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ANALYSIS OF THE INCIDENCES OF RESPIRATORY DISEASES OF TURKEYS IN THE GUINEA SAVANNAH ZONE OF NIGERIA

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Abstract

Five years retrospective study on the incidences of respiratory diseases of turkeys in Mubi, the northern guinea savannah zone of Nigeria was carried out from 2013 to 2017. All the incidence of turkey respiratory diseases within the periods of the study was obtained from the records of zonal veterinary clinic Mubi of adamawa state, Nigeria. The five year retrospective study revealed a total number of 254 detected cases of respiratory diseases in turkeys reported to the zonal veterinary clinic, Mubi. Out of this number (254), 134 (52.8. %), 109 (42.9%), and 11(4.3%) were recorded for bacterial, viral and non-infectious diseases respectively. Fowl typhoid 79 (31.1%) was the most predominant disease of turkeys recorded during the study, while Marek's disease 5 (2.0%) was the least respiratory disease of turkeys as revealed in the study. The incidence of respiratory diseases in turkeys is generally low as observed in this study but there is need for total eradications of these diseases for successful turkey production as this species provides the much needed low fat protein supplement to the ever increasing human population in Nigeria. This can be achieved through better enforcement of government disease control policies and measures with better management practices such as intensive system of management and routine vaccination of all turkeys against preventable respiratory diseases.

KEYWORDS:
Respiratory Diseases, Turkeys, Guinea Savannah, Diseases

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Introduction

Poultry sector constitute a major source of animal protein supply in Nigeria. It is next to ruminants as a source of animal protein supply in Nigeria and accounts for almost 25% of local meat production (Ajala and Alli-Balogun, 2004). According to FAO report of 1988 cited by Nwanta *et al*. (2012), Nigeria recorded the lowest animal protein intake with an average of 6g per head per day. The FAO (2010) also estimated that in an average Nigerian meal, animal protein contributes 3% against 12% recommended for healthy living. Among Nigerians, poultry meat and eggs are to some extent still considered luxury food (Adene and Oguntade, 2006). One of the major reasons for the poor intake of animal protein among Nigerians maybe due to inadequate supply of animal products occasioned by low productivity and consequent rise in cost of meat. With the continued rise in the cost of production of beef, sheep and chicken, which are the primary sources of animal protein in Nigeria, it has become very necessary to explore other efficient and less common but potential sources of animal protein for economic viability (Ajala and Alli Balogun, 2004). Turkey is one of the potential sources of animal protein in Nigeria and is the most suitable alternative for small or large scale producers considering the cost of production.

Turkey (meleagris gallopavo) is an underrated, but highly promising poultry specie type with numerous attributes such as its ability to thrive under arid conditions tolerates heat better and has higher quality meat than other poultry specie (Fisinin and Zlochevskaya, 1989; Yakubu *et al*., 2013). Smith (1990) reported that carcasses of turkey contained a higher percentage of protein than the carcasses of chicken. Local turkeys are natural foragers and can be kept as scavengers (Peters *et al*., 1997). Turkeys have also been found to be of considerable economic and social significance in the traditional life of Nigerians, in that they are used as gifts during festivals like Christmas and as a sign of appreciation and expression of good will (Peters *et al*., 1997). There's no known discriminatory attitude toward the consumption of turkeys (Peters *et al*., 1997).

While the production of other types of poultry species has rapidly increased in recent times (Okoruwa *et al*.,2006) and despite its greater potential than chicken, very little successes have been recorded in turkey production in the developing countries such as Nigeria, where consumers continue to pay high prices for imported turkeys and even for local one (Shingari and Sapra 1993; Peters *et al*., 1997; Nwagu, 2002; Ojewola *et al*., 2002; Perez-Lara *et al*., 2013). The potentials of turkeys cannot be overlooked considering the huge foreign exchange involved

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with the importation of improved exotic stock (Ibe, 1990). According to Thear and Fraser (1986) imported turkey formed about 60% of the total turkeys in Nigerian market while the rest is supplied by other local sources. The indigenous people of Adamawa state are involved mainly in poultry keeping and other livestock specie. They predominantly keep poultry specie such as chickens (local and exotic), turkeys and ducks with chicken population of 108,354 and turkeys 28,985 (Ikepeze, 2005). Despite the importance of turkey to human nutrition, the raising of poultry in Mubi and all over the world is threatened by many disease condition cause by viral, Bacterial, parasitic, fungal agents and non-infectious diseases.

