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The prevalence and seasonality of ruminant animal diseases in Ijebu–Ode, Ogun State, Nigeria.

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Abstract

A ten-year (1996-2005) record of treatment report on diagnosed ruminant diseases in Ijebu-Ode, Ogun State was evaluated to determine the prevalence and seasonality of the major ruminant diseases in the southwestern part of Nigeria. A total of 6880 ruminants comprising 114 cattle, 3312 sheep and 3454 goats were treated. Trypanomosis, Pneumonia, and Malnutrition showed seasonal fluctuation while Helminthiasis, Ectoparasitism, Gastro-Enteritis, Kata and Dystocia were distributed throughout the year. Helminthasis (3126 cases) had a seasonal occurrence of 31.99%, 31.54%, 11.89% and 29.01% for the hot-dry, hot-humid rainy, hot humid non-rainy and cool-humid rainy seasons respectively. During the hot-dry season, Trypanosomosis (19.29%) and malnutrition (3.51%) in cattle, Helminthiasis (14.31% and 11.87%) in sheep and goats respectively were the major problems. Ectoparasitism (3.51%) and Pneumonia (3.51%) in cattle, Helminthiasis (16.61% and 13.72%) Ectoparasition (6.76% and 7.53%) and Kata (5.86% and 5.79%) in sheep and goats respectively were the major problems during the hot-humid rainy season. Helminthiasis (3.51%) Gastro – Enteritis (3.51%) and Toxaemia / Septicaemia (3.51%) in cattle, Helminthiasis (4.23% and 5.91%), Ectoparasitism (2.60% and 1.74%) and Kata (3.02% and 2.72%) in sheep and goats respectively were the major problems during the hot – humid non – rainy season. Pneumonia (5.26%) and Helminthasis (3.51%) in cattle, Helminthasis (13.90% and 11.60%), Kata (4.90% and 7.53%), Ectoparasitism (3.86% and 5.21%) and Pneumonia (2.42% and 1.80%) in sheep and goats respectively were the major diseases that occurred in the cool humid rainy season. The relevance of this report to effective control measures for the ruminant enterprise in southwestern Nigeria is also highlighted.

Keywords: Ruminant, diseases, seasonality, prevalence

Introduction

Disease is an important contributor to low productivity in the livestock sector. It hinders production directly by causing death and indirectly by restricting growth rate and reproductive performance (Adeoye, 1984). Even in countries where there are intensive veterinary controls, it has been found that disease might cause loss of between 15% and 20% of total production (Lindley, 1989). Losses from diseases and parasites can be very serious, leading to great economic loss. In addition, the livestock industry is plagued with low conception rate, foetal wastage and neonatal losses. Apart from direct economic losses due to mortality and low production, disease has denied African livestock producers access to foreign markets, thereby reducing incentives for increased production (Ezeokoli, 1986).

In this report, we gave an account on the prevalence and seasonality of the major diseases (Helminthes, Trypanosomosis, Ectoparasitism, Pneumonia, Kata, Gastro-Enteritis, Malnutrition and Dystocia) of ruminant animal for a 10–year period (1996–2005). This analysis we believe will

help to update previous report by Akerejola, Schillhorn, Veen, and Njoku (1979), Voh Jr., Mohammed, Otchere and Adewuyi (1993) and Halle, Raji, and Ibrahim, (1997) for the Northern part of Nigeria. It will serve as a guide so that the local ruminant producer, nutritionist and the veterinarian may develop a specific program to improve the health of the ruminant animals, thus enhancing the pr ofitability of livestock enterprise.

Materials and Methods

Ijebu – Ode, a city in southwestern Nigeria is located in the rain forest zone, where the rainy season runs from March to October, peaking in the month of June; while the dry season is the period from November to February. Information contained in this paper is based on case reports of ruminant diseases as documented in the case report books at the Veterinary Clinic, Ministry of Agriculture Ijebu-Ode.

The animals treated were brought in by livestock owners from various areas of the Southwestern part of the country. Breeds of cattle (Muturu, White Fulani and Sokoto Gudali.), sheep (West African Dwarf, Yankassa and Uda) and goat (West African Dwarf, Red Sokoto and Kano Brown) of different ages were treated during this period. The animals were examined for any gross lesion and appropriate specimen sent for bacterial or viral isolation, parasitic identification and tissue histopathology. All the report books containing treatment report from January 1996 to December 2005 were examined. The data on livestock diseases were then reduced into tables of prevalence and seasonality for the various ruminant species.

