Research Article

BIOMEDICAL Journal of Scientific & Technical Research

ISSN: 2574 -1241

DOI: 10.26717/BJSTR.2021.34.005594

Heath Management and Veterinary Practices of Blackbelly Farms in The Different Countries in Central Africa

Meka Zibi II MA*[1,2], Meutchieye F[1,2], Tadakeng Y[1,2] and Fonteh F[1,2]

[1]*University of Dschang, Faculty of Agronomy and Agricultural Sciences, Department of Zootechnics, Cameroon*

[2]*Research Unit for Biotechnology and Bioinformatics. University of Dschang, Cameroon*

***Corresponding author:** Meka Zibi II MA, University of Dschang, Faculty of Agronomy and Agricultural Sciences, Department of Zootechnics, Cameroon and Research Unit for Biotechnology and Bioinformatics. University of Dschang, Cameroon

ARTICLE INFO

Received: March 06, 2021

Published: March 24, 2021

Citation: Meka Zibi II MA, Meutchieye F, Tadakeng Y, Fonteh F. Heath Management and Veterinary Practices of Blackbelly Farms in The Different Countries in Central Africa. Biomed J Sci & Tech Res 34(4)-2021. BJSTR. MS.ID.005594.

ABSTRACT

The medical practices and health management in Blackbelly farms in Central Africa were analyzed between 1st April to 31st November 2019 in 299 farms in Cameroon, Congo and Gabon. It appears that bacterial diseases are the most encountered in Blackbelly farms. in Central Africa, monitoring of viral and fungal diseases. It is also observed that ticks (14.7%) constitute the main type of ectoparasite of Blackbelly Central Africa and co-infect farms with insects and mites (34.1%). Helminths (43.1%) are the most common endoparasites. However, the majority of breeders (76.6%) never have their animals vaccinated and very few breeders regularly vaccinate their animals (4.7%) in general in Central Africa. But in Congo 45% of breeders sometimes vaccinate their animals (14.3% of this category). The majority of breeders never administer preventive treatment neither against ectoparasites (75.3%) nor against endoparasites (75.3%). 3%), which once again demonstrates the disease resistance capacity of these animals. However, the majority of the Congo's pastoralists sometimes resort to preventive treatments against ectoparasites (65%) and some of them resort to treatment against endoparasites (35%). Blackbelly breeders sometimes use traditional treatments and are mainly from Cameroon. However, all breeders record losses of animals due to disease, theft and accidents.

Introduction

Black belly sheep have been one of the widely distributed in the world because of its higher adaptability capacities in various climatic condition [1]. Indeed sheep, after cattle, represent the most important group of ruminants in the farming system, both temperate and tropical [2]. sheep also presents notable advantages linked to animal health. Indeed, in the regions of Central Africa, there is a trypano tolerant sheep breed and very resistant to various diseases. Among these there is the Black belly sheep which is found only in forest areas with an ideal adaptation to the local conditions of these areas [3]. It is a sheep breed which has been present in these areas for several decades, but which is now found in several countries of the world following the migration movements of the slave trade and colonization [1]. The farming practices of Black belly in the forest zone have enabled this resource to be conserved for generations, but current environmental changes are necessarily causing changes in the farming practices of the populations. Indeed, one of the most important cause of animal lost in African farming systems is diseases, due to poor medical practices [4]. If in some areas of America and Europe the breeding practices of Black belly have been the subject of several studies for years [5-8]. In Central Africa, very few authors have addressed the analysis of farming practices for Black belly sheep and particularly health practices [1,3]. This while, improving the breeding practices and genetic resources used is only possible if we master the practices of the farmers in their environment including good medical practices. According to Adjibode et al. [9], differences upstream farming system could lead on great variability in the reproductive and growth performances in sheep. The lack of credible information on these farming practices make it impossible to assess the difficulties linked to technical

improvements in farming. If the sociocultural and traditional practices have very often been the engines of conservation of endogenous genetic resources, the challenges of food security and financial stability oblige the improvement medical practices as they play an important role in farms profitability. The objective of this study is therefore to characterize the medicals practices of Black belly sheep farms in the Central African sub-region.

