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Popular Article

## Repeat Breeding in Buffaloes

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### Introduction

Reproductive efficiency is the primary factor affecting productivity of a dairy buffalo and is greatly influenced by late attainment of puberty, seasonal breeding, long calving intervals, increased number of services per conception, increased days open, uterine infections and various obstetrical problems. Repeat breeding is the biggest factor decreasing reproductive efficiency. The reasons associated with fertilization failure or embryonic mortality includes reproductive tract aberrations, endocrine dysfunctions, infectious causes, errors in management including nutritional deficiencies and compromises in artificial insemination (AI) procedures. Various hormonal (Mirmahmoudi et al., 2014; Mungad et al., 2017) and non - hormonal preparations and protocols are being used to modulate the circulating plasma progesterone levels to make repeat breeding buffaloes to cycle normally and to improve their reproductive efficiency, thereby reducing the inter-calving interval economically viable.

### Definition

A repeat breeder is generally defined as any cow/ Buffalo that has not conceived after three or more services associated with true oestrus.

## **Incidence**

The incidence of repeat breeding appears to be low in buffaloes compared to cattle. The incidence of repeat breeding varies from 15-32% and seems to be lower in animals kept individually on small-holdings than in large herds.

## **Economic Implications of Repeat Breeding**

Any deviation or prolongation in the breeding rhythm results in a progressive economic losses due to widening of the dry period and reduced calving and lactation during the life span of the animal. Barren or infertile buffaloes mean a direct loss in milk production whereas reduced calf crop hamper the selection efficiency in long term dairy herd improvement. Poor reproductive performance of the animals leads to economic losses due to reduced production and additional cost on management. About 30.4% of cattle and buffaloes were culled mainly due to infertility, which incriminates direct losses to the farmers as well as to the genetic resource. Calving intervals in buffaloes are longer compared to those in cows and buffaloes have a one month longer gestation period. The calving intervals are prolonged on account of delayed resumption of postpartum estrus and a further delay in conception due to repeat breeding would substantially increase these losses.

## **Causes of Repeat Breeding**

### **Failure of fertilization**

The cause of fertilization failure can also lie with the bull and the technique and timing of insemination when using artificial insemination. Ovulatory aggravations, for example, anovulation and delayed ovulation have been recorded in a couple of concentrates in buffalo.

### **Female buffaloes:**

*Ovulatory disorder:* Delayed ovulation, anovulation, and ovarian cysts are less successive in the buffalo yet can bring about the failure of fertilization.

*Oviductal obstacles and grips:* Oviductal blockage that presumably keeps treatment can start from pathologies in the oviduct, for example, hydrosalpinx, pyosalpinx, salpingitis. Ovarobursal adhesions influence ripeness as they interfere with tubal motility

### **Bull factors**

Differential fertility between buffalo bulls exists and have all the earmarks of being an essential determinant influencing origination rates to insemination or common mating of buffalo. The time of buffalo bull influences the semen volume and the extent of irregular spermatozoa; with grown-up buffalo bulls creating the most astounding volume and most reduced irregular sperms.



## **Breeding management**

Mistaken inseminations in respect to estrus were performed in 30.67% of buffalo in one investigation (Sharma et al., 2008). Insemination with respect to ovulation likewise shows up critical to accomplish high fertility. Moreover, this relied on the abilities of the inseminator, and the principal AI conception rates fluctuated from 25.40% to 37.83% for the diverse inseminators (Sharma et al., 2008).

## **Strategies To Reduce Incidence of Repeat Breeding**

### **Accurate heat Detection**

Inadequate and inaccurate oestrus detection is one of the greatest vital causes of buffaloes and cows to become repeat breeders. Heat detection should be done accurately and efficiently in animals. In most of the cases, heat determination is less than 50% of many dairy farms. By using a tool of oestrus detection helps to improve both correctness and number of animals getting inseminated in oestrus will improve pregnancy rates

### **Administration of Gonadotropin-releasing hormone at Insemination:**

A study has reported significant beneficial effects of inoculation of Gonadotropin releasing hormone (GnRH) at the time of insemination in repeat breeder cows.

### **Administration of human chorionic gonadotropin Following Artificial Insemination:**

Human chorionic gonadotropin (hCG) has little or no real effect on fertility. However, studies have used huge number of cows to evaluate the effectiveness of hCG on conception rates and pregnancy loss of high-yielding dairy cows below field circumstances.

### **Treatment with intra-uterine antibiotics for subclinical endometritis:**

Any infection in uterus can cause embryonic mortality or fertilization failure. To counter such problems intra-uterine antibiotic therapy with concurrent systemic antibiotic therapy in a spontaneous heat followed by AI or natural service in next heat can be performed. Combination of hormones and antibiotics also ensue good results but cost of treatment may increase.

### **Artificial insemination and natural service:**

Bull breeding program and management of service bulls can directly affect the incidence of repeat breeding. The poor management can increase repeat breeding in cow or buffalo or continuing to the case of repeat breeding. Mostly, cows or buffaloes are inseminated by the bull for natural service (NS) at 180 days in milk (DIM) or after three artificial inseminations. Studies have shown that the application of reproductive method that combines both artificial insemination and NS is



beneficial. Using only one technique (either AI or NS) can reduce the chances of fertilization. Dairy farms that use only NS for their reproductive management should ensure an intensive bull managing program

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