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RESEARCH ARTICLE

ASSESSMENT OF REPRODUCTIVE PROBLEMS ON CAPRINE, OVINE, BOVINE AND EQUINE IN NYALA CITY, SOUTH DARFUR STATE, SUDAN

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ABSTRACT

Reproductive problems of caprine, ovine, bovine and equine significantly reduce their productivity which is of great concern of production worldwide, because most reproductive problems adversely affect the future fertility. A four year retrospective study of reproductive problems of caprine, ovine, bovine and equine presented to Nyala Veterinary Hospital, South Darfur State, Sudan was conducted with the objective to determine the prevalence of reproductive problems in study animals between January 2012 and December 2015. All Data about animals were collected from case registration books and entered into Microsoft excel sheet and analyzed based on the year of study, the disease frequency and, species of the animals. Total of 362 reproductive problems of caprine, ovine, bovine and equine were recorded between January 2012 and December 2015 from a total of 5001 examined for different clinical cases at Nyala Veterinary Hospital. This study were found to have reproductive problems comprising mastitis 110 (36.42%), dystocia 67 (22.19%), retention of placenta 56 (18.54%), brucellosis 21 (6.95%) and abortion 15 (4.97%) in caprine and Orchitis 5 (33.33%) in equine. In conclusion, from this study, reproductive cases were most prevalent in caprine than bovine, ovine and equine. Therefore, Major causes of reproductive problems especially in caprine should be identified and followed by appropriate measures according to the problems, to minimize the reproductive loss.

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INTRODUCTION

The livestock play very important economic, social and cultural roles or functions for rural households once they contribute to improve income and wellbeing of the farm family. Livestock helps on food supply, family nutrition, family income, asset savings, soil productivity, livelihoods, transport, agricultural traction, agricultural diversification and sustainable agricultural production, family and community employment, ritual purposes and social status (Moyo and Swanepoel, 2010). The major reproductive problems of confined or free-roaming large and small ruminants include: abortions, still births, mastitis, metritis, dystocia and retained placenta (retention of fetal membrane), prolapse (uterine and/or vagina), anoestrus and repeat breeder (Winrock, 1992). Therefore, it is justifiable to generate scientific information and database on the production system, and the major reproductive problems of farm animals in the study area with the objective to determine the prevalence of major infertility problems of farm animals.

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It is anticipated that the information generated could be used as a basis for interventions to improve farm animals productivity among smallholder farmers in Nyala.

MATERIALS AND METHODS

Study area and animals

This study was conducted at Veterinary Hospital, Ministry of Animals Resource, Fisher and Range land, Nyala, Sudan. The study was conducted for 4 years from 2012 to 2015 to determine the prevalence of reproductive problems in randomly selected 362 causes from caprines, ovine's, bovines and equines covering all districts of Nyala, Sudan. All the animals selected for the study were reared in semi-intensive type of management where animals were stall-fed with little open area for grazing.

Study population

The study populations were caprine, ovine, bovine and equine brought from different areas to the Vet Hospital and recorded on the case books. All the animals which were recorded in the case books starting from January 2012 up to December 2015 were included in the study.

Study Design

Retrospective study design were conducted to determine the frequency (patterns) of caprine, ovine, bovine and equine reproductive system problems (diseases) encountered at Nyala Veterinary Hospital, within a four year period records (2012-2015).

Sampling Method and sample size

Purposive sampling method was conducted. A total of 5001 caprine, ovine, bovine and equine were examined over a four year period (2012-2015) at Nyala Veterinary Hospital.

Study Methodology

Retrospective Study

Data on caprine, ovine, b and equine were collected from Nyala Veterinary Hospital case registration books between the periods January 2012 and December 2015.

Data Management and Analysis

The data which were gathered from case registration books about caprine, ovine, bovine and equine presented to Nyala Veterinary Hospital were coded and entered to Microsoft Excel 2007 spread sheet. Reproductive problems of caprine, ovine, bovine and equine obtained from clinical case records between January, 2012 and December, 2015 was analyzed by using Statistical Package for Social Science (SPSS) software versions 16, based on study year, disease condition, species and sex of the animals. Simple descriptive statistics was used to determine the prevalence of reproduction problems and results expressed as simple percentile.