Materials and Methods

Description of the Study Area

The Location of Our Study Mainly Involves Three Central African Countries, Namely: Cameroon, Gabon and the Congo. A total of 8 regions are included in this study, the Center, South, East, Littoral regions in Cameroon, the Estuary and Wouleu-Ntem in Gabon and Kouilou and Niari in Congo. These areas are mainly occupied by the Bantu populations. These localities include similar climatic characteristic of humid tropical forest and equatorial, extend to the South of Cameroon, and the southwest of the Central African Republic to Congo, DRC, Gabon and Equatorial Guinea, with an average rainfall between 1 400 to 1500 mm of precipitation per year (European Commission. 2007). The climate is hot and humid with temperatures ranging between 22°C and 30°C (Tsalefac et 2015). This area is distinguished by an interconnected hydrographic network, the Congo Basin whose main rivers are the Oubangui, Sangha, Kadeï and Ngoko rivers. They are born in Cameroon and flow into the Sangha, a tributary of the Congo. The vegetation is dominated by dense forests that become cloudy as precipitation increases. (European Commission, 2007).

Data Collection

This study was carried during the period between April to November 2019. A total of 299 Black belly farmers (267 in Cameroon, 20 in Congo and 12 in Gabon) were selected in Hazard by snowball method. Survey framework was used as well as observations for data collection. The management method information that Were collected includes: herd structure, management of livestock, health management, the problems encountered.

Statistical Analyzes

The descriptive statistics made it possible to determine the frequencies, means, and percentages of breeding method of the Black belly in Central Africa. The test of Contingency made it possible to test association or independence between the factors. These analyzes were carried out using SPSS 21.0 software.

Results

Influence of the Categories of Diseases, Ectoparasites and Endoparasites Encountered in Blackbelly Farms According to the Countries in Central Africa

In general, bacterial diseases are the most encountered in Blackbelly farms in Central Africa. However, there are also other diseases such as viral and fungal diseases (Table 1). It is observed that ticks (14.7%) constitute the main type of ectoparasite of Blackbelly Central Africa. However, insects and ticks and mites generally affect Central African farms (34.1%). The most common endoparasites are helminths (43.1%), however the majority of breeders in Central Africa report the recurrent presence of both types, protozoa and helminths in farms. We note that the majority of breeders (76.6%) never have their animals vaccinated. Nevertheless, in Congo 45% of breeders sometimes vaccinate their animals (14.3% in this category). Very few breeders regularly vaccinate their animals (4.7%). The majority of breeders never administer preventive treatment either against ectoparasites (75.3%) or against endoparasites (75.3%), which once again demonstrates the ability of these animals to resist diseases. However, the majority of Congo farmers sometimes resort to preventive treatments against ectoparasites (65%) and some of them resort to treatment against endoparasites (35%).

Table 1: Influence of the categories of diseases, ectoparasites and endoparasites encountered in Blackbelly farms in Central Africa.

		Country			Total	P-value	
		Cameroon	Congo	Gabon			
Catégories diseases	Viral	9 (3.0%)	1 (0.3)	0 (0.0)	10 (3.3)	0	*
	Bacterial	43 (14.4)	8 (2.7)	0 (0.0)	51 (17.1)		
	Viral and Bacterial	23 (7.7)	7 (2.3)	11 (3.7)	41 (13.7)		
	Viral and fungal	1 (0.3)	0 (0.0)	0 (0.0)	1 (0.3)		
	Bacterial and fungal	27 (9.0)	0 (0.0)	0 (0.0)	27 (9.0)		
	Bacterial and others	37 (12.4)	1 (0.3)	0 (0.0)	38 (12,)		
	Viral , Bacterial and fungal	104 (34.8)	1 (0.3)	1 (0.3)	106 (35.5)		
	Viral , Bacterial and others	12 (4.0)	2 (0.7)	0 (0.0)	14 (4.7)		
	Bacterial , fungal and others	2 (0.7)	0 (0.0)	0 (0.0)	2 (0.7)		
	Viral, Bacterial, fungal and others	9 (3.0)	0 (0.0)	0 (0.0)	9 (3.0)		
Endoparasites	Helminths	102 (34.1)	17 (5.7	10 (3.3)	129 (43.1)	0	*
	Protozoa	33 (11.0)	0 (0.0)	0 (0.0)	33 (11.0)		
	Protozoa and Helminths	132 (44.1)	3 (1.0)	2 (0.7)	137 (45.8)		

