

Study on Indigenous Control Methods of Helminthosis in Cattle by Nomadic Cattle Fulani's in Adamawa State, Nigeria.

* ¹Usman, I.S., ²Girei, A.A. and ¹Salihu, A

¹Department of Agricultural Economics and Extension, Modibbo Adama University of Technology, Yola, Nigeria.

²Postgraduate Programme, Department of Agricultural Economics and Extension, Modibbo Adama University of Technology, Yola, Nigeria

Abstract: The study examined the indigenous control methods of Helminthosis in cattle by nomadic cattle Fulanis and constraints associated with the use of various methods in Adamawa State, Nigeria. The study relied on primary data which were collected using semi-structured questionnaires administered to a randomly selected 363 respondents. The collected data were analyzed using percentages, mean, frequency distribution and regression analysis. The result shows that all (100%) the respondents used indigenous herbs in one way or the other in the control Helminthosis in their herds and about 99% used conventional methods. Twelve different type of herbs were identified and found to be in use by the respondents in the study area, namely; *Cissampelos owariensis*, *Balanites aegyptiaca* and *Khaya senegalensis*. Significant relationships were shown between age, marital status and years of experience with the use of indigenous control methods of helminthosis. Indiscriminate felling of trees and concealment of knowledge were among the constraints that inhibit utilization of the control methods. It is concluded that, indigenous methods of helminthosis control had become part and parcel of the respondents and it is rational and easy for herdsman to practice on their herds. It is concluded that since it has been a tradition and part of life of the nomadic fulanis to use indigenous herbs for the treatment of their animals, the study recommended that laws banning bush burning and indiscriminate tree felling be re- enforced in order to preserve indigenous herbs to avert possible extinction. There is a greater need for change agents and services to be strengthened so as to incorporate the indigenous methods used by the herders.

Key words: Analysis, Indigenous Knowledge, Control, Cattle, Helminthosis, Nomadic, Fulanis.

I. INTRODUCTION

Cattle production is a source of employment and livelihood to many people in Nigeria especially to the nomadic fulanis. A large percentage of the rural people of the country satisfy their subsistence needs through cattle production. Among all the livestock domesticated in Nigeria, Cattle are the most prominent (Ikhatua, 2000). They provide continuous sources of essential food products – meat, milk, and other dairy products throughout the year. It sustains the employment and income of millions of people in rural areas and generates animal power and organic manure for arable farming mainly in the sudano-sahalian ecological zones of the country. The sale of cattle and its products provides the major source of cash income to the nomadic fulanipastoralists. Among the nomadic fulani and Shuwa Arab pastoralists, livestock also serves as an index of social prestige (Lamorde, 1998).

Despite the importance of cattle to the development of Nigeria's economy, the industry is saddled by many problems that make it to be operating at half the capacity it is supposed to operate (Ahemen, 2010). Among the problems faced by the nomadic cattle fulanis are diseases and parasites such as foot and mouth disease, diarrhea, contagious bovine Pleuropneumonia, ticks and Helminthosis (Usman, 2014). Helminthosis has long been recognized as a major constraint to the productivity of ruminants and other livestock in Nigeria and in other countries worldwide, and has been the cause of serious economic losses (Bamaiyi, 2009). The significance of helminths has been recognized by local people and herdsman from the earliest times who have made various attempts at its control through the use of medicinal plants available within or around the herders localities. Fulani herdsman in Nigeria recognize animal helminthosis to be a problem of greatest significance in cattle, most especially calves of less than a year old. That is why routine herbal treatment is started within one week of birth (Ibrahim et al., 1983. These

