



Reproduction in Buffaloes - Kerala scenario

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The buffalo forms an important portion of the dairy animals in several Asian countries including India and Pakistan. Though buffalo keeping is very popular in India, majority of farmers in Kerala still shows an increased affinity towards white cattle than the black counterparts.

As far as reproduction is concerned, in many aspects, the buffaloes are almost like cattle with a few minor deviations. The structure as well as location of the internal reproductive organs of the buffalo is similar to that of cattle. The cervix in buffalo is less conspicuous and the uterine horns are smaller and more coiled.

The buffaloes are polyoestrous, breeding throughout the year but ambient temperature, feed supply, rainfall, management practices etc. may influence the annual calving pattern. It has been reported that high ambient temperature during summer months depress cyclicity in buffaloes (summer anoestrus). A study conducted in Kerala revealed that Murrah she buffaloes recorded maximum number of calvings from August to January, highest being in September and lowest being in April.

Generally buffalo attains puberty later than cattle. Under Indian conditions, the average age at puberty in

buffalo is 24 – 48 months, depending on the breed and environmental conditions. Such a wide variation is noticeable on account of diversity of environmental conditions and husbandry practices. Even though, on recommended levels of nutrition the average age at puberty in the female river buffalo is about 18 months, the age at puberty in buffaloes of Kerala is 2½ – 3 years.

The oestrous cycle in buffalo is of 21 days (18-24 days) duration and the heat period lasts for about a day. The oestrous signs in buffaloes are not as pronounced as cattle. The characteristic features of heat in buffaloes include typical vocalisation, frequent dribbling of urine, swishing of tail, vulval swelling and restlessness. Some buffaloes show non-co-operation to milking and or reduction in milk yield during heat period. Flow of oestral mucus through the vulva is not as copious as in a cow, which is in heat. A slight cloudy oestral discharge observed during early oestrus may be considered normal in buffaloes. Standing to be mounted by a male (heterosexual behaviour) is more commonly seen in buffaloes which are in heat than homosexual behavioural (standing to be mounted by other females), which is frequently seen in cows. The uterine horns become turgid and coiled with maximum tone during oestrus. The horns lose their turgidity and tonicity after ovulation to become flaccid during the luteal phase of the cycle. The clear mucus that is secreted during oestrus changes to an opaque, thick, scanty discharge after ovulation. Hyperaemia of the vaginal mucous membrane and moderate swelling of the vulva occur during oestrus.

The mating behaviour in buffalo almost resembles that of cattle. Generally buffaloes are sluggish in their breeding activities. The protrusion of the penis during copulation is to a lesser extent than bulls and hence semen collection can be achieved using an artificial vagina of shorter length than that used for bull. The average volume of the ejaculate is about 3 – 4 ml.

As like in cattle, the ovulation in buffalo takes place during metoestrus (15-18 hrs after the cessation of heat signs). Metoestral bleeding usually seen in cattle rarely occurs in buffalo. The gestation length in buffalo is 310 ± 10 days. Male calves are carried one or two days longer than females. The epithelio-chorial placenta of the buffalo is of the cotyledonary type. The average number of placentomes is 60 – 90. As pregnancy advances, the placentomes enlarge to mushroom-like structures

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measuring 5 – 7 cm in diameter. Generally oestrus is suspended during pregnancy, but a few animals may show one or more periods of anovulatory oestrus (gestational heat). As in cattle, serum progesterone level remains elevated throughout pregnancy.

Pregnancy can be diagnosed by rectal palpation from about 45 days onwards. Palpation of the placentomes and foetus are possible during later stages. Palpation of the hypertrophied middle uterine artery and feeling of fremitus are also possible in buffalo. Pregnancy can also be diagnosed by estimating the progesterone concentration in the milk or serum 22 – 24 days after breeding.

