

Prevalence and predilection sites of lice infestation on cattle in Abeokuta, Nigeria

Oyewusi, I.K., Babatunde, B.A., Anifowoshe, I.O., Famuyide, I.M., Oyewusi, J.A., Olugbogi, E.I.and Talabi, A.O.
College of Veterinary Medicine, Federal University of Agriculture, Abeokuta, Nigeria

Abstract

Lice are one of the most prolific ectoparasites on the bovine skin and they have a detrimental impact on production and performance of cattle. A survey of the prevalence and predilection sites of lice in Abeokuta, Nigeria was carried out using 150 heads of indigenous cattle of both sexes recently acquired in batches from different parts of Nigeria. Adult lice were found on the eyelids, inner commissure of the pinna and caudal end of the tail. Of the 150 animals examined, 10.67% were infested with lice; Damalinia bovis, Haematopinus spp and Linognathus spp accounting for 4.67%, 3.33% and 2.67% respectively of the infestation. None of the cattle had mixed lice infestation. Lacrimation was the only clinical sign associated with lice infestation in all the 16 affected animals. In conclusion, there is need for a nationally coordinated comprehensive study of the parasite-host interaction, life-cycle and epidemiology of these species of lice. Also, there is need to adopt the policy of de-lousing trade cattle before transportation to the point of sale.

Keywords: Predilection sites, Prevalence, Louse Infestation, Cattle

Introduction

Lice are skin parasites with each animal species infested only with specific louse species. Lice are unable to survive on the wrong host for more than a day or two. Lice are wingless, flattened insects, usually 2-4 mm long. Two types of lice affect cattle; those that feed by sucking blood (sucking lice) and those that feed on skin debris (biting or chewing lice). Lice on cattle are spread by direct contact between animals within herds (Soulsby, 1982; Radostits *et al*., 2007).

Biting lice of cattle are recognised by a rounded head, light brown colour and high mobility as they moved when the hair was parted (Soulsby, 1982). Sucking lice are grey or blue grey and have a pointed head that tends to remain fixed to the skin. Both sucking and biting lice complete all of the life cycle on the host. Sucking lice require a blood meal to complete their reproductive cycle while biting lice feed on dead skin cells, hair and oil secretions. The life cycle of both sucking and biting lice is similar. The adult female louse lays one egg per day, gluing it to a hair shaft close to the skin. The adult female will live about 42 days and lay up to 50 eggs in her lifetime. Eggs hatch in one to two weeks and release nymphs. Each nymph undergoes three nymphal stages, each taking about 10 days to complete, with the timing dependent on the surrounding air and skin temperature. The complete life cycle takes between three and six weeks (Cotter, 2009).

Lice are one of the most prolific ectoparasites on the bovine skin, especially *Haematopinus spp*, *Linognathus spp* and *Damalinia bovis*. All species are capable of rapid multiplication and spread rapidly, especially in housed cattle. Infested cattle show signs of skin irritation, with affected animals rubbing themselves against the

walls (Jackson and Cockcroft, 2002). Lice infested animals have poor physical condition and develop unthrity coats, anaemic appearance, and discoloured greasy hair (Nelson, 1984), Lice infestation causes 15 to 25% decrease in milk production and weight loss of 25 to 30 kg per animal per year (Fadok, 1984; Loomis, 1986). It also causes huge economic losses in terms of damage to the hides and skin (Nasfad and Gronstol, 2001). This study presents the prevalence and predilection sites of lice of cattle recently acquired in batches from different parts of Nigeria.

Materials and Methods

This study was conducted in Federal University of Agriculture, Abeokuta where 150 heads of indigenous cattle of both sexes were acquired in batches from different parts of Nigeria. The animals were assessed for the presence of lice on arrival on the University farm in addition to the general clinical examination. Briefly, the animals were placed in the holding yard and the skin examined individually. Every region of the body was examined; the face, neck, ears, eyelids, dewlap, dorsum, tail base and tail switch in broad daylight.

The eggs of the lice, which were grey to brown in colour, cemented to the shafts of coat hairs in clumps were also observed. The samples of lice were collected and preserved in 70% ethanol and submitted to the Veterinary Parasitology laboratory. The preserved specimens were examined in the laboratory under a stereo-microscope for identification of species of lice based on morphological characteristics as described by Soulsby, (1982).