The year was divided into hot dry season (November to February), hot-humid rainy season (March to July), hot-humid non-rainy season (August) and cool-humid rainy season (September and October), (Yesso *et.al* 1991). A total of 6880 animals comprising 114 cattle, 3312 sheep and 3454 goats were treated during the 10–year study period.

Results

A breakdown of diseases for the various ruminant species during the Hot-dry, hot-humid rainy, hot humid non-rainy and cool- humid rainy seasons is given below.

Cattle: The major diseases that occurred in the hot dry season were Trypanomosis (19.29%), Toxaemia/ Septicaenia (12.30%) and malnutrition (3.51%) which occurred only in this season. Pneumonia (3.51%) and Ectoparasitism (3.51%) were the major problems during the hot- humid rainy season. Helminthiasis (3.51%) was evenly distributed throughout the year. Gastro-Enteritis (3.51%) and Toxaemia/Septicaemia (3.51%) were prevalent in the hot-humid non-rainy season. Preumonia (5.26%) was the major problem during the cool-humid rainy season. (Table 1).

Sheep: Helminthiasis, (14.31%)Babesiosis (1.03%), Gastro-Enteritis (0.72%), Malnutrition (0.54%) and Trypanosomosis (0.24%) were most prevalent during the hot-dry season. Helminthiasis (16.61%), kata (5.86%) and Ectoparasitism (6.76%) were prevalent during the hot-humid rainy season. Helminthiasis (4.23%), Kata (3.02%) and Ectoparasitism (2.60%) were the major problems during the hot-humid non-rainy season. Helminthiasis (13.90%), kata (4.90%), Ectoparasitism (3.86%) and preumonia (2.42%) were prevalent in the cool-humid rainy season. Dystocia (0.06%) was evenly distributed throughout the three rainy seasons. (Table 2).

Goat: Helminthiasis (11.87%), Ectoparasitism (7.93%) physical injury (0.41%), Malnutrition (0.60%) and Trypanoxomosis (0.98%) were the

Table 1: Prevalence and seasonality of diseases of cattle in Ijebu-Ode

Disease Condition	No of Animals Treated	SEASONAL OCCURRENCE Hot Dry Season (%)	Hot Humid Rainy Season (%)	Hot Humid Non Rainy Season (%)	Cool Humid Rainy Season (%)
Trypanosomosis	26	22 (19.2)	0 (-)	4 (3.51)	0 (-)
Caesarean Section	6	6 (5.26)	0 (-)	0 (-)	0 (-)
Pneumonia	14	4 (3.51)	4 (3.51)	0 (-)	6 (5.26)
Malnutrition	4	4 (3.51)	0 (-)	0 (-)	0 (-)
Babesiosis	10	4 (3.51)	2 (1.75)	0 (-)	4 (3.51)
Gastro-Enteritis	6	2 (1.75)	0 (-)	4 (3.51)	0 (-)
Toxaemia / Septicaemia	20	14 (12.30)	2 (1.75)	4 (3.51)	0 (-)
Physical Injury / Fracture	10				
Ectoparasitism (Mange, ticks, lice)	4	8 (7.02)	2 (1.75)	0 (-)	0 (-)
Helminthiasis (strogyliasis), strogyloidiasis	14	0 (-)	4 (3.51)	0 (-)	0 (-)
Total	114	4 (3.51)	4 (3.51)	2 (1.75)	4 (3.51)
		68 (59.66)	18 (51.78)	14 (12.28)	14 (12.28)

