

Prevalence of Lameness in Sheep in the North East Region of Nigeria

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ABSTRACT

In a study of prevalence of lameness in sheep in North East region of Nigeria, a total of 3914 sheep were examined between March 1977 and February 1998 out of which 697 showed signs of lameness. The common conditions that predisposed sheep to lameness were overgrown hooves, traumatic injuries to the limbs, interdigital pouch inflammation, limb conformational deformities and fracture. Hoof overgrowth ranked highest as a cause of lameness. The proportions of lameness were higher during the wet months compared to the dry season. More cases of lameness were recorded in the forelimbs than in the hindlimbs. Sheep below 4 years of age showed higher incidence of lameness compared to those above 4 years. There is however decreasing frequency and increasing severity of lameness with age in the sheep. There was no sex predisposition to the development or manifestation of lameness. It is pertinent that thorough and effective diagnosis and management of lameness be performed adequately so that the conditions can be put under control to allow increased productivity of the sheep.

Key Words: Prevalence; Lameness; Sheep; Nigeria

INTRODUCTION

Sheep constitute a sizeable population of small ruminants in Nigeria (Ajayi *et al.*, 1987). Majority of these is located in the North East region. The region is noted for its characteristic short rains, prolonged dry season (Devendra & McLorey, 1982), large landmass with low forage (Egwu *et al.*, 1994). This will require grazing animals to cover wider areas in search of pasture.

Locomotor soundness is vital for reproductive efficiency and effective grazing in all classes of livestock including sheep (Greenough, 1985). Limb conditions that cause lameness constitute a major constraint to the development of small ruminant production systems (Harris *et al.*, 1988; Anonymous, 1997).

The sheep is predisposed to lameness by a number of factors. These include hard environmental terrain, wetness of housing floor, unkempt and overgrown hoof, fracture and trauma (Adams, 1974), systemic and local microbial infection, inflammation of anatomical structures and glands (Blood & Radostits, 1990). Punctured sole, cracked hoof, sole wear, fissured hoof also predispose sheep to lameness (Devendra & McLorey, 1982). The site and depth of injuries determines the extent of structural damage (Weaver, 1980; Anonymous, 1997). The role of predisposing factors varies depending on the age, herd size and management systems adopted by farmers (Harris *et al.*, 1988). Sheep in this area are mainly kept under semi-intensive or extensive system of management. This exposes them to various hazards.

Lameness manifest as a consequence to many limb conditions, causes distress and is usually associated with pain (Whipp, 1989). The sheep may limp, drag the limb across the surface, exhibit reluctance to movement, show unbalanced posture or puts less weight on the affected limb (Adams, 1974; Whipp, 1989). In severe and bilateral cases

the animal walks on knees or may even become recumbent (Weaver, 1980). The loading effect is seen in the lateral digits of the affected limb (Russell & Mason, 1994). Lameness leads to reduced performance due to decreased food intake, diminished food and reproductive efficiency, loss of body weight, lowered milk production and libido (Greenough, 1972; Harris *et al.*, 1988). Benign lameness that manifest mild and irregular signs often go unnoticed and untreated (Logue *et al.*, 1988) since stockmen do not perceive it as a problem.

Egwu *et al.* (1994) have studied lameness in sheep due to interdigital pouch infection and Mohammed *et al.* (1996) studied causes of lameness related to hoof condition in sheep. But to date, there is no comprehensive study of causes of lameness in sheep in the North East region of Nigeria. This work attempts to give comprehensive causes of lameness in sheep in the North East of Nigeria.

MATERIALS AND METHODS

The investigation was based on data obtained, from sheep flocks reared under semi-intensive or extensive system of management in the North East region of Nigeria from March 1997 to February 1998. The focus of the survey was on sheep brought to market for sale and those residing in randomly selected units.

The study involved interaction with livestock owners, history taking and physical examination of the sheep for signs and causes of lameness. The body and limb conformations were observed while the animal is at rest and during locomotion. Sheep showing signs of lameness was approached gently, restrained properly and subjected to thorough physical examination.

The limb conditions that tended to exhibit lameness in sheep were classified into overgrown hooves, interdigital

pouch inflammation, traumatic injuries, limb conformational deformities, fractures and other limb conditions other than those listed above that can manifest as lameness. The sex, age, monthly spread of lameness and number of limbs affected were recorded.

RESULTS AND DISCUSSION

The prevalence rate of 17.81% among 3917 sheep was recorded. The distribution of lameness in sheep according to months and sex during the study period is presented in Table I. The proportions of lameness were relatively higher in the months of August to October and lower in the months of April, May and July. More cases 458 (65.7%) were recorded in ewes compared to rams 239 (34.3%).

Table II shows the lameness distribution based on conditions of the limb. All the affected sheep exhibited apparent signs of distressed or distorted posture and gait or inability to move. There were more cases of lameness in the sheep below the age of four years compared to those above four years (Table III). Sheep about two years old had the highest incidence of 23.5%. It was however observed that there was decreasing frequency and increasing severity of lameness with age. The study also showed that the incidence was higher in the forelimbs (57%) compared to the hind limbs 43% (Table IV).

