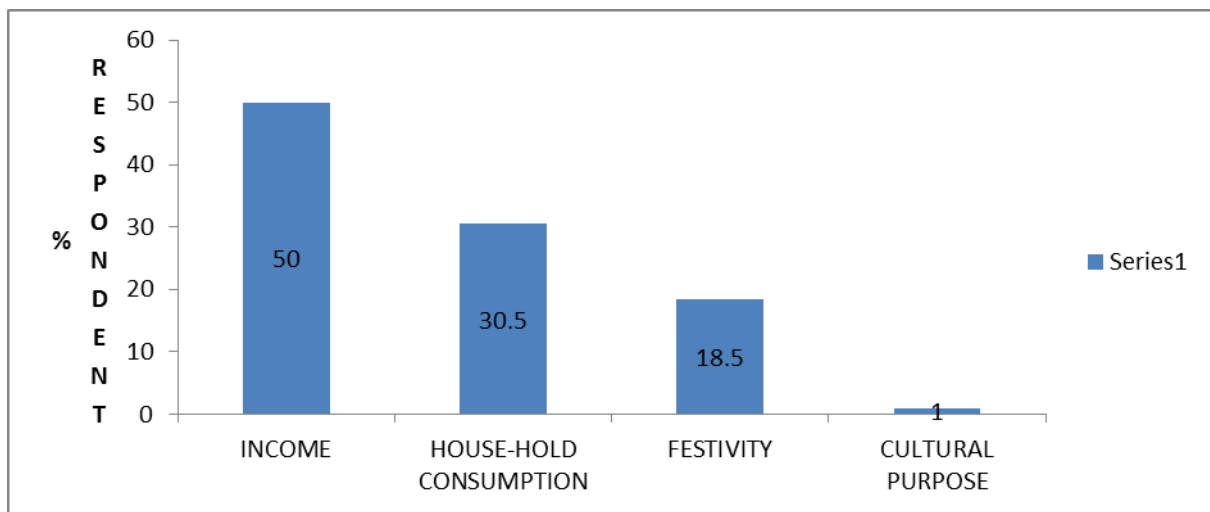


Figure 2: Population % of Breeds of Turkey reared in Odeda Local Government Area of Ogun State, Nigeria.

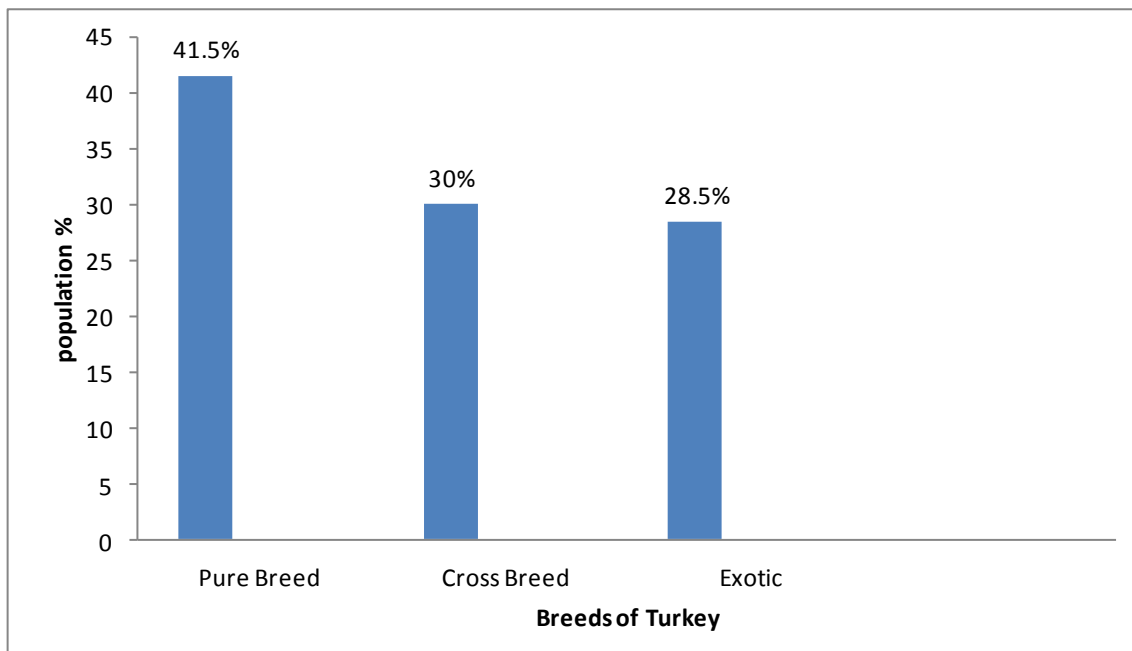


Table 2: Stage of Growth and sex distribution of ectoparasite infestation in Turkey in Odeda Local Government Area of Ogun State, Nigeria

Stage of Growth	Male	Female	Total
Poult	28 (23.5%)	18 (22.2%)	46 (23%)
Adult	91 (76.5%)	63 (77.8%)	154 (77%)
Total	119	81	200

(*) Percentage of the number of turkeys examined that were infested

According to (Table 2) the result gathered from the questionnaire, 23.5% of poult were male while 22.2% of poult were female and 76.5% of the total adult were male while 77.8% of adult were female.

Discussion

The result showed high prevalence of both mites and fleas on turkeys. The turkeys studied were infested with 40.7% of mites and 34.2% of fleas which is similar to 62.2%, 35.7% 2.1% prevalence rate of fleas and mites respectively reported by Nnadi and George (2010) for poultry in sub-humid zone of Eastern part of Nigeria.

According to Adene *et al.*, (2006), Preventive medication or prophylaxis is one of the cornerstones of disease prevention in farm stocks. Moreover, Adene and Dipeolu (1975) encountered no flea in their survey of blood and ectoparasites of domestic fowls in Ibadan, Western Nigeria. These variations in result could be attributed to the season, time of the day, and the study location with respect to urban, periurban or pure village setting and these environmental factors favours their propagation and life cycle progression of the diverse ectoparasites species. With respect to mites, the results agreed with that of Saidu *et al* (1994) who listed mites as one of the common ectoparasites of village poultry. The result of this study also agrees with report of Solomon *et al.*, (2010) that Parasites, both internal and external, are common in the tropics where the standard of husbandry is poor, yet climatic conditions are favorable for the development of the parasites.

Conclusion

The primary and common ectoparasites of turkeys found in Odeda Local Government Area of Ogun State are mites and fleas. Ectoparasites such as mites and fleas cause anaemia and depending on the degree of infestation may lead to egg abandonment in brooding turkeys. They also cause mortality attributed to starvation and immune depression under heavy infestation which leads to low poultry production. Mites and fleas are ectoparasites of economic importance, management practices appear to be important risk factors of their infestation in the study area. Good hygiene, clean litter and regular inspections of both the turkey house and your turkeys are the best way of limiting this problem, detecting it early and implementing measures so that your turkeys can enjoy an itchy-free and healthy life.

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