Economic losses due to respiratory disease still remain a major constraint hindering successful turkey production in Nigeria especially in high turkey's density areas where diseases prevention and control measure are rare (Abubakar *et tal*., 2008). Out of the estimated total 124 million population of turkey in the world, Nigeria account for about 220, 631 with 16,090 and 204,541 found in the urban areas and villages respectively Resource Inventory and Management RIM 2002, NPC 2006) and are raised at all levels of husbandry. They occur most often in scattered household flocks that scavenge for their food and survive with minimal care or management (Adu *et tal*., 1986) and help supplement the much needed protein to the growing population especially in areas where domestic's cattle and chickens cannot meet the protein need of the population (Elasa., 1985). Economic losses due to respiratory disease still remain a major constraint hindering successful turkey production in Nigeria (Copland, 1987, Spradbrow, 1987), especially in high turkey's dense areas where diseases prevention and control measure are rare (Adu *et al.,* 1990; Jordan and Pattisan, 1999). Documented information on the incidence of respiratory diseases of turkeys in Nigeria and Adamawa state in particular is however, scanty. Therefore, it is against this background that we though it is worthwhile to investigate the incidence of some important respiratory diseases of turkeys in Mubi, Adamawa State for a better and more efficient turkey production.

MATERIALS AND METHODS

Study area

The study was conducted at Mubi zonal veterinary clinic which is located within Mubi north local government of Adamawa state in eastern region of northern guinea savannah of Nigeria, a latitude 19°20 north and longitude 13°50 east and covers an area of 24, 00km^2. The rainfall range between 700 to 900 mm with

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highest in the month of august the temperature is highest at 38°C during March and April; the minimum is 15°C in January (Adebayo, 2004).

Mubi north local government share common border with Mubi south local government, Hong local government and Michika local government areas, it also share an international border with Cameroon Republic (Adebayo, 2004). Mubi north local government is inhabitant by many tribes such as Fali, Fulani, Hausa, and others with Fali and Fulani as the predominant tribes. The people have rich cultural heritage and are predominantly farmers (crop production and rearing animal like cattle). The climate condition helps the people to practice agriculture as their occupation particularly cattle rearing and marketing (Adebayo, 2004).

Data collection

The data of all cases of turkey respiratory diseases for this retrospective study were obtain from zonal veterinary clinic, Mubi Adamawa State. All the data so obtained were collated and analyzed using simple percentage.

Data presentation and analysis

Results were presented as percentages in tables and figures

RESULTS

A total of 254 cases of different respiratory disease of turkeys were recorded at the zonal veterinary clinic from 2010-2013 a total of 134 (52.8%), 109(42.9%) and 11(4.3%) cases were of bacterial, viral and non-infectious diseases respectively. The levels of occurrence of these groups of diseases across the years are shown in figure 1. Generally fowl typhoid was found to be the most prevalent (79, 31.5%) respiratory disease followed by Newcastle disease 65 (25.6%). While marek's disease recorded low 5 (2.0%) incidence rate of infections. Detail results are given in Table1.

Table1. Aetiology of Respiratory Diseases of Turkey in Mubi

		Years						
Aetiology	Diseases	2013	2014	2015	2016	2017	Total NO. Of cases(%)	
Bacteria	Fowl Typhoid	09	14	20	07	29	79(31.1)	
	Pullorum	01	01	03	05	12	22(8.7)	
	Turkey coryza	00	02	04	00	08	14(5.5)	134(52.8)
	Pasteurellosis	03	00	02	04	03	12(4.7)	

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	Mycoplasmosis	02	00	03	02	00	07(2.8)	
Viral	Newcastle	10	13	14	04	24	65(25.6)	
	Chronic respiratory	07	00	26	03	03	39(15.4)	109(42.9)
	Marek's	00	02	00	01	02	5(2.0)	
Non infectious Diseases		00	02	00	03	03	11(4.2)	11(4.2)
Total No. of cases		37	32	72	29	84	254	
Percentages (%) of total cases		14.6)	(12.6)	(28.3)	(11.4)	(33.1)	(100)	

Table2. Annual incidence of Different Aetiology of Respiratory Diseases of Turkeys in Mubi

	Years				
Aetiology	2013	2014	2015	2016	2017
Bacteria	15	17	32	18	52
Viral	17	15	40	08	29
Non-infectious	05	00	00	03	03
Total	37	32	72	29	84