Limb conditions that predispose sheep to lameness are of great concern due to the frequency of occurrence. These conditions impede the overall performance of sheep production systems. The common limb conditions that predisposed sheep to lameness were hoof overgrowth, interdigital pouch inflammation, certain traumatic injuries and fractures as well as limb conformational deformities. Limb conditions like peel off, fissures, sole wear and swelling on any part of the limb that leads to lameness were grouped together.

Overgrown hooves showed the highest frequency of occurrence and were mostly bilateral. This observation agrees with earlier reports by Mohammed *et al.* (1996). The

Table I. Number of sheep examined and distribution of lameness according to months

Months	Observations		
	Male	Female	Total
March 97	105 (21)	203 (35)	308 (56)
April 97	104 (19)	198 (33)	302 (52)
May 97	105 (17)	217 (36)	322 (53)
June 97	103 (20)	212 (37)	315 (57)
July 97	97 (13)	184 (31)	281 (44)
Aug. 97	115 (23)	238 (42)	353 (65)
Sept. 97	111 (25)	257 (47)	368 (72)
Oct. 97	119 (23)	261 (46)	380 (69)
Nov. 97	108 (21)	234 (40)	342 (61)
Dec. 97	95 (16)	213 (38)	308 (54)
Jan. 97	106 (19)	208 (37)	314 (56)
Feb. 97	103 (22)	219 (36)	322 (58)
Total	1271 (239)	2643 (458)	3914 (697)

Figures in parentheses indicate number of sheep showing signs of lameness

Table II. Distribution of lameness and percentage according to limb Conditions in the sheep

Lameness type	Number of lame	Percentage (%)
Hoof overgrowth	177	25.4
Interdigital pouch Inflammation	115	16.5
Fracture	68	9.8
Traumatic injuries	111	15.9
Limb conformational Deformities	96	13.8
Others	130	18.6
Total	697	100

frequency of overgrown hooves was higher in forelimbs than in the hindlimbs. The affected sheep either stumbles during stride paddle the limbs or lifts the limb high enough to avoid limb paddling or stumbling.

The lameness due to hoof overgrowth was mild and in some cases of moderate severity. The soft soil textures does not provide for abrasive tendency that minimizes hoof overgrowth as in hard terrains. This along with normal hoof growth culminates in overgrown hooves. It also predisposes sheep to hoof injuries and distorted gait.

Interdigital pouch inflammation caused moderate to severe lameness. Because of its location at the antero-superior aspect of the interdigital cleft, it could press on adjoining digital nerves and accompanying blood vessels to cause pain and lameness of limbs (Shittu *et al.*, 1987). Surgical removal of the affected pouch has been found to be

Table III. Lameness distributions according to age

Age (years)	Male	Female	Total	Percentage
< 1	39	93	132	18.9
2	63	101	164	23.5
3	51	97	148	21.2
4	38	72	110	15.8
5	25	59	84	12.1
> 6	23	36	59	8.5
Total	239	458	697	100

the most effective treatment. This was similar to observations by Egwu *et al.* (1994). The sheep were able to use the affected limbs 1-3 days after treatment.

Fracture and traumatic injuries on any part of the limb resulted in lameness. Depending on the type, extent and location; fractures were remedied by reduction, fixation and immobilization. Traumatic injuries were managed by dressing and or application of stitches where wounds existed.

Faults of conformation in forelimbs, hindlimbs and the foot constitute limb conformational deformities (Adams, 1974). Deformities that were observed includes knee sprung, knee narrow, bandy legs, offset knees in the forelimbs, excessive angulations of the hock in the hindlimbs and thin wall and sole, steep hoof, sloping pastern in the foot. Lameness due to these abnormalities was pronounced in sheep below three years but did not seem to be severe in sheep above three years. This might be due to a tendency of the affected sheep to adapt and accommodate the anomaly during development and growth. This may

Table IV. Distribution of lameness in the limbs of affected sheep

Sex	Forelimb (n=1103)		Hindlimb (n=832)	
	Left	Right	Left	Right
Male	192	284	153	196
Female	368	259	225	258
Sub total	560	543	378	454

account for disappearance of the mild abnormalities and the less prominence of the moderate to severe deformities to exhibit lameness.

There was sex predisposition as more females showed signs of lameness than the males. This arises because many backyard sheep keepers prefer ewes for the purpose of multiplication. There was more lameness in the forelimbs compared to the hindlimbs. This is similar to the earlier reports (Egwu *et al.*, 1994). Forelimbs bear some 65% of the body weight and aid hindlimbs in propelling the body. This indicates that the forelimbs are subjected to more injuries from trauma and concussions than the hindlimbs. This is in agreement with the observations by Adams (1974).

The major losses consequent to lameness in sheep includes weight loss, infertility, in appetite, and reduced milk yield. There also is extra demand on time, labour and facilities in addition to loss incurred. The economic implication of this situation is tremendous in terms of reduced market value, and overall reduced productivity of sheep.

Therefore there is the need for public enlightenment through extensive services for farmers to understand and appreciate economic losses due to lameness and minimizing incidence of lameness by removing some of the factors that predispose sheep to lameness. Farmers should seek prompt veterinary attention whenever they observe lameness among their flocks. Unskilled personnel should be trained on routine care of feet, limbs and other management procedures to reach a desirable standard of competence.

Many of the limb conditions discussed can be controlled by improved management practices.

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