

CHORIOPTIC MANGE INFESTATION IN CATTLE IN BORNO STATE, NIGERIA

Biu, A. A and M. M. Wakawa

Department of Veterinary Microbiology and Parasitology, Faculty of Veterinary Medicine,
P.O. Box 8136, University of Maiduguri, Maiduguri, Nigeria.

ABSTRACT

A prevalence study of chorioptic mange infestation in 355 cattle was conducted in Maiduguri, Nigeria between the months of January and September 2001. Identification of mites by deep skin scraping method revealed a prevalence of 25.4%. Among breeds, Red Mbororo had highest rate of infestation (41.2%), followed by Sokoto Gudali (26.0%). White Fulani (25.6%), Ambala (18.8%) and Kuri (0.0%). Female cattle were non significantly more infested (28.3%) compared to the males (20.0%), as were the young cattle (35.0%) compared to adults (22.6%). The prevalence of mite infestation based on the predilection site showed the shoulder (50.7%) to be more commonly infested ($P<0.05$) compared to the tail (43.5%), rump (27.9%), flank (7.9%) and head (0.0%). Rainy months of July, August and September had a significantly ($P<0.05$) higher prevalence (40.0, 60.0 and 62.2, respectively) compared to drier months of January, February, March, April, May and June.

Key words: Chorioptic mange, prevalence, cattle, Nigeria.

INTRODUCTION

In Nigeria, the cattle population has been recently estimated at about 13.9 million heads, with Borno State having a total of about 2.7 million (Anonymous, 1996). Despite the concentration of cattle in Nigeria, especially in the Northern States, the growth of cattle production could not cope with the demand of a rapidly growing human population, as beef continued to be unaffordable and scarce.

The limiting supply of animal protein in the Nigerian diet lies on the low or poor husbandry practices, inadequate feed supply and disease conditions such as those caused by ectoparasites (Oyenaya and Olibajo, 1977), especially mange mites (Steelman, 1976). These diseases are associated with drop in milk production, poor quality hides and skin and generalized loss of weight with a tendency of becoming zoonotic (Beesley, 1973).

However, there is no report on the situation in this Sahelian zone of Borno State. Therefore, the present study identifies various mites responsible and the influence of breed, sex and age of the cattle involved with respect to the predilection sites and season.

MATERIALS AND METHODS

This study was conducted in Maiduguri, a city in the Northeastern part of Nigeria, which lies within the Sahel Savannah Zone. It has a low rainfall of only 3 months, followed by a long dry season for the rest of the year (Nwosu *et al.*, 1990).

Deep skin scrapings were collected into Petri dishes using the blunt side of a scalpel blade from 355 clinically infested cattle from the Gomboru Cattle Market, Metropolitan abattoir and sedentary farms. Clean glass slides were smeared with the oozing blood and damp scrapings. Direct examination of the smears was made using the stereoscopic microscope with the wet scraping fixed on the slide. A 10% potassium hydroxide was added into a test tube containing skin scrapings and heated for 10 minutes, left for another 10 minutes for the deposit to cool and settle down. The supernatant was then discarded, and a little deposit from the bottom of the test tube was picked, placed on the slide, covered with a coverslip and observed under microscope, as described by Urquhart *et al.* (1992).

Data on the influence of breed, sex, age, predilection site and season were analyzed statistically using the student T test (Compell, 1986).

RESULTS AND DISCUSSION

The results of the present study revealed that out of a total of 355 cattle examined, 90 (25.4%) were infested with chorioptic mange (Table 1). Among breeds, Red Mbororo had higher ($P<0.05$) rate of infestation (41.2%) compared to the Sokoto Gudali (26.0%), White Fulani (25.6%). Ambala (18.8%) and Kuri (00.0%). Females were insignificantly more infested (28.3%) compared to the males (20.0%) as were the young ones (35.0%) compared to the adults (22.6%).

Table 1 shows that infestation was significantly ($P<0.05$) more common around the shoulder (50.7%) than the tail (43.5%), rump (27.9%), flank (7.9%) and

head (00.0%). Months of July, August and September (raining months) had a significantly higher prevalence compared to drier months of January, February, March, April, May and June.