RESULTS

This study revealed that a total of 362 reproductive problems of caprine, ovine, bovine and equine were recorded between January 2012 and December 2015 from a total of 5001 examined for different clinical cases at Nyala Veterinary Hospital. The highest prevalence was recorded in 2013 with 54

Table 1. Prevalence of reproductive problems of Caprine, Ovine, Bovine and Equine Based on Year of Study

Reproductive problems	2012	2013	2014	2015	Total
Dystocia	14 (21.88)	29 (22.14)	21 (22.34)	12 (16.44)	76 (21)
Mastitis	16 (25)	54 (41.22)	28 (29.78)	19 (26.03)	117(32.32)
Retention of Placenta	9 (14.06)	17 (12.98)	22 (23.40)	22 (30.14)	70 (19.34)
Metritis	3 (4.69)	8 (6.11)	0(0)	0(0)	11 (3.04)
Brucellosis	11 (17.19)	5 (3.82)	6 (6.38)	4 (5.48)	26 (7.2)
Uterine Prolapse	4 (6.25)	4 (3.1)	3 (3.19)	4 (5.48)	15 (4.14)
Vaginal Prolapse	3 (4.69)	6 (4.6)	0(0)	6 (8.22)	15 (4.14)
Abortion	3 (4.69)	7 (5.34)	10 (10.63)	4 (5.48)	24 (6.62)
Orchitis	0 (0)	0(0)	3 (3.19)	2 (2.74)	5 (1.38)
Vaganitis	1 (1.56)	0(0)	0(0)	0(0)	1 (0.28)
Paraphemosis	0 (0)	0(0)	1 (1.06)	0(0)	1 (0.28)
Phemosis	0 (0)	1 (0.76)	0(0)	0(0)	1(0.28)
Total	64 (17.68)	131 (36.19)	94 (25.97)	73 (20.17)	362

Table 2. Prevalence of reproductive problems amongst Caprine, Ovine, Bovine and Equine Veterinary Hospital

Reproductive problems	Number of animals affected (%)				
	Bovine	Caprine	Ovine	Equine	Total
Dystocia	5 (20)	67 (22.19)	3 (15)	1 (6.67)	76 (21)
Mastitis	4 (16)	110 (36.42)	3 (15)	0(0)	117 (32.32)
Retention of Placenta	10(40)	56 (18.54)	4 (20)	0(0)	70 (19.34)
Metritis	1 (4)	8 (2.65)	1 (5)	1 (6.67)	11 (3.04)
Brucellosis	0(0)	21 (6.95)	0(0)	5 (33.33)	26 (7.2)
Uterine Prolapse	3 (12)	12 (3.97)	0(0)	0(0)	15 (4.14)
Vaginal Prolapse	2 (8)	13 (4.30)	0(0)	0(0)	15 (4.14)
Abortion	0(0)	15 (4.97)	9 (45)	0(0)	24 (6.62)
Orchitis	0(0)	0(0)	0(0)	5 (33.33)	5 (1.38)
Vaganitis	0(0)	0(0)	0(0)	1 (6.67)	1 (0.28)
Paraphemosis	0(0)	0(0)	0(0)	1 (6.67)	1 (0.28)
phemosis	0(0)	0(0)	0(0)	1 (6.67)	1 (0.28)
Total	25 (6.91)	302 (83.43)	20 (5.52)	15 (4.14)	362

% = percent

Table 3. The relative frequency of various reproductive problems in Nyala

Reproductive problems (n=362)	Frequency	Percent of total affected animals %
Dystocia	76	21
Mastitis	117	32.32
Retention of Placenta	70	19.34
Metritis	11	3.04
Brucellosis	26	7.2
Uterine Prolapse	15	4.14
Vaginal Prolapse	15	4.14
Abortion	24	6.62
Orchitis	5	1.38
Vaganitis	1	0.28
Paraphemosis	1	0.28
Phemosis	1	0.28
Total	362	100

n=number; % = percent

(41.22%) followed by 29 (22.14%) in the same year and the lowest in 2013 with 1 (0.76%) as indicated in Table 1. The study also revealed that mastitis is the most prevalent disorder 117(32.32%) followed by retention of placenta 70 (19.34%) compared to the least prevalent as vaganitis, phemosis and paraphimosis with 1 (0.28%) for each Table 1. Table 2 shows the prevalence of reproductive problems amongst caprine, ovine, bovine and equine. A total of 302 (83.43) caprines were affected which was higher than bovine, ovine and equine with 25 (6.91), 20 (5.52) and 15 (4.14) respectively. Also show the caprine had a high prevalence in mastitis, dystocia, retention of placenta and brucellosis than other species. Table 3 show the reproductive problems reported in this study were mastitis (32.32%), dystocia (21%), brucellosis (7.2%), abortion (6.62%), uterine prolapse (4.14%), vaginal prolapse (4.14%), Endometritis (3.04%), Orchitis (1.38%), vaganitis (0.28%), paraphemosis (0.28%), and phemosis (0.28%), respectively. Mastitis was the most common cause of infertility of caprine. In this study, dystocia was found to be the second highest common reproductive problems which was (22.19%) than the other species.