^{1*}Corresponding Author: ibrogirei1@gmail.com

pastoralists employed indigenous/traditional knowledge system (IKS) which has been passed from generation to generation through oral tradition and practice to manage helminths in their cattle. The knowledge has been institutionalized and builds upon in many pastoral communities in Nigeria (Olukosi, 1998). Studies have shown that Nigeria is endowed with vast and readily available indigenous knowledge with proven efficacies that have been used by livestock herders (Adewusi, 2009). But with the introduction of modern veterinary medicine, the indigenous methods of diseases and parasites control are being relegated to the background and described as stagnant for the new technologies to be adopted. This may be for the assumption that, any innovation or technological breakthrough made by farmers on their own was thought to be accidental and been developed un-systematically and in an unscientific approach through trial and error (Akinbile et al., 2004). It was not long after the introduction of the modern animal health care system in Nigeria, that the system was plagued by many problems. These include inadequate manpower, logistics and inputs, scarce and erratic supply of veterinary services, increasing cost of veterinary drugs and vaccines, poor communication facilities and other modern facilities among others (Naso, 2009). Due to these problems, the dependence on modern veterinary medicine alone cannot solve most of the animal health problems especially if considering the tradition and culture of the fulanis.

In spite of the relevance of indigenous knowledge of controlling cattle helminthosis and economic importance of helminths to cattle industry, it is observed that, empirical study on utilization of this knowledge by cattle herders is inadequate. It is against this background that the study was undertaken to analyze the indigenous control methods of helminthosis in cattle and their associated problems.

II. METHODOLOGY

2.1. The Study Area

The study was conducted in Adamawa State, Nigeria. The state is located in North – Eastern part of Nigeria. It lies between latitudes 7° and 11° N of the equator and longitudes 11° and 14° E of the Greenwich meridian (Adebayo and Tukur, 1999). It occupies a land area of about 42,159 km² and has an altitude of about 185.9m above sea level. As at 2006, the study area had a population of 3,168,101 persons (NPC, 2006) and estimated population as at 2014 based on the 2.8 percent yearly projected growth rate according to United Nations Fund for Population Activities - Nigeria (2010) stands at 4,038,208 people. Adamawa state has an annual average rainfall of 759mm and mean annual temperature of 34.6°C.

The state is one of the principal livestock producing states in Nigeria. Livestock Census Figure of 1991 shows that the state has over 2.5 million cattle (Adamawa State Ministry of Agriculture, 1991). The estimated cattle population as at 2014 stands at 3,121,812, based on the one percent yearly growth rate. Over 90% of the total population of livestock in the state are owned and herded by the Fulani pastoralists, most of whom are nomadic or semi-settled (Fricke, 1993).

2.2. Sampling Technique

Seven out of the 21 Local Government Areas of Adamawa State were purposively selected based on the concentration of registered members of cattle breeders association (commonly being called *Mi-yetti Allah*) in the areas. The list of the 199,346 registered members was obtained from the officials of the association within the Local Government Areas selected and this was used as sampling frame. Based on the list of the association, respondents were randomly selected proportionate to the number of registered members from each of the seven local government areas using Taro Yamane's formula as adopted by Kalpana (2011). The model is expressed as;

$$n = N / (1 + N(e)^2)$$

Where;

n = number of respondents

N = Population of the study and

e = error

In all, a total of 400 respondents were randomly selected. However, out of the 400 questionnaires administered, 363 representing 91.0% were successfully retrieved and used for the study.

2.3. Analytical Techniques

Frequency distribution, means and percentages were used to examine the various indigenous control methods helminthosis in cattle and constraints associated with the use of methods.

III. RESULTS AND DISCUSSIONS

3.1. Indigenous Cattle Helminthosis Control Methods

The study was able to identify twelve different herbs/plants that are being used by the nomadic Fulanis in the treatment of different ailments in their herds especially on cattle in the study area. Table 1 below contains the names of plants as well as parts being used for various ailments, method of preparation and mode of administration.

