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Short communication

Some observations on oestrus manifestations in the red Sokoto goat

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ABSTRACT

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This paper reports of some observations on the type and frequency of oestrous expressions in the Red sokoto doe (RSD). There is reduced manifestation of oestrous signs in does kept without males. Presence of males and coitus also does affect the nature and frequency of a given oestrous expression. The presence of a buck combined with cloprostenol (an oestrous synchronizing agent) induction produces intense manifestation of heat in a higher percentage of RSDs.

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1. Introduction

Studies on the oestrous characteristics in the Red Sokoto Doe (RSD) are relatively few when compared with the West African dwarf goat. The West African dwarf goat has received some considerable attention (Molokwu and Igono 1978, Orji, 1985, Akusu and Oyeyemi, 1988., Akusu *et al.*, 1989); this has not been the case with the Red Sokoto goat. Reproduction research in this breed of goat is relatively scanty, this paper reports of observations on nature and manifestation of oestrus in the RSG in various treatment groups.

2. Materials and methods

Observations on the type of oestrus expressions in 24 RSD were studied. The nature and type of physical oestrus manifestations in these animals was recorded over a period of 6 oestrous cycles. Heat manifestations like,

vulva hyperemia, vulva enlargement, vulva secretions, bellowing, restlessness, Inappettance, females mounting other females, and tail wagging was studied. The frequency of expressing these behaviours in a given heat in all the animals was recorded. The animals were divided into four observation groups (I, II, III and IV). group I is kept with no male amongst them, group II is kept with an aproned buck mating could not take place. Group III Does were kept with a vasectomised buck amongst them, mating was allowed. In group IV does were synchronized with cloprostenol and. the nature of their heat observed Observations were performed on an hourly basis.

3. Results and discussion

Table 1 Presents percentage frequency of occurrence of various oestrous sign observed in the SRD in the four observation groups. Vulva hyperaemia was observed in 35(24%), 40(27.8%), 50(34.7%) and 40(50.6%) estruses for Groups I, II, III and IV respectively. While Vulva enlargement was seen in 35(24%), 40(27.8%), 55(38%) and 35(44%) heat period for groups also for groups I, II, III and IV respectively. Vulva secretions were observed as follows In group I; 115(78.8%), group II, 120(83%), group III: 130(90%) while group IV Resented 70 cases (88.6%) out of the 79 does .Vulva secretions were observed as either obvious (mild secretion) or copious (high level of secretion), In-group 1. 98(85%) of the 144 does displayed obvious amount of secretions while only 17(15%) manifested copious secretions. For Group II, 78(65%) of the 44 estruses exhibited obvious secretions while 42(35%) showed copious Vulva secretions, in Group III, 52(40%) showed obvious vulva secretions and 78(55%) of the does showed copious vulva secretions. In cloprostenol induced heats those showing copious secretions amounted to 66(95%) on cjnly 3.5(5%) were seen to show minimal vulva secretions. Inappettance is a common feature in animals on heat, a picture of 25(17%), 20(13.9%) 18(12.5%) and 30(38%) was seen in Group I, II, III and IV respectively.

Mounting Female on heat mounting her females was observed as 15(10%), 10(6.9%) 15(10%) and 60(75.9%), in group I, group II. and group III. and IV respectively. Immobility posture is often exhibited in animals at peak oestrus. The posture is related to the close association that usually exists between the Doe and the buck. In Group I because of the lack of a male. There were no observations in this respect, while in groups [I. III. and IV the observations were as follows; 33(22.9%), 35(34%) and 63(79%) respectively. Some of the does were seen to engage in buck licking, this habit was observed essentially in group IV and not in the other groupings. Restlessness was observed to be an activity in SRD's on heat in 50(35%), 90(62.5%), 75(52%), and 50(63%) of the does on heat in Group I, II, III and IV respectively. Frequent Bellowing was recorded in all the different treatment groups as follows; 60 (41.7%), 73(50.7%), 85(59%) and 50(63%) goats were observed to show this sign in Group I, II, III and IV respectively. One of the most common physical oestrus expressions in the SRD is the act of (nil wagging in which a 100% exhibition across all the four experimental groups was seen.

Vulva hyperaemia in many domestic animals is a Common physical manifestation during oestrus. The expression was observed in the SRD in this study. It was observed in all the experimental groups in this study Groups I, II, III and IV. A pattern was observed in the manifestation of vulva hyperaemia (see Table) in group I; Goats kept with no males amongst them showed vulva hyperaemia only in 35 (24%) cases. An ascending trend was seen from Group II-IV, the presence of a buck does seem to have an effect on the intensity of oestrus expression. The combined effect of the presence of buck and cloprostenol produces more vulva hyperaemia than in all the other groups. There is no report in Nigeria to our knowledge describing percentage frequency of oestrous signs like reddening of the vulva in the SRD. However, a number of reports have acknowledged the existence of vulva hyperaemia in goats (Heath and Olusanya, 1985; Noakes et al; 1982, Perera et al; 1978; Otchere and Nimo. (1975).Enlargement of the vulva labiae due to increased blood flow to labia tissues is another common phenomenon in oestrous expression in domestic animals including the goats, observations in the different groups presented a similar frequency picture to what was recorded for vulva hyperaemia, an ascending trend of percentage of animals showing vulva enlargement from Group I-IV was seen, a number of reports have described the manifestation of vulva hyperaemia in the goats elsewhere, though not necessarily describing the percentage incidence (Heath and Olusanya, 1985; Llewelyn et al' 1993) Perera et al; 1978).findings in this study agree with findings by Llewelyn et al; (1993) in the British white goat. Vulva secretions in the caprine have been reported widely in the literature (Llewelyn et al, 1993; Noakes et al; 1982; Pretorius. 1977). There are no studies reporting the frequency of vaginal discharge during the heat period in the SRD on heat. However, here in Nigeria, there are some reports mentioning vulva discharge in the WAD goal (Akusu. 2003;; Heath and Olusanya.(1985). A higher percentage (90%) of dose in Group III was seen to exhibit this oestrous other grouping. The next percentage is group IV (86%) followed by group II (83%) and group I (79.8%). However, group I have a very high percentage of

