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CERVICAL MUCUS CHARACTERISTICS DURING NATURAL AND INDUCED ESTRUS IN CROSS BREED COWS

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ABSTRACT

Present study was conducted to compare cervical mucus characteristics *viz.*Quantity, appearance, spinnbarkeit value and consistency, between natural and induced estrus crossbred cows. It was observed that naturally exhibited and induced cow there is markdifference between discharges of cervical mucus membrane. Quantity is copious in about 60&54% in natural and induced cow respectively and cervical mucus discharge at the time of A.I.was clear in 73% and 61% of animals in natural and induced estrus, respectively**.**Maximum number of animals in both natural and induced estrus (75% & 79%, respectively) showed spinnbarkeit value of cervical mucusin the range of 0-8cm, followed by 8-16, 16-24 and >24cm**.** Consistency in estrus period for most of the natural and induced estrus animals (56% and 53%, respectively) showed thin mucus consistency followed by moderate and thick consistency.

Key words : Estrus, cervical mucus, crossbred cow.

Reproduction management is an economic determinant in the success of any dairy enterprise. Fertility in dairy animal is making the animal pregnant in right time. To make this happen we have to concentrate on two traits *i.e.,* to make cow cycling and ensure estrus detection in right time and making the cow pregnant following an insemination. Among many components of reproduction management, estrus detection plays crucial role, as it contributes towards the ultimate pregnancy rate and survival of the embryo (Layek*et al*., 2011, Layek*et al*., 2013). Inadequate estrus detection has been identified as a major limit to herd reproductive performance over many years. Each missed heat represents the loss of a complete estrus cycle of approximately 21 days that in a seasonally calving herd represents 21 days of lost potential production (Pecsok*et al.,* 1994), therefore, each missed heat causes a significant financial loss. In this regard, attaining higher estrus detection efficiency and accuracy is an important key to improve individual animal along with overall herd fertility.The use of cervical mucus to determine the optimum time of insemination has long been practiced (Agarwal and Purbey, 1983). Though there are differences in opinion among the researchers about the reliability of different properties of cervical mucus to achieve high conception rate, there is a general acceptance that the properties of cervical mucus externally represents the internally on going hormonal changes. This has led to development of tools based on the physical and rheological parameters of cervical mucus, to predict the ovulation time in cattle (Lofstedt*et al.,* 1991) but with varied

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success. Keeping above facts in mind the present study was designed to compare the various cervical mucus characteristics of naturally and artificially induced estrus crossbred cows.

MATERIALS AND METHODS

The present study was conducted on *Karan Fries* crossbred cows at Livestock Research Centre, National Dairy Research Institute (NDRI), Karnal, for a period of 4 months (February to May, 2013). Total of 30 (10 natural heat +20 induced)experimental animals were selected.Artificially estrus was induced in 20cows by giving PGF_2ainjection(Cloprostenol®, 250mg/ml @ 2ml, IM. Estrus detection was carried out as per routine observed in the morning (6:00-8:00) and evening (15:00-17:00) for confirmation of visually detected cows in heat,and cervical mucus discharges were aspirated by using sterile blue sheath in both the cases.

RESULTS AND DISCUSSION

The cervical mucus characteristics of crossbred cows in two groups are presented in table 1.Results of the study revealed that the cervical mucus discharge was copious in 60% and 54%, moderate in 28.5% and 32% and scanty 11.5%, 4% natural and induced estrus cows, respectively.Layek*et al.,* 2013 also observed that the discharge was copious in 70.2% and scanty in 4.9% duringnatural estrus in Sahiwal cows. Appearance (%) of cervical mucus discharge at the time of AI in naturally and induced estrus was clear in 73% and 61% of animals, respectively**.** Consistency of cervical mucus discharge were found to be thin in 56% and 53% moderate in 32% and 27% and thick 12% and 10% in natural and induced estrus cows, respectively. Our observations on the consistency of the cervical mucus are in agreement with Rangnekar*et al.* (2002)and Layek*et al.* (2013).Spinnbarkeit value of cervical mucus obtained at the time of AI in maximum animals found to be in range of 0-8cm for both natural and induced estrus period (75% & 79%, respectively) followed by 8-16, 16-24 and >24cm**.** Layek*et al.* (2013) reported higher values than the present study in Sahiwal cowwhich may be due to higher amount of discharge in Karan Fries cows.

Table 1:Cervical mucus characteristics of Crossbred cows during natural and induced estrus

	Quantity of the cervical mucus discharge at the time of AI		
	Copious (%)	Moderate (%)	Scanty (%)
Natural	60	28.5	11.5
Induced	58	33	9

	Spinnbarkeit value of cervical mucus obtained at the time of AI			
	0-8cm	8-16 cm	16-24cm	>24cm
Natural (%)	75	12	9	4
Induced (%)	79	10	6	5

	Appearance (%) of cervical mucus discharge at the time of AI	
	Clear (%)	Cloudy (%)
Natural	73	27
Induced	61	39

	Consistency of the cervical mucus discharge at the time of AI		
	Thin (%)	Moderate (%)	Thick (%)
Natural	56	32	12
Induced	63	27	10

CONCLUSION

Presentstudy revealed thatinduction of estrus by using hormonal treatment its changes of the cervical mucus characteristics in Crossbred cows and there is reduction in quantity of cervical mucus with increased thickness and cloudiness in cows which are treated with hormone to induce the estrus.

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