COMPARISON OF ESTRUS SIGNS IN REPEAT BREEDING CATTLE WITH OVULATORY DISTURBANCE AND NORMAL OVULATION

P.K.DAS[1*], K.C.DEKA, R.K.BISWAS[2] and J.GOSWAMI[3]

Department of Gynaecology, Obstetrics and A.I.,
College of Veterinary Science, Assam Agricultural University,
Khanapara, Guwahati - 781 022

ABSTRACT

An investigation was conducted to record the behavioural and physical signs at different periods of estrus in 75 stall fed repeat breeding crossbred cows and heifers of Assam with anovulation, delayed ovulation and normal ovulation. Restlessness and bellowing were predominant behavioural signs of estrus. Animals with delayed ovulation and anovulation had 72.73 and 25.00 per cent incidence of restlessness, respectively upto 36 hrs of estrus, while the animals with normal ovulation did not show restlessness beyond 24 hrs of estrus. Restlessness persisted upto 48 hrs of estrus in a small percentage of animals (9.09) with delayed ovulation. Bellowing was observed till 24 hrs of estrus in animals with anovulation, delayed ovulation and normal ovulation. At 12 and 24 hrs post onset of estrus, the percentage of animals showing bellowing was higher with delayed ovulation (100.00 and 50.00) and anovulation (90.00 and 10.00) than with normal ovulation (78.79 and 6.06). Bellowing persisted upto 36 hrs after the onset of estrus in animals with delayed ovulation. Among the physical signs of estrus, swelling of vulva was found in higher percentage of animals with both delayed ovulation (100.00 and 95.45) and anovulation (100.00 and 65.00) as compared to normal ovulation (87.88 and 18.18) at 24 and 36 hrs post onset of estrus, respectively. Animals with delayed ovulation (36.36%) and anovulation (5.00%) showed swelling of vulva till 48 hrs of estrus while no animal with normal ovulation had beyond 36 hrs of estrus. The number of animals showing pink colouration of the vaginal mucous membrane was higher with delayed ovulation (59.09%) and anovulation (25.00%) as compared to normal ovulation (9.09%) at 48 hrs after onset of estrus. Thin consistency of the vaginal mucus was found to be more number in animals with delayed ovulation (81.82%) and anovulation (60.00%) at 12 hrs after onset of estrus, while most of the animals with normal ovulation (64.52%) had thick consistency of the vaginal mucus during the same period.

Key words: Repeat breeding, Crossbred cattle, Ovulatory distrinbances, Behavioural and Physical signs.

Repeat breeding is one of the most important causes of infertility in cattle, which has an adverse effect on the farmer's economy. Ovulatory disturbances *viz.*, anovulation and delayed ovulation constitute important etiological factors of repeat breeding. Studies (Zemjanis, 1980; Staempfli *et al.*, 1986) indicated wide variations (2 to 46 per cent) in the incidence of repeat breeding in cattle due to anovulation and delayed ovulation. Animals afflicted with ovulatory disturbances need to be examined per rectum at frequent intervals for arriving at a correct diagnosis which is painstaking. This calls for exploring simpler clinical means that could be indicative of anovulation and delayed ovulation. A study was, therefore, undertaken to record and compare various behavioural and physical signs during different periods of estrus in repeat breeding cattle with ovulatory disturbances and repeat breeding cattle with normal ovulation to evolve a less laborious clinical diagnosis of ovulatory disturbances.

1 Senior Research Fellow, email: drprasanta75@rediffmail.com
2 Senior Scientist, Goat Research Station, A.A.U., Burnihat-793101
3 Professor, Department of Animal Physiology.
*Corresponding author

Stall fed repeat breeding crossbred cows and heifers (n=75) belonging to private farmers were clinically investigated to study the ovulatory disturbances. They were examined per rectum and condition of the genital organs including that of the ovaries was recorded to detect the cows with ovulatory disturbances. The animals had no anatomical defect of reproductive organs. Rectal examination of the cattle was carried out at 12, 24, 36, 48 hrs and on day 10 post onset of estrus to detect ovulatory status of the animals. The animals were diagnosed to have anovulation when the ovaries did not reveal formation of corpus haemorrhagicum within 48 hrs of onset of estrus or a mature corpus luteum (C.L.) on day 10 after estrus but had presence of Graafian follicle (G.F.) beyond 48 hrs of onset of estrus. Animals were diagnosed to have delayed ovulation when the ovaries indicated presence of a G.F on either of the ovaries till 36 hrs of onset of estrus and revealed formation of corpus haemorrhagicum only after 48 hrs of onset of estrus and a mature C.L. on day 10 after estrus on the ovary that had a palpable G.F. Twenty animals with anovulation, 22 with delayed ovulation and 33 with normal ovulation were included in the present investigation. Detection of onset of estrus in the animals was based on their exhibition of external behaviour coupled with simultaneous manifestation of estrus condition of the genitalia on rectal palpation. All the animals were observed closely for behavioural and physical signs of estrus. The animals were observed at 12 hrs interval from the beginning of estrus *i.e.*, at 12, 24, 36 and 48 hrs post onset of estrus and the number of animal showing each sign was recorded and the percentage was worked out.