Table 2: Prevalence and seasonality of diseases of sheep in Ijebu-Ode

Disease Condition	No of Animals Treated	SEASONAL OCCURRENCE Hot Dry Season (%)	Hot Humid Rainy Season (%)	Hot Humid Non Rainy Season (%)	Cool Humid Rainy Season (%)
Helminthiasis (strongylisis / strongyloidiasis)	1624	474 (14.31)	550(16.61)	140 (4.23%)	460 (13.90)
Kata (PPR)	626	170 (5.13)	194 (5.86)	100 (3.02)	162 (4.90)
Babesiosis	38	34 (1.03)	2 (0.06)	2 (0.06)	0 (-)
Mastitis	2	0 (-)	2 (0.06)	0 (-)	0 (-)
Dystocia	6	0 (-)	2 (0.06)	2 (0.06)	2 (0.06)
Physical Injury/ Fracture	16	2 (0.06)	6 (0.18)	4 (0.12)	4 (0.12)
Leptospirosis	22	0 (-)	6 (0.18)	14 (0.42)	2 (0.06)
Toxaemia/Septicaemia	6	4 (0.12)	0 (-)	2 (0.06)	0 (-)
Gastro-Enteritis	64	24 (0.72)	14 (0.42)	6 (0.18)	20 (0.60)
Canine Distemper	32	4 (0.12)	10 (0.30)	6 (0.18)	12 (0.36)
Pneumonia-Enteritis Complex	6	2 (0.06)	2 (0.60)	0 (-)	2 (0.06)
Pneumonia	210	56 (1.6)	40 (1.21)	34 (1.03)	80 (2.42)
Malnutrition	22	18 (0.54)	0 (-)	2 (0.06)	2 (0.06)
Trypanosomosis	14	8 (0.24)	2 (0.06)	4 (0.12)	0 (-)
Ectoparasitism (Mange, ticks, lice)	624	186 (5.62)	224 (6.76)	86 (2.60)	128 (3.86)
Total	3312	1058 (31.94)	978 (29.52)	402 (12.14)	874 (26.40)

major problems during the hot-dry season. Helminthiasis (13.72%), Ectoparasitism (7.53%), Kata (5.79%), Haemonchosis (0.30%), Bloat (0.17%) pneumonia –Enteritis Complex (0.12%) occurred in the hot-humid rainy season. Helminthiasis (5.91%), Orchydectomy (0.30%) and Kata (2.72%) were the major problems during the hot-humid non-rainy season. Helminthiasis (11.60%), Kata (7.53%), Pneumonia (1.80%) and Ectoparasitism occurred during the cool-humid rainy season (Table 3).

Discussion

Starvation / Malnutrition: This was a problem in all the ruminant species under-studied. This might be attributed to inadequate grazing and feed availability in the hot dry season, a problem usually compounded by bush burning, water scarcity and land tenure system. During this period also, there is always drastic decline in both the quality and quantity of forage which may be accompanied by deficiencies of certain nutrients. This is in agreement with the

Table 3: Prevalence and seasonality of diseases of goat in Ijebu-Ode

Disease Condition	No of Animals Treated	SEASONAL OCCURRENCE			
		Hot Dry Season (%)	Hot Humid Rainy Season (%)	Hot Humid Non Rainy Season (%)	Cool Humid Rainy Season (%)
Helminthiosis (strongylisis / strongyloidianis)	1488	410 (11.87)	474 (13.72)	204 (5.91)	400 (11.60)
Ectoparasitism (mange, ticks, lice)	774	274 (7.93)	260 (7.53)	60 (1.74)	180 (5.21)
Kata (PPR)	744	190 (5.50)	200 (5.79)	94 (2.72)	260 (7.53)
Mastitis	10	8 (0.23)	0 (-)	2 (0.05)	0 (-)
Dystocia	4	2 (0.05)	2 (0.05)	0 (-)	0 (-)
Physical Injury/ Fracture	32	14 (0.41)	6 (0.17)	8 (0.23)	4 (0.12)
Pneumonia	190	70 (2.03)	38 (1.10)	20 (0.60)	62 (1.80)
Toxaemia / Septicaemia	4	2 (0.05)	2 (0.05)	0 (-)	0 (-)
Gastro-Enteritis	56	26 (0.75)	14 (0.41)	10 (0.30)	6 (0.17)
Orchydectomy (Castration)	34	10 (0.30)	8 (0.23)	10 (0.30)	6 (0.17)
Haemonchosis	30	6 (0.17)	10 (0.30)	8 (0.23)	6 (0.17)
Bloat	10	0 (-)	6 (0.17)	2 (0.05)	2 (0.05)
Malnutrition	24	20 (0.60)	0 (-)	2 (0.05)	2 (0.05)
Pneumonia – Enteritis Complex	10	4 (0.12)	4 (0.12)	0 (-)	2 (0.05)
Trypanosomosis	44	34 (0.98)	2 (0.05)	6 (0.17)	2 (0.05)
Total	3454	1070 (30.99)	1026(29.69)	426 (12.35)	93 (26.97)

observations of Onyekwodiri and Shoyinka (1984) in Eastern Nigeria, and Halle, Raji and Ibrahim (1997) for Northern Nigeria. These authors noted that rapid lignification of forage with its attendance decrease in nutritive quality is a major constraint to ruminant production in Nigeria. There are also problems of inadequate supplement feeds (PKC, GNC, BDG) which were in short supply and a keen competition between man and animals for these conventional ingredients. Akerejola (1976) observed that lack of protein supplement and nematode infection was responsible for high mortality in calves.