Results and Discussion

Adult lice were found with the naked eye, especially around the eyes, inner commissure of the pinna and the caudal end of the tail (Figure 1). Hundreds of nits cemented by female lice to the tail switch were also found (Figure 2). Of the 150 animals examined, 10.67% were infested with lice; with *Damalinia bovis* (Figure 3), *Haematopinus spp* (Figure 4) and *Linognathus spp* (Figure 5) accounting for 4.67%, 3.33% and 2.67% respectively of

Figure 1: Lice infestation on the eyelids

Figure 2: Hundreds of nits cemented by female lice to the tail switch

Figure 3: *Damalinia bovis* **(x100)**

Figure 5: *Linognathus spp* **(x100)**

Figure 4: ***Haematopinus spp*** **(x100)**

the infestation. Heavy infestation with lice can cause discomfort, lacrimation, unthriftiness and severe anaemia in young animals in addition to the damage of the skins causing considerable losses in the leather industry.

Even though significant economic losses caused by lice infestations in goats and sheep have been reported in Nigeria, Kenya and Tanzania (Kusiluka and Kambarage, 1996), significant economic losses have not been reported in cattle in Nigeria.

Lice have a detrimental impact on production and performance of cattle. Affected animals bite, scratch and rub their bodies against yards and trees which they use as rubbing posts. As a result, the coat of lousy cattle take on a rough scruffy appearance and at times, areas of skin are rubbed raw. This will reduce the hide and skin value at slaughter (Walker, 2007). Parasitic infestations often lead to decreased appetite. The reduced amount of feed ingested by parasitized animals may also be digested less efficiently than by non-parasitized animals. In addition, the presence of parasites may increase metabolic rate, reducing the amount of metabolizable energy available for production (Byford *et al*., 1992). Lacrimation was the only clinical sign associated with lice infestation in all the 16 affected animals while none of the cattle had mixed lice infestation in this study.

In this study, *Damalinia bovis* which is a biting louse had the highest prevalence of 4.67% and was found at the caudal end of the tail, inner commissure of the pinna and on the eyelids, where the eggs are also laid . This disagrees with the reports of some others (Jackson and Cockcroft, 2002; Walker, 2007) who stated that *Damalinia bovis* infestation occur mainly on the

dorsum of the neck, shoulders, back and rump of cattle. This variation in predilection sites of lice may be as a result of absence of thick hair coat in the dorsum of the neck, shoulders, back and rump of Nigerian indigenous cattle.

In conclusion, there is need for a nationally coordinated comprehensive study of the parasite-host interaction, life-cycle and epidemiology of *Damalinia bovis*. Also, there is need to adopt the policy of de-lousing trade cattle before transportation to the point of sale.

References:

Byford, R.L., Craig, M.E. and Crosby, B.L. 1992. A review of ectoparasites and their effect on cattle production. *Journal of Animal Science* 70: 597-602.

Cotter, J. 2009. Australian Pesticide and Veterinary Medicines Authority (APVMA). Lice infestations on cattle. Note 389. Published by Department of Agriculture and Food and the State of Western Australia. Available online on : http://www.apvma.gov.au/index.asp.

Fadok, V. A. 1984. Parasitic skin diseases of large animals. Veterinary Clinics of North America 6: 3- 22

Kusiluka, L. and Kambarage, D. 1996. Common Diseases of Sheep and Goats in Sub-Saharan Africa. Diseases of small ruminants: A handbook. Edited and Published by Centre for Tropical Veterinary Medicine, Scotland. 110 Pages.

Jackson, P.G.G. and Cockcroft, P.D. 2002. Clinical Examination of Farm Animals. Blackwell Publishing Company, Osney Mead, Oxford OX2 0EL, UK. 322pp.

Loomis, E. C. 1986. Ectoparasites of cattle. Veterinary Clinics of North America 2: 299- 321.

Nafstad, O. and Gronstol, H. 2001. The effect of eradication of lice on the occurrence of the grain defect light flecks and spots on cattle hides. *Acta Veterinaria Scandinavica* 42: 99- 106.

Nelson, W. A. 1984. Effects of nutrition on animals on their ectoparasites. *Journal of Medical Entomology* 21: 621- 635.

Radostits, O.M., Gay, C.C., Hinchcliff, K.W. *and* Constable, P.D. 2007. Veterinary Medicine: A textbook of the Diseases of Cattle, Sheep, Pigs, Goats and Horses, 10th edition, Saunders Elsevier, Spain. p.1596-1599.

Soulsby, E.J.L. 1982. Helminths, Arthropods and Protozoa of domestic animals. 7th edition. Published by the English Language Book Society and Bailliere-Tindall. London. p.516-538.

Walker, B. 2007. Cattle lice. In: Prime facts 337, 1-4.

Received: 23rd March, 2014
Accepted: 28th June, 2014