DISCUSSION

A total of 5001 animals were examined for different cases at Nyala veterinary hospital between January 2012 and December 2015. From 5001 cases recorded, 362 cases were reproductive problems of caprines, bovines, ovines and equines. The highest prevalence of cases was reported in 2013 with 54 (41.22%) and the lowest also in 2013 with 1 (0.76%). Higher prevalence of reproductive problems in caprine (36.42%) than bovine, ovine and equine (16%), 3 (15%) and 0(0) has been recorded respectively. The highest prevalence of reproductive problems in caprine might be due to the greatest cases number handled in the hospital. The overall prevalence of the present study was higher (7.33%) as compared to the (4.07%) by (Waziri *et al*., 2006) and lower than the (9.1%) by (Williams *et al*., 2000) from Nigeria and (1.89%) by (Tilahun *et al*., 2015) from Ethiopia. The difference might be due to environmental or location difference, the present retrospective study incorporates only four years recorded data and differences in the number total cases analyzed. The results of this study have shown that retention of Placenta (40%), dystocia (20%) and mastitis (16%) were the most common reproductive disorders in bovine. The results of this study also revealed that the prevalence of mastitis in caprine (36.42%) is higher than bovine (16%), ovine (15%) and equine (0%). Even though the reason for this difference is not clear, but it might be due to poor recording system of the cases. In addition the culture of the people to bring the animals for the mastitis cases to the clinic is very poor. Most livestock in Nyala City are reared under extensive system of production and under unsanitary surroundings where they are allowed to roam freely, thus exposing them to pathogens or allergens that could cause mastitis and other reproduction disorders that are infectious in nature. This may lead to a generalized disease. The present study indicates that the prevalence of brucellosis in caprines (6.95%) was higher than ovine's (0.0%). This finding is comparable to that of (Teshale *et al.,* 2005) and (Ashenafi *et al.,* 2007) who also reported higher prevalence in goats than in sheep in Afar region, and (Mengistu 2007) in Konso, southern Ethiopia.

However, study by (Tekelye and Kasali 1999) in the central high lands of Ethiopia, and by (Samaha *et al.,* 2008) in Egypt showed a higher prevalence in sheep as compared to goats mainly due to differences in husbandry system and in susceptibility of the sheep and goat breeds in the particular area. The increase of mastitis, dystocia, retention of placenta in caprine this could be due to differences in the management, housing pattern, hygienic condition, environmental condition, poor sanitation, nutritional status, contamination during calving and indiscriminate use of broad spectrum antibiotics (Ishak *et al*., 1983; Mallah *et al*., 1989; Mandali *et al*., 2004; Samad, 2008 and Neils *et al*., 2009). Incidence of dystocia in bovine was less than in caprine. The possible causes of dystocia reported by the farmers and veterinarians were failure of cervical dilatation, fetal oversize, twinning, abnormal presentation, position and posture of the fetus, uterine inertia, hypocalcaemia and obesity of the dam (Johanson, 2003). Males had a lower prevalence of reproductive problems than females for them in this study. This is similar to the reports by (Waziri *et al*., 2006) and (Umaru *et al*., 2013) in Nigeria. This may be due to the fact that females are kept for longer periods in the herd and probably due to their unique position as reproduction vessels.

Conclusion

This study revealed that from 5001 animals which were examined for different cases at Nyala veterinary Hospital in Nyala city, between January 2012 and December 2015, 362 cases were reproductive problems of caprine, bovine, ovine and equine. The overall prevalence of reproductive problems of study animals in the present retrospective study at hospital was (7.33%). Mastitis (32.32%), dystocia (20.99%) and retention of placenta (19.33%) were the most common reproductive problems encountered. Female animals had a higher prevalence of reproductive problems than males in this study. The reproductive cases were most prevalent in caprines (83.43%) than in bovines (6.91%), ovines (5.52%) and equines (4.14%).

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