THE PREVALENCE AND SEASONALITY OF LIVESTOCK DISEASES IN ZARIA, NIGERIA:A TEN-YEAR NECROPSY STUDY

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ABSTRACT

A ten-year (1986-1995) record of necropsy report on diagnosed livestock diseases in Zaria, Kaduna State is evaluated to determine the prevalence and seasonal occurrence of the major livestock diseases in the Northern part of Nigeria. A total 1093 animals comprising 132 cattle, 240 goats, 318 sheep, 20 horses, 47 pigs and 336 dogs were examined at necropsy. Some diseases such as cowdriosis, Pneumonia, Ectoparasitism, and Haemonchosis showed seasonal fluctuation while others like Babesiosis, Trypanosomiasis and physical injuries were evenly distributed throughout the year. The major problem of livestock in Zaria was Pneumonia (247 cases) with a seasonal occurrence of 38.6% and 61.31% for the dry and rainy seasons respectively. During the rainy season, cowdriosis (17.42%) in cattle, Pneumonia (25.8%, 21.10% and 20.0%) in goats, sheep and horses; gastroenteritis (14.89%) and starvation/malnutrition (14.89%) in pigs and rabies (8.93%) in dogs were the major problems. Starvation/malnutrition (4.17%) in Goats and gastroenteritis (12.5%) were more prevalent during the dry season. The relevance of this report to effective control measures for the livestock resources in Nigeria is also highlighted.

Key words: Prevalence, Seasonality, Diseases, necropsy, Livestock.

INTRODUCTION

Disease is an important contributor to low, productivity in the livestock sector. The livestock industry is plagued with low conception rate, wastage and high pregnancy neonatal mortality rates. Apart from direct economic losses due to mortality and lost production, some of these diseases have denied African livestock producers access to foreign markets thus reducing incentive for increased production (Ezeokoli, 1986). In this report, we gave an account on the prevalence and seasonality of the major diseases causing mortality in cattle, goats, sheep, pigs, hoses and dogs for a 10-year period (1986-1995). This analysis, we believe, will help to update previous reports by Akerejola *et. al.* (1979) and Voh Jr. *et. al.* (1993) for the Northern part of Nigeria. It will also assist veterianrians in this region draw up adequate control programmes to enhance livestock production.

MATERIALS AND METHODS

Ahmadu Bello University (ABU), Zaria is located in the Guinea Savannah Zone of Nigeria where the rainy season runs from May to October peaking in the month of Aug., while the dry season is the period from November to April.

Information contained in this paper is based on necropsy case reports of livestock diseases as documented in the case report books at the department of Vet. Pathology and Microbiology, A.B.U. Zaria. The animals posted were brought in by livestock owners from various areas of the country. The animals were examined for any gross lesions and appropriate specimens sent for bacterial or viral isolation, parasitic identification and tissue histopathology. All the report books containing necropsy reports from January 1986 to December 1995 were examined. The data on livestock diseases were then reduced into tables of prevalence and seasonality for the various livestock species.

The year was divided into Dry season

(November-April) and Rainy season (May-October). A total of 1093 animals made up to 132 cattle 240 goats, 318 sheep, 20 horses, 47 pigs and 336 dogs were examined at necropsy during the 10-year study period (1986-1995).

RESULTS

A break-down of diseases for the various species during the dry and rainy seasons is given below.

Cattle: The diseases that were more prevalent during the rainy season were cowdriosis (17.2%), Pneumonia (11.36%) and Ascariasis (10.61%). Starvation/malnutrition was the major problem during the dry season accounting for 3.79% of the total cases recorded. Babesiosis (1.52%) was evenly distributed throughout the year (Table 1).

Goats: The pattern was as for that in cattle except that strongyliasis/strongyloidiasis (2.50%) was higher during the dry season (Table 2).