Ectoparasites	Insects	16 (5.4)	0 (0.0)	0 (0.0)	16 (5.4)		*
	Mites	5 (1.7)	0 (0.0)	0 (0.0)	5 (1.7)		
	Ticks	39 (13.0)	5 (1.7)	0 (0.0)	44 (14.7)		
	Insects and mites	4 (1.3)	0 (0.0)	2 (0.7)	6 (2.0)		
	Insects and Ticks	98 (32.8)	0 (0.0)	2 (0.7)	100 (33.4)		
	Mites and ticks	17 (5.7)	9 (3.0)	0 (0.0)	26 (8.7)		
	Insects , mites and ticks	88 (29.4)	6 (2.0)	8 (2.7)	102 (34.1)		
Vaccination	Never	207 (69.2)	11 (3.7)	11 (3.7)	229 (76.6)	0.096	ns
	Sometimes	47 (15.7)	8 (2.7)	1 (0.3)	56 (18.7)		
	Regularly	13 (4.3)	1 (0.3)	0 (0.0)	14 (4.7)		
Preventive treatment against endoparasites	Never	209 (69.9)	6 (2.0)	10 (3.3)	225 (75.3)	0	*
	Sometimes	52 (17.4)	7 (2.3)	1 (0.3)	60 (20.1)		
	Regularly	6 (2.0)	7 (2.3)	1 (0.3)	14 (4.7)		
Preventive treatment against ectoparasites	Never	210 (70.2)	5 (1.7)	10 (3.3)	225 (75.3)	0	*
	Sometimes	48 (16.1)	13 (4.3)	1 (0.3)	62 (20.7)		
	Regularly	9 (3.0)	2 (0.7)	1 (0.3)	12 (4.0)		

Note: n (%) : actual (frequency), ns : not significant, * : significant

Traditional Treatment of Animals

Some breeders regularly use traditional treatment (2.0 %) and there are all of them from Cameroon (Table 2).

Table 2: Traditional treatment of animals.

		Traditional Treatment			Total	P-value
		Never	Sometimes	Regularly		
Country	Cameroon	186 (85.7)	75 (98.7)	6 (100.0)	267 (89.3)	0,000
	Congo	19 (8.7)	1 (1.3)	0 (0.0)	20 (6.7)	
	Gabon	12 (5.6)	0 (0.0)	0 (0.0)	12 (4.0)	
Total		217 (72.6)	76 (25.4)	6 (2.0)	299 (100.0)	

Note: n (%) : Number of farmers (frequency)

Loss of Animals and Intervention by Specialist in the Field

The majority of Black Belly farmers (Table 3) record cases of animal's loss (94.6%). These losses are mainly due to the diseases and theft (29.4%). However, in Congo and Gabon in addition to theft and disease (Table 4), breeders identify accidents as another major cause of animal loss. For most of the breeders, disease and mortality are non-seasonal in the forest area of Africa (Table 5), they are present in the dry and rainy season. However, all of the Congo breeders and half of the Gabon farmers declare that disease and mortality are more frequent in the rainy season.

Table 3: Regular loss of animals in black belly farms in Central Africa.

		Loss of Animals		Total
		No	Yes	
Country	Cameroon	16 (100.0)	251 (88.7)	267 (89.3)
	Congo	0 (0.0)	20 (7.1)	20 (6.7)
	Gabon	0 (0.0)	12 (4.2)	12 (4.0)
Total	16 (5.4)	283 (94.6)	299 (100.0)	

Note: n (%): Number of farmers (frequency)

Table 4: Main causes of animal loss in black belly farms in Central Africa.

Source of Animal Loss														
		Undeclared cause	**disease**	**Accident**	**theft**	**Other**	**Disease Accident**	**Illness and theft**	**Illness and others**	**Accident and theft**	**Illness, Accident theft**	**Accident and theft and others**	**Sickness, Accident, theft and others**	**Total**
Country	Cameroon	17 (100.0)	20 (95.2)	17 (100.0)	31 (100.0)	1 (100.0)	44 (97.8)	85 (96.6)	1 (100.0)	19 (86.4)	30 (60)	2 (66.7)	0 (0.0)	267 (89.3)
	Congo	0 (0.0)	1 (4.8)	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.2)	3 (3.4)	0 (0.0)	3 (13.6)	11 (22.0)	1 (33.3)	0 (0.0)	20 (6.7)
	Gabon	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	9 (18.0)	0 (0.0)	3 (100.0)	12 (4.0)
Total		17 (5.7)	21 (7)	17 (5.7)	31 (10.4)	1 (0.3)	45 (15.1)	88 (29.4)	1	22	50	3	3	299
			-7	-5.7	-10.4	-0.3			-0.3	-7.5	-16.7	-1	-1	-100

Note: n (%) : Number of farmers (frequency)

Table 4: Periods of the year of higher frequency of illness and mortality.