The results of this investigation specifying that chorioptic mange is prevalent in cattle in this study area is consistent with the previous findings from other parts of the world (Steehnan, 1976; Soulsby, 1982) and Northern Nigeria (Oduye, 1974).

Finding of varying prevalence of infestation among various breeds, sexes and ages of cattle may be explained by the reports of Blood *et al.* (1990) that mange infestation develop resistance either in the form of age, breed or sex which are not immunological in origin and that breed resistance is as a result of a resistant strain passed to the offspring and previously

infected animals are not good for further breeding. The finding of a greater preference for chorioptic mange infestation on the shoulder and tail of cattle agrees with the reports by Urquhart *et al.* (1992) that the parasite is superficially dwelling displaying a distinct preference for the tail, escutcheon and legs. Also the higher prevalence of infestation recorded in this study during the rainy months of July, August and September as compared to the drier months agrees with the findings of Steehnan (1976), and Blood *et al.* (1990) that the optimum condition for the disease included moisture and cool temperature but it is severe in animals in poor conditions. Further more, the disease spreads quickly during the cold weather when animal coats grow long and the animals huddle together more often. It is thus recommended that treatments during the rainy months of the season may be an effective means of preventing outbreaks of the disease.

Table 1: Prevalence of chorioptic mange infestation in cattle in Maiduguri, Nigeria

	No. of animals examined	No. (%) infested
All animals	355	90(25.4)
Age		
Young	80	28(35.0)
Adult	275	62(22.6)
Sex:		
Male	125	25(20.0)
Female	230	65(28.3)
Breed		
S/Gudali	96	20(26.0)
R/Mbororo	85	35(41.2)
W/Fulani	78	20(26.6)
Kuri	16	0(00.0)
Ambala	80	15(18.8)
Predilection Site		0(00.0)
Head	65	6(07.9)
Flank	76	20(43.5)
Tail	46	26(27.9)
Rump	93	28(50.7)
Shoulder	75	
Month		
January	35	6(17.1)
February	25	0(00.0)
March	45	0(00.0)
April	20	0(00.0)
May	25	0(00.0)
June	55	2(03.6)
July	45	18(40.0)
August	60	36(60.0)
September	45	28(62.2)

REFERENCES

- Anonymous, 1996. Research Inventory Management Systems. Nigerian Livestock Resources Vol. 1. Executive Survey and Atlas. Fed. Dept. Livestock and Pest Control Services, Garki Abuja -Nigeria.
- Beesley, W. N., 1973. Control of arthropods of medical and veterinary importance. *Adv. Parasitol*, 11: 115-192.
- Blood, D.C., O.M. Rodstitts, and J.A. Henderson, 1990. Sarcoptic mange (Barn itch, red mange). In *Veterinary Medicine: A text book of the diseases of cattle, pigs, sheep, goats and horses*, 8th Ed. The Britain Bath Press, Avon, UK.
- Compell, R.C., 1986. *Statistics for Biologists*. Cambridge Univ. Press, Cambridge, UK.
- Nwosu, C.O., G.C. Srivastava, and P.K. Sinha, 1990. Gastro-mtestinal parasites of pet dogs in Maiduguri, Nigeria. *Annals of Bomo*, 6/7: 303-315.
- Oduye, O.O., 1974. Bovine cutaneous streptothricosis in Nigeria. *World Anim. Rev.*, 6: 13-17.
- Oyenaya, V.A and F.O Olibajo, 1977. The measurement of yield, voluntary intake and animal production on tropical pasture. *J. Anim. Sci.*, 77: 1-4
- Soulsby, E.J.L., 1982 *Helminths, Arthropods and Protozoa of Domesticated Animals*, 7th Ed. Bailliere Tindall, London, UK.
- Steelman, C.D., 1976. Effect of external and internal arthropod parasites on domestic livestock production. *Anim. Rev. Entomol.*, 21: 155-175.
- Urquhart, G.M., J., Armour, J.R., Duncan, A.M. Dunn, and F.W Jennings, 1992. *Veterinary Parasitology*, Longman Press, London, UK. pp. 183-199.