The Indian Journal of Animal Reproduction; 26(1): 60-61; June 2005

Short Communication

Effect of vitamin A and mineral administration on the induction of oestrus in anoestrus Frieswal and Sahiwal heifers

A.K. MATHUR[1†], S.SRIVASTAVA[2], S. TYAGI[3] AND D.K. MANDAL[4]

Embryo Transfer Lab, Project Directorate on Cattle
Grass Farm Road, Meerut Cantt - 250 001 (U.P.)

Received : August 21, 2002
Accepted : August 25, 2004

ABSTRACT

The study was conducted on 15 Frieswal and 8 Sahiwal anoestrus heifers having mean age of 27.5 and 27.4 months, respectively. These animals were administered vitamin-A @ 6 lac IU per week for 2 weeks and Tonophosphan @ 2g/heifer for 5 alternate days. Eighty percent heifers in Frieswal and 66.6% heifers in Sahiwal exhibited oestrus after 10.25 and 21.00 days of treatment, respectively. Analysis of data revealed that treatment had a significant ($p<0.01$) effect on resumption of oestrus, which was ovulatory in Frieswal and Sahiwal heifers.

Keywords : Anoestrus, estrus cycle, vitamins, conception rate, heifers

True anoestrus is one of the major problem, which affects the reproductive efficiency of cattle and buffaloes. Nutritional deficiency plays a key role in retarded growth and development of genital organs, resulting into non-functional ovaries in these animals. The present study was conducted on twenty-three heifers (15 Frieswal and 8 Sahiwal; mean age 27.46±0.52 and 27.38±1.52 months, respectively) showing anoestrus condition. These animals were examined on two occasions at an interval of 11 days to exclude possibility of cyclicity and were divided into group 'A' (n=15 Frieswal; 10 experimental & 5 control) and group 'B' (n=8 Sahiwal; 6 experimental & 2 control). All the experimental animals of group 'A' and 'B'were given injection of Vitamin 'A' (Glaxosmithkline Pharma) @ 6 lac IU/animal once a week for two weeks and five injections of Tonophosphan (Intervet) @ 2.0g/animals at an alternate day. Control animals in these groups were injected normal saline 2 ml/ animal. All the animals were kept at similar managemental condition followed at military Farm and were observed regularly for oestrus.

Heifers in oestrus were inseminated twice (morning and evening) with frozen-thawed semen and pregnancy were confirmed after 60 days of insemination by rectal palpation. Data were analyzed using standard methods as described by Steel and Torrie (1960). In group 'A' out of 10 treated Frieswal heifers, 8 showed (80%) pronounced oestrus symptoms after the start of the treatment at a mean interval of 10.25±3.95 days whereas, among the five control animals in this group only one exhibited oestrus after 26 days (Table 1). In group 'B' out of 6 treated heifers, four (66.6%) exhibited oestrus after 21.0±6.43 days and none of the control animals exhibited estrus in this group. The response of treatment was significant ($p<0.01$) in both Frieswal and Sahiwal heifers, however, no significant difference was observed between the breeds. Frieswal heifers came into oestrus at a significantly ($P<0.01$) lesser time (10.25 days) after the treatment as compared to Sahiwal (21.00 days) heifers. All those heifers exhibited estrus were inseminated and 100% fertility was achieved in treated heifers, which indicates that induced estrus was ovulatory and the corpus luteum function was normal.

Dutta *et al* (2001) has also reported higher incidence (77.8%) of anoestrus in crossbred cattle under field conditions and they observed that most of the cases were responded to the administration of Prepaline forte[R] (Vitamin A) 6 lac I.U., Tonophosphone & mineral mixture for 12 days. In one of the study, Guthrie and West (1994) had also suggested that Vitamin A is extremely important for good health and reproduction especially in young replacements and its deficiency occurs mostly in cows

[1]Principal Scientist,
[2]Sr. Research fellow,
[3]Sr. Scientist,
[4]Scientist (Sr. scale)

[†]Corresponding author

Table 1. Mean age, body weight and induction of oestrus and pregnancy in anoestrus heifers

Sl. No.	Attributes/ groups		No. of heifers	Age (Month±SE)	Body weight (kg)	Response (%)	Day of oestrus after treatment	Pregnancy (Post 60 days AI) No.	%
1.	FRIESWAL (A)	C	5	27.4±1.21	326.2±14.28	20.0[a](1)	26.00±0.00[a]	Nil	Nil
		T	10	27.5±0.56	341.0±5.62	80.0[b](8)	10.25±3.95[b]	8	100
2.	SAHIWAL (B)	C	2	24.0±4.01	300.0±20.06	–	–	–	–
		T	6	28.2±1.47	279.16±6.88	66.6[b](4)	21.00±6.43[b]	4	100

Different superscript in columns shows significant differences at P<0.01;
C-control, T-treatment;
Figures in parenthesis indicate no. of observation.

fed corn silage and documented that phosphorus influences conception rates, estrus cycle, anoestrus ovaries activity and overall fertility in cattle. In our study, Corn silage was fed routinely in farm animals and this may be one of the factor for vitamin A deficiency in the heifers. Blood *et al* (1989) reported that Vitamin A and Phosphorus plays a vital role to overcome the problem of anoestrus, sub oestrus and delayed sexual maturity in cattle, where as Salisbury and Vandanmark (1961) observed that most prevalent deficiency affecting reproduction appeared to be lack of phosphorus.

Although in our studies we could not estimate the levels of various minerals in the blood it may be reasonable to draw an inference from the present investigation that exhibition of oestrus might be attributed to administration of required minerals and vitamin at optimum level which might have enhanced the function of tabular genital tract and ovary.

ACKNOWLEDGEMENTS

Authors are thankful to Officer-in-Charge, Military Farm, Meerut and Director, PDC, Meerut for their help in the study.

REFERENCES

Blood, B.C., Radostits, O.M. Arundel, J.H. and Gay C.C. (1989). *Veterinary Medicine*. ELBS, 9th edn. Oxford.

Dutta, S. Dey, R.A. and Misra, R.K. (2001). Health constraints of crossbred cattle in rural Bengal. Indian Dairyman, 53: 53-56.

Guthrie, Larry, D. and West, W. Joe (1994). Nutrition and Reproduction interactions in Dairy cattle. Bulletin 1111/ Sept. The University of Georgia, College of Agricultural and Environmental Sciences, Georgia, USA.

Salisbury, G.W. and Vandanmark, N.L. (1961). *Physiology of Reproduction and A.I. in Cattle*. 1st edn. W.H. Free Man and Co., London.

Steel, R.G. and Torrie, J.H.(1960). *Principles and Procedures of Statistics*. McGraw-Hill Book Co., New York.