		Period of the Year				Total
		Not Defined	**Dry Season**	**Rainy Season**	**Dry and Rainy Season**	
Country	Cameroon	17 (100.0)	31 (100.0)	19 (42.2)	200 (97.1)	267 (89.3)
	Congo	0 (0.0)	0 (0.0)	20 (44.4)	0 (0.0)	20 (6.7)
	Gabon	0 (0.0)	0 (0.0)	6 (13.3)	6 (2.9)	12 (4.0)
Total		17 (5.7)	31 (10.4)	45 (15.1)	206 (68.9)	299 (100.0)

Note: n (%) : Number of farmers (frequency)

Discussion

In general, bacterial diseases are the most commonly encountered in Blackbelly farms in Central Africa. However, there are also other diseases such as viral and fungal diseases. Ticks (14.7%) are the main type of ectoparasite of Blackbelly Central Africa. However, the majority of breeders report an association of insects, ticks and mites which generally affect farms in Central African countries (34.1%). The most common endoparasites are helminths (43.1%), however the majority of breeders in Central Africa report the recurrent presence of the two types, protozoa and helminths in farms. Various studies have also reported the presence of diseases and parasites in small ruminant breeding, particularly in Cameroon, Brazil, Benin and Niger. Guilherme (2017) noted a high rate of intestinal worms (37%), a result of our observations. Yaye [10] in Niger to be identified as the main diseases were, anthrax, sheep pox, foot-and-mouth disease and parasitic diseases. Tounkara et al. (1996) in Mali observed a strong presence of PPR in herds of small ruminants. The presence of certain pathologies in certain localities will therefore depend on the natural conditions of the environment, but also on the availability of mitigation means. In fact, in the Congo, breeders suffer from a real absence of products and veterinary pharmacy in the locality of Pointe Noire and Nairi, which limits the means of combating pathologies and favors their installations in the herds.

The majority of breeders (76.6%) never have their animals vaccinated, in Congo where 45% of breeders sometimes vaccinate their animals (14.3% in this category), despite the difficulties of access to medicines and the scarcity of supply points, breeders who are mostly traders' source veterinary products in neighboring countries such as Cameroon. During this period, the Congolese government launched a vaccination campaign against PPR in 2014, which caused enormous losses to breeders, which led to farmers withdrawing from public vaccination campaigns against PPR. Very few breeders regularly vaccinate their animals (4.7%). However, in row systems, breeders regularly vaccinate their animals and in backyards, breeders sometimes vaccinate their animals. In the different countries of Central Africa, the majority of breeders never administer preventive treatment either against ectoparasites (75.3%) or against endoparasites (75.3%), which once again demonstrates the ability to disease resistance of these animals. However, the majority of the Congo's pastoralists sometimes resort to preventive treatment against ectoparasites (65%) and some of them resort to treatment against endoparasites (35%). Likewise, in the majority of systems, breeders sometimes administer treatments against ectoparasites and endoparasites, except for the stray system where almost all breeders do not treat their animals. Our results corroborate with the observations of [9] in Senegal, indeed all of the pastoralists in north and south Senegal report a

high prevalence of diseases causing diarrhea, cough, weight loss and mortality. Similarly, it also notes a low vaccine use equal to that reported in this study (24%). In contrast, in western Cameroon, Tchouamo et al (2005) [11] noted that the majority of pastoralists administer disease care (70%).

This variation in health status in different countries and production systems may be due to varying feeding, watering and hygiene conditions. It should however be noted that, the breeders do not administer any treatment either because they do not know the treatments to apply, or finally because they do not have enough money. Very few breeders regularly use traditional treatment and all from Cameroon this is because in the other countries on the other hand, Tchouamo, et al. [11] noted a higher rate of use of treatment with antibiotics (49%) and with the traditional pharmacopoeia (15 %) mainly against ectoparasites and endoparasites. Traditional treatments have also been identified by Ndogmo and al (2016) in guinea fowl farms in Cameroon and in local chicken farms in Zimbaoué by Mapiye et al. [12], due to their local availability, ease of application, low cost and not need great technology for their uses. Almost all breeders of Black Belly record cases of loss of animals (94.6%). These losses are mainly due to the diseases and theft (29.4%). However, in Congo and Gabon in addition to theft and disease, breeders identify accidents as another major cause of animal loss. Our results are similar to those of Doko and al (2009) Adjibode and al (2016), Yaye, et al. [10,13]. Theft is a permanent factor in the loss of animals in small ruminant farms, indeed some breeder declares to have lost all of their livestock due to theft. In Congo losses by theft can go to more than 20 animals. These cases of theft generally occur at night in the South regions of Cameroon and Gabon, but also during the day in Congo when the sheep find themselves alone on pasture. The farmers generally (74.6%) do not call a specialist, only 25.4% call a specialist in their farm. These interventions are generally Occasional (19.4%) and in the field of animal health (29.4%). Contrary to our results, Alkoiret and al (2009) [13] in Benin noted that the majority of cattle breeders call a specialist mainly in the field of animal health. Similarly, Tchouamo and al (2005) [11] found west Cameroon that the majority of farmers are calling for veterinary service, but only 53% of this farmer are satisfied with their services. In Niger, self-medication by small ruminant breeders limits the frequency of intervention by specialists in the field (YAYE. and al, 2019) [10]. This phenomenon is caused by the presence of a vast network of black market for veterinary products [14].