About 10 – 15 days prior to the parturition, the female exhibits marked abdominal distension, mammary hypertrophy, hypertrophy and oedema of the vulval lips etc. Relaxation of the pelvic ligaments and elevation of the tail head are also seen in buffaloes approaching parturition. Liquefaction of the cervical seal results in a string of clear mucus hanging from the vulva. The parturition process in buffalo is divided into three stages such as stage of cervical dilation, stage of expulsion of foetus and stage of expulsion of foetal membranes. Usually the foetus is presented anteriorly with dorsal position, extending the forelimbs and head into the birth canal. Even though posterior presentation is reported as uncommon in buffaloes, the authors could encounter instances of normal posterior presentation and posterior presentation with bilateral hock and hip flexion (breech presentation). Twinning is rare in buffalo and the incidence is less than 1 per 1000 calvings as against 1: 96 in cattle.

Compared to cattle, dystocia is less common in buffaloes. The foetal causes of dystocia include foeto-maternal disproportion and faulty foetal disposition in the birth canal. The maternal causes of dystocia include uterine inertia, uterine torsion and failure of cervix to dilate.

The gestational accidents encountered in buffaloes include pre-partum vagino-cervical prolapse, dropsy conditions and uterine torsion. Post-partum complications like eversion of uterus and retention of placenta are common in buffaloes. Almost all pre and post-partum complications seen in buffaloes can be tackled as in cattle. In cases of post-partum complete uterine eversion, easy and efficient reduction of the uterine mass can be achieved by adopting the New Zealand method of positioning the animal.

Female fertility in buffalo is usually expressed in terms of the calving interval. A buffalo produces, on average, two calves every three years. Caution should be exercised in interpreting the conception rates based on non-return

rates in the buffalo because of the difficulty in evincing and or detecting oestrus. The reproductive efficiency of the female is lower in buffalo than in cattle. The common conditions, which reduce the reproductive efficiency in buffalo, include delayed puberty, Anoestrus, suboestrus, endometritis etc. Improvement in nutrition could increase the growth rate and advance the onset of puberty. Worm burden is a very important problem during the calthood and should be tackled effectively to achieve optimum growth rate in buffalo calves. Similarly management practices such as early weaning and high plane of nutrition during the early post-partum period advances the restoration of post-partum ovarian activity and reduces the incidence of Anoestrus. Stress during summer season can be reduced by providing wallowing facilities and or by intermittent sprinkling of cold water over the body of the animal. Improvements in the heat detection methods will help to identify suboestrous buffaloes. Induction of oestrus using GnRH preparations and management of oestrous cycle using prostaglandin preparations will improve the fertility in buffaloes.

Endometritis also contributes to reduction in fertility in buffaloes. A variety of factors such as dystocia, retention of foetal membranes, abortion, unhygienic conditions at calving, natural service by infected bull, contamination during improper artificial insemination etc. predispose the uterus to infection. In mild cases, flakes of pus will be present in oestral discharge. A thick muco-purulent discharge during oestrus is observed in severe endometritis. Animals suffering from sub-clinical endometritis manifest repeat breeding. White side test can be employed to identify the existence of sub-clinical endometritis. Intra-uterine administration of antiseptics / antibiotics and or parenteral administration of antibiotics will be helpful in treating endometritis.

Artificial insemination using semen from highly pedigreed Murrah buffalo bulls is being practiced in our State to improve the milk production potential of our female stock. The major hurdles encountered during AI in buffaloes include difficulties in proper restraining of the animal during rectal examination, severe straining, ballooning of the rectum, difficulty in grasping the tubular genitalia, difficulty in introducing the AI gun etc. In order to tackle these problems, proper restraining of the buffalo as well as involvement of skilled veterinarian to carry out the insemination properly is of paramount importance. The authors are of the opinion that high fertility rate in buffaloes can be achieved by overcoming the above hurdles. In nutshell, detection of proper oestrus, proper restraining of the animal, proper manipulation of the tubular genitalia and proper art

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