goats with just an obvious discharge from the vulva. However, group III can be seen to have a very high percentage of does exhibiting copious secretion, perhaps because, the intensity of heat in does kept without males is less compared with that of does kept together with an aproned or vasectomised buck. The intensity of heat is demonstrated by an ascending pattern when examined from group I-IV, with the most intense manifestation seen in group IV. While does kept separate from males exhibits considerably lower percentage of manifestation of this oestrous behaviour. This finding agrees with Akusu (2003) who reported vulva discharge as one of the most common oestrous signs.

Female animal on heat have been observed to have a reduced appetite (Noakes et al., 1982; Heath and Olusanya, 1986, Payne 1990). Though, it is common knowledge that goats on heat have reduce appetite there are very few local reports on this aspects of oestrus. Inappettance in this study was seen to be high in does in group IV (38%), 17% of goats in group I, were off feed, this greater than what is recorded in group II and group III. There does not seem to be any particular pattern in this case. But a higher number of goats in group IV may be showing high percentage from the combined effect of the cloprostenol and the presence of a vasectomised buck.

Mounting other females by does on heat is a common oestrous manifestation. This behaviour has been reported by several workers both locally and elsewhere (Akusu, (2003); Heath and Olusanya, (1986), and Otchere and Nimo (1975)) in the WAD goat. Mounting others has been widely reported in the literature, Llewellyn (1993); Van Rensburg, (1971) in the Angora goat. Mathews, (1989) also reported on mounting in goats though he suggested that in cases of goats that exhibited mounting behaviours, it is an expression of dominance by the higher ranking females. In the present study, mounting was observed in all the various observational groups (I, II, III and IV). The proportion of Does mounting others seems to be comparatively low in group I: 15(10%); group II; 10(6.9%), group III; 35(34%) in contrast with 60(75.9%) in does in group IV. There are no similar studies in Nigeria in our local breed to enable comparison of the findings in this study.

Immobility posture: Goats on heat seek put males at some stage of the oestrus period. An immobility posture is often assumed at a stage during the heat period to allow the buck to mount and copulate immobility posture was observed in the various observational groups that have male animals in them i.e. groups II, III and IV. From the table it could be seen that the proportion of goats that exhibited this posture increases from group II, III and IV with percentages of 33(22.9%), 35(34%) and 50(63%) respectively.

Bellowing or frequent roaring is a common expression in does on heat; it has been observed and reported in several reports (Akusu. 2003: Llewellyn et al: 1993). In this study Bellowing has been observed to occur in all the observation groups in table an ascending pattern was observed in the various treatment groups. There is also increase in frequency from group I - group IV, with group IV having the highest of frequency of goats expressing bellowing during the heat period.

Table 1

Percentage of Does exhibiting signs of oestrus amongst Sokoto red Does in the treatment groups.

S/no	Nature of expression	Group I (NBNM) (N=144)	Group II (ABNM) N=144	Group III (VBM) N=144	Group IV (CVBM) (N=79)
1	Vulva hyperaemia	35(24%)	40(27.8%)	50(34.7%)	40(50.6%)
2	Vulva enlargement	35(24%)	4(27.8%)	55(38%)	35(44%)
3	Inappettance	25(17%)	20(13.9%)	18(12.5%)	30(38%)
4	Mounting others	15(10%)	10(6.9%)	15(10.0%)	60(75.9%)
5	Immobility posture	-	33(22.9%)	35(34%)	50(63%)
6	Vulva secretion	115(79.8%)	120(83%)	130(90%)	70(88.66)
7	Tendins; bond	-	35(24 %)	55(38%)	63(79%)
8	Restlessness	50(35%)	90(62.5%)	75(52%)	50(63%)
9	Bellowing	60(41.7%)	73(50.7%)	85(59%)	50(63%)
10	Tail wagging	144(100%)	144(100%)	144(100%)	79(100%)

Tail Wagging: Tail wagging is undoubtedly the most common oestrous sign in goats almost all articles reporting on signs of heat in local goats and goats elsewhere (Akusu. 2003; Otechere and Nimo (1975):Payne. 1990; Perera *et al.*, 1978: Noakes *et al*; 1982). Tail wagging was seen in all the four observation groups. Restlessness is a common feature of oestrous Activity, it has been reported severally (Noakes. 1982, Llewellyn et

al., 1993; Payne, (1990). The frequency of restlessness was seen more in groups II (62.5%) and group IV (63%) this could be so because of the presence of the buck in this group and the absence of coitus perhaps there is a physiologic preparedness for coitus in the Does which was physically obstructed the aproned on the buck.

4. Conclusion

Oestrous signs are essential to controlled animal breeding. SRDs kept without male do not manifest some oestrous characteristics. There is an ascending pattern in the degree of manifestation of heat from group I-IV. The highest frequencies of expression were seen in Group IV. In this group the manifestation of heat in all its ramifications was seen. The heat inducing effect of the hormone cloprostenol and the combined effect of the presence of the buck could be said to be reasons for the high frequency of incidence of restlessness.

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