Conclusion

Diseases and parasitic infestations are present in all Blackbelly farms in Central Africa. They are the source of many losses on the farm. However, health and medical practices remain very little mastered. The lack of financial means and the unavailability of phytosanitary products constitute major difficulties in the sanitary control of livestock. Improving the technical competence of livestock keepers in animal health can be an important element in reducing the impact of diseases on farm production and improving their productivity.

References

1. Meka zibi II MA, Meutchieye F, Ntsoli J, Tadakeng Y, Fonteh (2019) Factors affecting the global diffusion of an African animal genetic resource: the case study of the Cameroon Blackbelly sheep. PK Fokam Journal of Applied Science and Technology, inaugural Edition p. 28-37.
2. Omondi I, Baltenweck I, Drucker AG, Obare G, Zander KK (2008) Economic valuation of sheep genetic resources: implications for sustainable utilization in the Kenyan semi-arid tropics. Trop Anim Health Prod 40(8): 615-626.
3. Manjeli Y, Njwe R, Thoumboué J (2003) Phenotypics and geneticparameter of body weigth of blackbelleysheep. Journal of the Cameron Academy of sciences 3(2).
4. Tchoumboué J (1997) Elevage des caprins en zone soudano-guinéenne d'altitude de Cameroun, Visite d'étude sur les systèmes d'élevage dans les zones humides et subhumides d'Afrique, CTA. Wageningen, pp. 148-153.
5. Fitzhugh A, Bradford G (1980) Hair Sheep of Western Africa and the Americas. A Genetic Resource for the Tropics. Westerview Press. Boulder Colorado 179: 3-22.
6. Dzib CA, Ortiz de Montellano A, Torres Hernández G (2011) Variabilidad morfoestructural de ovinos Blackbelly en Campeche México. Archivos de Zootecnia 60(232): 1291-1301.
7. Victalina AR, Barragán RM, Molina Cárdenas J, Magaña Álvarez J, Prado Rebolledo O, et al. (2012) Morphological characterization of Pelibuey sheep in Colima, México. Tropical Animal Health and Production, November 5(4).
8. Guingouain N, Charles H, Gilles l (2017) L'élevage des petits ruminants en Milieu paysan dans les régions de la Kara et des savanes au Togo : Diagnostic technico-économique. Doctorat vétérinaire, faculté de médecine de Créteil, école nationale vétérinaire d'Alfort.
9. Adjibode G, Tougan UP, Daouda IH, Zannou MS, Mensah GA, et al. (2016) Characteristics of african dwarf sheep rearing systems used in the north and south of benin. International journal of current advanced research 5(9): 1216-1225.
10. Yaye HA, Guiguigbaza Kossigan D, ISSA M, Mani M, Idi I, et al. (2019) Etude des pratiques d'élevage des moutons Peulh du Niger : le Peulh blanc et le Peulh bicolore. Int J Biol Chem Sci 13(1): 83-98.
11. Tchouamo IR, Tchoumboué J, Lise Thibault (2005) Caractéristiques socio-économiques et techniques de l'élevage de petits ruminants dans la province de l'ouest du Cameroun. Tropicultura 23(4): 201-211.
12. Mapiye C, Mwale M, Mupangwa JF, Chimonyo M, Foti R, et al. (2008). A Research Review of Village Chicken Production Constraints and Opportunities in Zimbabwe. Asian-Aust J Anim Sci 21(11): 1680-1688.
13. Alkoiret IT, Awohouedji DYG, Akossou AYJ, Bosma RH (2009) Typologie des systèmes d'élevage bovin de la commune de Gogounou au Nord-Estdu Bénin Annale des sciences agronomiques du Bénin 12(2).
14. Dongmo DF, Meutchieye F, Manjeli Y (2016) Caractéristiques de production de la pintade locale (Numidameleagris)dans la zone soudano-sahélienne du Cameroun.Science et technique, Sciences naturelles et agronomie. Spécial hors-série n° 2 - ISSN 1011-6028.

ISSN: 2574-1241

DOI: 10.26717/BJSTR.2021.34.005594

Meka Zibi II MA. Biomed J Sci & Tech Res

Submission Link: https://biomedres.us/submit-manuscript.php