Toxaemia / Septicamia: This has been reported in all the ruminant species. In this study it maybe in the form of snake bite, ingestion of poisonous plants, chemical poisons (Acaricides), bloat or infected wounds. Toxaemia / Septicemia was observed to be most prevalent in the hot dry season in cattle and sheep. This is in agreement with the findings of Onyekwodiri and Shoyinka (1984).

The number of ruminants treated for Helminths was highest during the rainy seasons. In the sheep, the number of animals treated was highest for the hot humid rainy season than for any other season. Helmirtheses especially nematodes, cause high economic losses in small ruminants in Nigeria (Coop and Angus, 1981, and Ogunsusi, 1985). Studies conducted in Zaria and Kenya revealed that female small ruminants have higher frequency of infection than males and the adults are more affected (Umoh, *et. al.* 1982, Waruiru et.al.,1984). Rainy season enhances strongyle infection in small ruminants, resulting in anorexia, hypo-albuminaemia, loss of weight, anaemia and in severe cases oedema (bottle jaw), and death (Coop and Angus, 1981 and Ogunsusi, 1985). Infection could most probably be due to high stocking rate particularly the sleeping shed, poor nutrition, improper hygiene, poor housing and ineffectiveness of the worm control programme as observed by Mbaria *et. al.* (1995).

Gastro-Enteritis: This was important in all the ruminant species studied. The aetiological agents often responsible for this were bacterial, viral, parasitic and, in a few cases, nutritional. Akerejola, (1980) and Voh Jr.*et.al.*, (1993) have reported colibacillosis and Ascariasis as causes of gastroenteritis in ruminant. In sheep and goat, parasitic gastro-enteritis is very important especially haemonchosis (Fabiyi,1970).

Cases of physical injuries were reported during the period under consideration, but the incidence was generally low. They occurred as a result of choke and traumatic pericarditis in cattle and also as a result of motor accidents and injuries inflicted by man when chasing small ruminants during the drying of farm produce.

Pneumonia: This is very important in all the ruminant species due to cold weather condition especially during the cool-humid rainy season. Pneumonia is always responsible for high mortality in lambs (Isoun and Mann, 1977). The bronchopneumonia and abscessation in the lungs in acute and chronic phases may be brought about by secondary bacterial infection (Pasteurella and Mycoplasma). Organisms

Arthropods are probably the most important vectors of animal diseases today. These arthropod vectors include insects, mites and ticks, fleas and lice. They do not only spread infections among human and animal population, they are also responsible for the maintenance of disease cycles in various parts of the country (Iwuala and Ejezie, 1980). Ticks affect cattle and goat during the rainy season whereas lice and mites are important in sheep during the hot - dry season. These parasites cause anaemia and death when they are present in large numbers

(Hall, 1988). They also cause greater morbidity and mortality during periods of drought and delays in fattening so that animals are held longer before they can be sold.

Ectoparasitism was highest for the hot humid rainy season in cattle and sheep. This follows that the cold environmental temperature during the hot dry season (Nov - Feb) is unfavourable to continuous survival of the parasites and this could be responsible for the low incidence of infestation during this period. The high incidence in goat however could be as a result of late presentation to the clinics.

Diseases responsible for low productivity are significant constraints on ruminant production in Nigeria. Veterinary services are finding it increasingly difficult to respond adequately to reports of outbreaks and to mount effective vaccination campaign (FDLPCS, 1992). Proper nutrition, animal health care and disease control services must interplay with a view to addressing this need of the ruminant enterprise.

The results of the current study do explicitly indicate the significant role that diseases could play in lowering livestock productivity in the study area thereby highlighting the need for adequate nutrition and effective animal health programmes to boost ruminant production. It is believed that the results of this study will serve as a baseline for in-depth studies into the role of nutrition in disease management and control, the specific aetiologic causes of the diseases and be able to come up with effective nutrition and veterinary packages and / or intervention to enhance ruminant productivity.

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