The behavioural and physical signs of estrus observed in repeat breeding cattle with anovulation, delayed ovulation and normal ovulation were physiological comparable with the classical signs of estrus as stated by Roberts (1971), Arthur (1977) and Mc Donald (1977). However, there were differences in the extent of sustaining the behavioural and physical signs among the cattle with normal and disturbed ovulation. Restlessness and bellowing were found to be the most prominent behavioural signs of estrus in all the animals. Restlessness was observed in all the animals at 12 hrs of estrus, however, persisted in a higher proportion of animals with delayed ovulation (100.00%) and anovulation (80.00%) than in those with normal ovulation (57.58%) at 24 hrs of estrus. A higher (72.73) and lower (25.00) percentage of animals with delayed ovulation and anovulation respectively had restlessness upto 36 hrs of estrus, while the animals with normal ovulation did not show the sign after 24 hrs of estrus. A small number of animals (9.09%) with delayed ovulation also showed restlessness till 48 hrs of estrus. Bellowing was observed till 24 hrs of estrus in animals with anovulation, delayed ovulation and normal ovulation. However, the percentage of animals showing bellowing was higher in cases of delayed ovulation (100.00 and 50.00) and anovulation (90.00 and 10.00) than in those with normal ovulation (78.79 and 6.06) at 12 and 24 hrs post onset of estrus, respectively. Bellowing persisted upto 36 hrs of estrus only in a small percentage (4.55) of animals with delayed ovulation.

Among the physical signs, swelling of vulva and pink colouration of the vaginal mucous membrane persisted for prolonged period post onset of estrus in animals with anovulation and delayed ovulation. Swelling of vulva was discernible in higher percentages of animals with both delayed ovulation (100.00 and 95.45) and anovulation (100.00 and 65.00) as compared to normal ovulation (87.88 and 18.18) at 24 and 36 hrs post onset of estrus, respectively. Although swelling of vulva persisted in a lower proportion of animals with anovulation (5.00%) and delayed ovulation (36.36%) at 48 hrs of onset of estrus, no animal with normal ovulation showed the sign beyond 36 hrs of estrus. The colour of the vaginal mucous membrane was found to be pink in almost all the animals with anovulation, delayed ovulation and normal ovulation upto 24 hrs of estrus. At 36 hrs of onset of estrus a higher percentage of cattle with delayed ovulation (100.00) and anovulation (80.00) showed pink colour of vaginal mucous membrane as against 42.42 per cent in animals with normal ovulation. Pink colouration of the vaginal mucous membrane persisted in a higher percentage of animals with delayed ovulation (59.09%) and anovulation (25.00%) as compared to cattle with normal ovulation (9.09%) at 48 hrs after onset of estrus. The

vaginal mucous membrane was found to be pale in 90.91, 75.00 and 40.91 per cent of cattle with normal ovulation, anovulation and delayed ovulation, respectively at 48 hrs of estrus. This might indicate that in animals with normal ovulation the mucous membrane turned pale earlier as compared to animals with ovulatory disturbances. Thin consistency of the vaginal mucus was found in 81.82 and 60.00 per cent cattle with delayed ovulation and anovulation respectively at 12 hrs after onset of estrus, while during the same period 64.52 percent cattle with normal ovulation had thick vaginal mucus. The occurrence of different behavioural and physical signs at different periods of estrus in repeat breeding crossbred cattle with ovulatory disturbances recorded in the present study could not be compared due to paucity of similar literature.

Persistence of behavioural signs *viz.*, restlessness and bellowing, and physical signs *viz.*, swelling of vulva and pink colouration of vaginal mucous membrane for prolonged period of estrus and high incidence of thin vaginal mucus at 12 hrs of onset of estrus in repeat breeding animals with anovulation and delayed ovulation could be attributed to sustained high concentration of oestradiol from persisting G.F. (Jainudeen and Hafez, 1987). It could be concluded that sustained behavioural sign of restlessness coupled with physical sign of swelling of vulva and pink colouration of vaginal mucous membrane for prolonged period of estrus, and exhibition of thin vaginal mucus even after a lapse of 12 hrs of onset of estrus might be indicative of ovulatory disturbances in repeat breeding crossbred cattle of Assam.

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