Sheep: Most of the diseases appeared to be more prevalent during the rainy season except ectoparasitism (0.63%), (Lice and Mange) and strongyliasis/srongyloidiasis (1.57%). Diseases like trypanosomiasis and tuberculosis were evenly distributed throughout the year (Table 3).

Horses: Out of a total of 20 cases recorded, 65% mainly Pneumonia (20%), impaction (10.0%) and physical injuries (10%) occurred during the rainy season, while 35% mainly starvation/malnutrition (15.0%, gastroenteritis (5.0%) and babesiosis (5.0%) were recorded during the dry period (Table 4).

Pigs: The diseases mostly noted during the rainy season were starvation/malnutrition (14.8%), gastroenteritis (14.89%) and

TABLE 1: PREVALENCE AND SEASONALITY OF DISEASE OF CATTLE IN ZARIA (1986-1995)

Disease Condition	Total No. of Cattle Involved	Seasonal Occurrence			
		Dry Season (%)		Rainy Season (%)	
Cowdriosis	39	16	(12.12%)	23	(17.42%)
Toxaemia/Septicaemia	8	6	(4.55%)	2	(1.52%)
Gastro-Enteritis	14	4	(3.03%)	10	(7.58%)
Pneumonia	25	10	(7.58%)	15	(11.36%)
Starvation/Malnutrition	8	5	(3.79%)	3	(2.27%)
Ascariasis	22	8	(6.06%)	14	(10.61%)
Tuberculosis	3	1	(0.76%)	2	(1.52%)
Ectoparasitism	2	0	-	2	(1.52%)
Babesiosis	4	2	(1.52%)	2	(1.52%)
Trypanosomiasis	2	2	(1.52%)	0	-
Physical Injuries	3	2	(1.52%)	1	(0.76%)
Others	2	N/S .		N/S	-
Total	132	61	(43,92%)	69	(56.08%)

TABLE 2: PREVALENCE AND SEASONALITY OF DISEASE OF GOATS IN ZARIA (1986-1995).

Disease Condition	Total No. of Goats Involved	Seasonal Occurrence			
		Dry Season (%)		Rainy Season (%)	
Starvation/Malnutrition	15	10	(4.17%)	5	(2.08%)
Pneumonia	8	3	(1.25%)	5	(2.08%)
Cowdriosis	27	12	(5.00%)	15	(6.25%)
Pneumonia	97	37	(15.42%)	60	(25.00%)
Toxaemia/Septicaemia	4	2	(0.83%)	2	(0.83%)
Gastro-Enteritis	52	25	(10.42%)	27	(11.25%)
Physical Injuries	2	2	(0.83%)	0	-
Haemonchosis	19	6	(2.50%)	13	(5.42%)
Ectoparasitism	1	0	(-)	1	(0.42%)
Strogyliasis/Strongyloidiasis	10	6	(2.50%)	4	(1.67%)
Trypasonomiasis	3	3	(1.25%)	0	-
Bloat	2	0 .		2	(0.83%)
Total	240	129	(44.17%)	111	(55.83%)

TABLE 3: PREVALENCE AND SEASONALITY OF DISEASES OF SHEEP IN ZARIA (1986-1995)

Disease Condition	Total No. of Sheep Involved	Seasonal Occurrence			
		Dry Season (%)		Rainy Season (%)	
Gastro-Enteritis	41	19	(5.98%)	22	(6.92%)
Pneumonia	102	35	(11.01%)	67	(21.10%)
Starvation/Malnutrition	14	10	(3.15%)	4	(1.26%)
Cowdriosis	80	26	(8.18%)	54	(16.98%)
Pneumonia-enteritis complex	7	3	(0.94%)	4	(1.26%)
Haemonchosis	50	17	(5.35%)	33	(10.38%)
Ectoparasitism	3	2	(0.63%)	1	(0.32%)
Strogyliasis/Strongyloidiasis	9	5	(1.57%)	4	(1.26%)
Trypanosomiasis	2	1	(0.32%)	1	(0.32%)
Physical Injuries	5	2	(0.63%)	3	(0.94%)
Babesiosis	2	0	-	2	(0.32%)
Tuberculosis	2	1	(0.32%)	1	(0.32%)
Bloat	1	0	(-)	1	(0.32)
Total	318	184	(38.00%)	134	(62.00%)

