



RESEARCH ARTICLE

BEHAVIOURAL AND PHYSICAL SIGNS OF ESTRUS IN GOATS FOLLOWING IVS TREATMENT

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ARTICLE INFO

Article History:

Received 2nd, July, 2015
Received in revised form 10th,
July, 2015
Accepted 4th, August, 2015
Published online 28th,
August, 2015

Key words:

Estrus synchronization, IVS,
PMSG, goat.

ABSTRACT

The present study was carried out for synchronizing estrus by using vaginal speculum and intra vaginal sponge (IVS) developed indigenously impregnated with four different concentrations of progesterone followed by administration of PMSG. Twenty four (24) numbers of normal cyclic adult non pregnant female goats were selected for the study. The animals were divided into four groups with six (6) animals in each group where control group A0 received 0 mg and the three treatment groups A1, A2 and A3 received 100mg, 200 mg and 300 mg of progesterone impregnated intravaginal sponge respectively and kept in situ for fourteen (14) days. It was then followed by administration of 200 IU of PMSG intramuscularly on the day of IVS removal. All the experimental animals including animals of the control group were closely observed for the occurrence of estrus by using a vasectomised buck to move around the animals round the clock. Estrus was detected on the basis of behavioral and physical signs viz., mucous discharge from the vagina, wagging of tail, frequent urination etc. First acceptance of the male by the female was considered as the onset of estrus and the rejection of the male by the female was considered as the end of estrus.

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INTRODUCTION

The total population of goat in our country is about 13.51 crores out of which Assam accounts for about 61.69 lakhs (Livestock census,2012).In the present scenario, selection of proper and effective managerial practices and improved reproductive technologies becomes very important to increase animal production. The IVS technique can serve as an effective, reliable and farmer's friendly tool in uplifting animal production if used properly depending on the prevailing situation and strata of reproductive cycle of the animals.

MATERIALS AND METHODS

For the present study, a random selection of 24 numbers of adult cyclic non-pregnant goats was done. They were divided into four (4) groups viz. A0, A1, A2 and A3, with six(6) animals in each group, where A0 is the control group received 0 mg progesterone and A1,A2 and A3 received 100,200 and 300 mg progesterone respectively. A total of 24 numbers of vaginal sponges were prepared by cutting the sponges into 6.5 cm in length and 2.4 cm in diameter in cylindrical shape and tied with cotton thread for the eventual withdrawal of the sponge from the anterior vagina. The sponges were sterilized in

autoclave at 15 lb pressure for 15 minutes. The PVC (Poly Vinyl Chloride) vaginal speculum, measuring 22 cm in length, 1.5 cm in internal diameter and 2 cm outer diameter, was fabricated. Prior to insertion of PVC speculum into the vagina of the goat, the sponge was introduced into one of the sterilized PVC speculum. After washing and drying the vulva of the goat, the speculum containing the sponge was slowly and gently introduced up to the anterior vagina. Then with the help of a glass plunger measuring 43 cm in length and 1.2 cm in diameter the sponge was pushed from the speculum into the anterior vagina of the goat and kept in situ for 14 days. After 14 days, the sponges were removed and PMSG (Folligon, Intervet) at the rate of 200 IU per animal was injected intramuscularly in the animals of treatment groups.

RESULTS

A synchronous estrus was detected in all the goats of the treatment group whereas only one goat of the control group showed natural estrus. The behavioral and physical signs of estrus exhibited by goats receiving intravaginal sponge impregnated with 100(A₁), 200(A₂), 300(A₃) and 0 mg(A₀) of progesterone followed by administration of 200 IU in the first three groups are presented in Table 1 and 2 respectively.

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The different behavioural signs of goats observed in the present study were followed and mounted by buck, standing to be mounted, frequent urination, wagging of tail, bleating, sniffing of genitalia of herd mate and loss of appetite of frequencies of 100.00, 100.00, 50.00, 100.00, 100.00, 100.00 and 0.00 per cent respectively in goats of group A₁. The corresponding frequencies were 100.00, 100.00, 100.00, 100.00, 100.00, 100.00 and 0.00 per cent respectively in goats of group A₂, 100.00, 100.00, 100.00, 100.00, 100.00, 100.00 and 0.00 per cent respectively in goats of group A₃ and 100.00, 100.00, 0.00, 100.00, 100.00, 100.00 and 0.00 per cent respectively in goats of group A₀ (Table 1).

The physical signs of estrus were swelling of vulva, congestion of vulval mucous membrane and mucous discharge occurring in frequencies of 100.00, 100.00 and 83.33 per cent respectively in A₁ goats. The corresponding frequencies were 100.00, 100.00 and 100.00 per cent in A₂ goats, 100.00, 100.00 and 100.00 per cent in A₃ goats and 100.00, 100.00 and 0.00 per cent in A₀ goats (Table 2).

Table 1 Frequency of occurrence of different behavioural signs of estrus in different groups of goats receiving intravaginal sponge containing different concentration of progesterone.

Behavioural signs	Frequency of occurrence (%)			
	A ₀ (0 mg) (n=1)	A ₁ (100 mg) (n=6)	A ₂ (200 mg) (n=6)	A ₃ (300 mg) (n=6)
Followed and mounted by buck	100	100	100	100
Standing to be mounted	100	100	100	100
Frequent urination	0.00	50	100	100
Wagging of tail	100	100	100	100
Bleating	100	100	100	100
Sniffing of genitalia of herd mate	100	100	100	100

Table 2 Frequency of occurrence of physical signs of estrus in different groups of goats receiving intravaginal sponge containing different concentration of progesterone

Physical signs	Frequency of occurrence (%)			
	A ₀ (0 mg) (n=1)	A ₁ (100 mg) (n=6)	A ₂ (200 mg) (n=6)	A ₃ (300 mg) (n=6)
Swelling of vulva	100	100	100	100
Congestion of vulval mucous membrane	100	100	100	100
Mucous discharge	0.00	83.33	100	100

DISCUSSION

Vulva congestion, vulva secretion and tail wagging were to be the most consistent and highly noticeable estrus signs with a percentage of 80 - 100% in all the breeds.

How to cite this article:

Arindam Chakraborty et al., Behavioural And Physical Signs Of Estrus In Goats Following Ivs Treatment. *International Journal of Recent Scientific Research* Vol. 6, Issue, 8, pp.5847-5848, August, 2015

Mounting of other animals, frequent urination and searching for bucks were the most inconsistent behavioral estrus manifestations, with a percentage of 35 - 40% in all the breeds.(Salami et al 2009).

On the day 0, the doe exhibit behavioural signs of estrus like tail wagging, mounting on the other does ,frequent urination and she is more vocal than usual(Damero ,1993 and Jarosz et al. 1971). On day 2, vaginal estrus was reported (Jarosz et al 1971). In doe there was little effect to show sexual desire than in the cow or the mare for this reason it was difficult to detect estrus behavior in the doe (Mc.Donald 1980). To detect estrus a vasectomized or aproned buck was used. Sometimes a marking material was placed on the rams brisket so that the rump of the buck will be marked at the time of breeding then the behavioural signs such as restlessness, frequently bleating , vaginal mucous discharge and swelling and redness of vulva which are generally considered as characteristic symptom of heat in goat were observed. In the present study the similar observations on the signs of estrus were also reported (Hasin,2001) in goat.

CONCLUSION

From the conducted experiment it can be concluded that the indigenously prepared intravaginal sponge impregnated with progesterone is not only successful in synchronization of estrus of a large number of animals at a predetermined time but it is also makes it possible for the farmers to go for natural service or other improved assisted reproductive technologies.

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