Table 1. Indigenous Helminthiasis Control Methods

Name of plant	Part used	Method of preparation	Method of administration
<i>Strigahermonthea</i>	i. Whole plant ii. Whole plant	Boil Dry and grind to powder, mix with feeds	Oral Add to feed
<i>Cissampelosowariensis</i>	Roots	Dry and grind to powder mix with feeds	Feed to animals
<i>Balanitesaegyptiaca</i>	Leaves Stem bark	Fresh leaves dry and grind + potash mix with feed	Feed to animals
<i>Khayasenegalensis</i>	Stem bark Leaves	Dry and grind to powder, mix with feeds dry and grind to powder + salt, mix with feeds boil and allow to cool	Oral. Feed to animals
<i>Diachrostachyscinerea</i> (formerly <i>d. giomereta</i>)	Stem bark	Boil + <i>Carica papaya leaves</i>	Oral
<i>Mimosa pigra</i>	Stem bark and leaves	Boil	Enema
<i>Ficus exasperate</i>	Leaves	Boil + salt	Oral
<i>Carica papaya</i>	Leaves	Boil	Oral
<i>Carissa edulis</i>	Roots	Boil	Oral
<i>Balanitesegyptiaca</i>	Leaves	Fresh	Feed to animals
<i>Ipomoea isorifolia</i>	Whole plant + <i>khayasenegalensis</i> + salt	Boil and cold	Oral
<i>Allium sativa</i>	Whole bulb	Dried but not pounded, immersed in groundnut oil, steam for several hours and allow to cool	Oral to calves before soaking milk at morning and evening

Source: Field survey, 2014

Various parts of the identified plants and herbs are used for the treatments of the different diseases depending on the type, degree of infection and others. To some, stem bark of some of these herbs are used, others are leaves, roots or bulb. For example, stem bark of *Balanitesaegyptiaca* is dried, ground to powder and mixed with potash before adding to the animal feed. Bulb of *Allium sativa* is steamed in groundnut oil for several hours, allowed to cool and then fed to calves orally before soaking milk at morning and evening. *Cissampelosowariensis* root, dry and ground to powder and mixed with feeds. Also *Ficus exasperate* leaves are boiled with salt and administered orally.

IV. CONSTRAINTS TO USE OF INDIGENOUS HELMINTHOSIS CONTROL METHODS

Like in any other innovation or practices, traditional methods of disease control are also being faced with many problems which tend to inhibit utilization of indigenous knowledge practices of control methods of helminthosis by the respondents in the study area are presented in Table 2 below. All the respondents (100%) complained of deforestation as the major constraint affecting the utilization of the control methods. This could be as a result of increased human activities as a result of population increase which results in clearing of forest for housing, farms and other human activities. In the process, a lot of these plants and herbs tend to be destroyed and this may make them non-available for use while in some cases it may make them completely wiped out. Lack of government

recognition was another constraint to utilization of traditional knowledge. Unlike modern veterinary medicine where there are research centers veterinary clinics and other logistics support, traditional knowledge people have no much support, assistance or recognition from government. Concealment of the knowledge was another problem. Mostly traditional people share the knowledge only to their trusted children who are mostly in western education institutions and are not willing to practice.

Table4. *Constraints to Utilization of Indigenous Control Methods*

Methods	*Frequency	Percentage
Deforestation	363	100
Lack of Government recognition	314	86.5
Western education	267	73.6
Concealment of knowledge	351	96.7

Source: Field Survey, 2014

➤ Multiple response

V. CONCLUSION

Based on empirical evidence of the study, the traditional control methods of cattle helminthosis were found to be well established and utilized by the respondents. The herdsmen are widely knowledgeable and they treat helminthosis using remedies which they considered effective and readily available in the study area. It is therefore rational and easy for the herdsmen to practice the control methods on their herds.

It was recommended that laws banning tree cutting and bush burning to be imposed. Government should establish policy on intellectual property rights so as to protect, preserve and promote traditional knowledge; this will encourage people with the knowledge to reveal the knowledge. Indigenous knowledge system should be incorporated in the modern teaching of livestock production programmers since the knowledge is well accepted by herders and many of the herders children are into western education.

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