TABLE 4: PREVALENCE AND SEASONALITY OF DISEASE OF HORSES IN ZARIA (1986-1995)

Disease Condition	Total No. of Horses Involved	Seasonal Occurrence			
		Dry Season (%)		Rainy Season (%)	
Physical Injuries	2	0	(0.00%)	3	(10.00%)
Babesiosis	1	1	(5.00%)	-	
Pneumonia	4	0	(0.00%)	4	(20.00%)
Tatanus	2	2	(10.00%)	0	-
Starvation/Malnutrition	4	3	(15.00%)	1	(5.00%)
Ectoparasitism	3	-		3 (	15.00%)
Toxaemia/Septicaemia	1	1	(5.00%)	0	-
Gastro-Enteritis	1	1	(5.00%)	0	-
Impaction	2	0	-	2	(10.00%)
Total	20	7	(35.00%)	13	(65.00%)

ascariasis (6.38%) while pneumonia (12.7%) and trypasonomiasis (2.13%) were evenly distributed throughout the year (Table 5).

Dogs: Notable diseases encountered during the dry season were rabies (20.83%), babesiosis (7.14%), helminthiasis (6.55%) and Pneumonia (5.36%). During the rainy season, ectoparasitism (0.60%) and canine distemper (1.79%) were more prevalent. (Table 6).

DISCUSSION

Starvation/Malnutrition: This was a problem in all the animal species except dogs. This might be attributed to inadequate grazing feed availability in the dry season, a problem usually compounded by bush burning. Akerejola *et al* (1979), reported similar finding in Zaria, Northern Nigeria and attributed this to the long dry season coupled with helminthiasis during the dry season. The result of our finding is also in agreement with that of Onyekwodiri and Shoyinka (1984) in Eastern Nigeria. Akerejola (1976) also observed that lack of protein supplement and nematode infection were responsible for high mortality in calves. In pigs, mineral and vitamin deficiency appeared to be significant only in the piglets. For example diets low in calcium but high in phosphorus induced high mortality in piglets (Kasali, 1977). In dogs, starvation/malnutrition was not a problem since they fed on left-over foods and garbages.

Gastroenteritis: This was important in all animal species. The aetiological agents often responsible for this were bacterial, viral, parasitic and, in a few cases, nutritional. This agrees with the report of Onyekwodiri and Shoyinka (1984). Similarly Akerejola (1980) and Voh Jr *et al.* (1993) have also reported of colibacillosis and Ascariasis. In sheep and goats, parasitic gastroenteritis was very important especially haemonchosis (Fabiyi, 1970). During the rainy season, gastroenteritis, mainly of viral origin, was a

TABLE 5: PREVALENCE AND SEASONALITY OF DISEASE OF PIGS IN ZARIA (1986-1995)

Disease Condition	Total No. of Pigs Involved	Seasonal Occurrence			
		Dry Season (%)		Rainy Season (%)	
Ascariasis	4	1	(2.13%)	3	(6.38%)
Pneumonia	12	6	(12.77%)	6	(12.77%)
Toxaemia/Septicaemia	2	2	(4.26%)	0	-
Gastro-Enteritis	13	6	(12.77%)	7	(14.89%)
Ectoparasitism	1	0	-	1	(2.13%)
Physical Injuries	1	0	-	1	(2.13%)
Starvation/Malnutrition	12	5	(10.64%)	7	(14.89%)
Trypanosomiasis	2	1	(44.70%)	1	(55.30%)
Total	47	21	(44.70%)	26	(55.30%)

TABLE 6: PREVALENCE AND SEASONALITY OF DISEASES OF DOGS IN ZARIA (1986-1995)