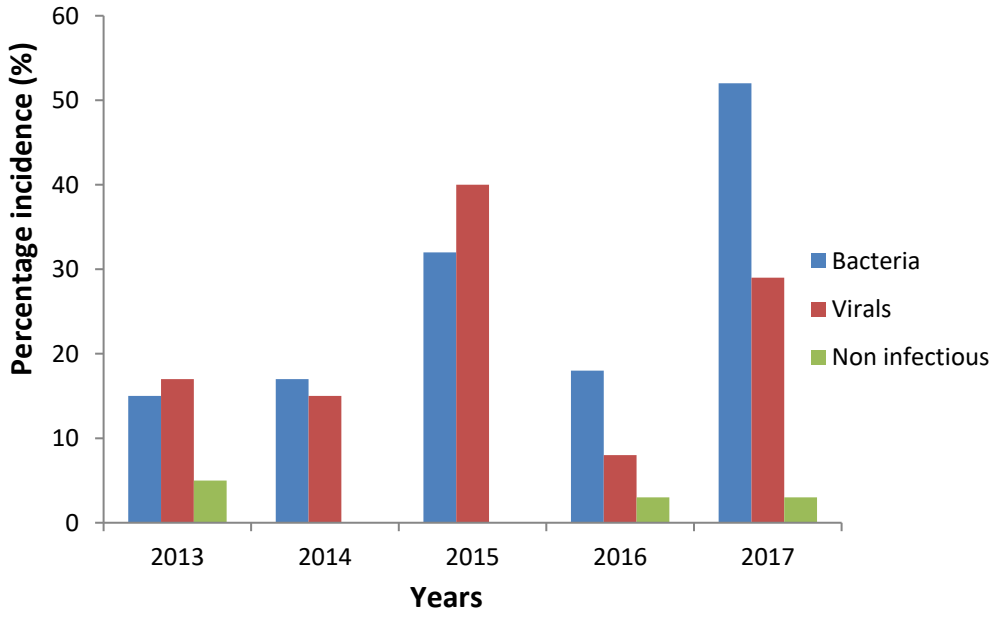

Fig. 1 Graphical representation of annual incidence of different aetiology of respiratory diseases of turkeys in Mubi

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DISCUSSION

Based on the study findings, bacterial respiratory diseases of turkey accounted for higher percentage of turkey respiratory infections of with incidence rate of 134(52.8). The incidence of viral respiratory disease of turkey as revealed in the study is 109(42.9) which is lower than the incidence of bacterial diseases 134(52.8) but higher than the non infectious diseases that recorded 11(4.2). The incidence of respiratory diseases in turkeys is generally low as observed in this study. Similar observations were made by (Ambali *et al*., 2003). This may not be unconnected to the relatively higher resistance of turkeys to stress, adverse environmental condition and disease as recorded in Nigeria livestock resources survey (NLRS, 1992) and (Adu *et tal*., 1990) as well as the low population of turkeys in Nigeria, which also includes adamawa state. Nigeria livestock resources survey (1992) equally revealed that more than 90% of the turkeys populations are found in villages and Mubi being an urban settlement is expected to have low turkey population which contributed to fewer incidence of turkey screening and treatment of all diseases cases in the clinic. The menace of cross infection due to free range rearing where most farmers allow turkey scavenge on available feeds, extreme environmental condition and poor management practices attributed to the occurrence, spread and cross infectious among turkeys and others scavenges rural poultry.

Therefore, the need for total eradications of these diseases for successful turkey production is emphasize as this species provides the much needed low fat protein supplement to the ever increasing human population in Nigeria. This can be achieved through better enforcement of government disease control measures with better management practices (intensive system of management) and routine vaccination of all turkeys against these diseases.

CONCLUSION

in conclusion bacterial and viral respiratory diseases of turkey is increasingly becoming a major obstacle to turkey farmers in the study area, turkey farmers should ensure their turkeys are vaccinated against all the viral and bacterial respiratory diseases in accordance with the recommended vaccination programme. Therefore, there is need for continuous surveillance and biosecurity measures.

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RECOMMENDATIONS

Being pathogenic organism, bacterial and viral respiratory diseases of turkey should be taken into consideration while making diagnosis of diseases in the clinics and the fields. Proper attention should also be paid towards early diagnosis, regular serominotoring as well as formulating suitable control strategies including stringent biosecurity measures. Proper epidemiological survey need to be followed to know the real magnitude of the infection in the country, also devising effective and timely control strategies.

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