Disease Condition	Total No. of Dogs Involved	Seasonal Occurrence			
		Dry Season (%)		Rainy Season (%)	
Babesiosis	47	24	(7.14%)	23	(6.85%)
Physical Injuries	12	6	(1.79%)	6	(1.79%)
Rabies	100	70	(20.83%)	30	(8.93%)
Pneumonia	34	18	(5.36%)	16	(4.76%)
Tuberculosis	1	0	-	1	(0.30%)
Toxaemia/Septicaemia	16	10	(2.98%)	6	(1.79%)
Ectoparasitism	3	1	(0.30%)	2	(0.60%)
Trypanosomiasis	1	1	(0.30%)	0	-
Tatanus	1	1	(0.30%)	0	-
Intestinal Intussusception	15	13	(3.87%)	2	(0.60%)
Neoplasm	10	7	(2.08%)	3	(2.68%)
Gastro-Enteritis	57	42	(12.50%)	15	(4.46%)
Canine Distemper	8	2	(0.60%)	6	(1.79%)
Helminchiasis	31	22	(6.55%)	9	(2.68%)
Total	336	217	(64.60%)	119	(35.40%)

problem in dogs (Adeyanju *et al.*, 1984). Parvoviral enteritis was most common. Helminthiasis in dogs occured mostly in the dry season. This could, however, be as a result of late presentation to the clinics, as Folarami *et al.* (1983) had reported a high incidence of hookworm in dogs in Zaria during the period of April to September.

Toxaemia/Septicemia: This has been reported in all the animal species. It may be in the form of snake bite, ingestion of poisonous plants, chemical poisons (Acaricides), bloat or infected wounds. Toxaemia/septicemia was observed to be more prevalent during the dry season in cattle and pigs. This is in agreement with the findings of Onyekwodiri and Shoyinka (1984).

Haemoparsites: These were very important in dogs. Babesia species were the most widely spread haematozoon. Esuruoso (1972) and Ogunkoya *et al* (1981) had reported similar finding in Southern Nigeria and Zaria respectively. Both the acute and chronic cases occurred in the Zaria region. Cowdriosis was an important disease in ruminants especially during the rainy season. This was probably due to the increase in the number of ticks during this season.

Physical injuries: Cases of physical injuries were reported during the period under consideration but the incidence was generally low. They occurred as a result of motor accident in small ruminants, chock in cattle, tail bites in piglets and traumatic pericarditis in cattle.

Pneumonia: This is very important in all the livestock due to harsh weather condition during the dry season and verminous pneumonia during the rainy season 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).

Ectoparasitism: Ticks affect cattle and goats during the rainy season whereas lice and mange are important in sheep during the dry season. Death is usually as a result of anaemia, anorexia and emaciation.

Rabies: Results of this study indicated that rabies was the most prevalent disease of dogs both in the dry and rainy seasons (Table 6). This further confirmed the fact that rabies is very much endemic in Nigeria. It has been reported as early as eight weeks in a puppy (Adeyanju *et. al.*, 1977).

Both mortality rate and disease responsible for low productivity are significant constraints on livestock production in Nigeria. Prophylactic control of such diseases has become patchy and erratic. Veterinary services are finding it increasingly difficult to respond adequately to reports of outbreaks and to mount effective vaccination campaigns (FDLPCS, 1992). Unless this general decline can be reversed, disease control will deteriorate and veterinary staff will become further demoralised. Animal health care and disease control services must address the needs of livestock owners and producers. A system of private veterinary practice could be a viable alternative or complement to the present Government-provided services.

The results of the current study, do explicity indicate the significant role that disease could play in lowering livestock productivity in the study area thereby highlighting the need for effective animal health programmes to boost livestock production. This should be in the form of both prophylactic and curative health care services. Finally, we believe that the results of this study will serve as a baseline for indepth studies into the specific aetiologic causes of the diseases and be able to come up with effective veterinary packages and/or interventions to enhance livestock productivity.

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