

## COMPARATIVE STUDY OF COSYNCH AND OVSYNCH PROTOCOL ON FERTILITY IN REPEAT BREEDER GIR COW

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**Abstract:** Present study was done on organized college farm. The objective of the study was to compare the efficacy of Cosynch and Ovsynch estrus synchronization protocols on fertility in repeat breeder Gir cows. A total of 18 repeat breeder cows were randomly divided in to Cosynch, Ovsynch and control group. group (n=6) Gir cows received (Cosynch protocols) wherein, first dose of Busrelin on day zero, irrespective of stage of estrous cycle followed by Cloprostenol on 7<sup>th</sup> day and second dose of Busrelin on 9<sup>th</sup> day with gir cows being inseminated at the same time with frozen- thawed fertile semen. Ovsynch group (n=6) Gir cows received (Ovsynch protocol) wherein, first dose of Busrelin on dy zero, irrespective of stage of stage of estrus followed by Cloprostenolon day 7<sup>th</sup> day and second dose of Busrelin on day 9<sup>th</sup> with Gir cows being inseminated with frozen thawed fertile semen 20-22 hrs after the second dose of Busrelin without estrus detection. Control group (n=6) Gir cows, without any treatment and were monitored for estrous cycle, followed by heat detection, confirmation of estrus and then timely insemination with fertile semen. All the repeat breeder Gir cows were tested for pregnancy by per rectal palpation on 45<sup>th</sup> day after insemination. All the repeat breeder Gir cows from Cosynch and Ovsynch protocol exhibited estrus signs (100%) within 48-72 hours after PGF<sub>2</sub> alpha injection. Pregnancy rate recorded for Cosynch, Ovsynch and control group were 50%, 66.66%, 33.33% respectively. In conclusion, this study indicates that, Ovsynch protocol is more efficacious in settling pregnancy than Cosynch protocol in repeat breeder Gir cows (66.66% vs.50%).

**Keywords:** Cosynch, Ovsynch, Estrus synchronization, Repeat breeder.

### Introduction

Gir cattle are amongst the hardiest of high yielders in the world (Kumar& Singhal, 2006). However, they are slow breeder & have extended post pubertal estrus. One of the most important and commonly encountered sub fertile condition in dairy cow which plays a important role in dairy economics is repeat breeding. Repeat breeder syndrome is defined as a condition in which cattle and buffalo which has regular estrus cycle but has failed to become pregnant following three or more breeding. (Bartlett et al., 1986. Robert 1986) despite they come normally in heat and show clear estrous sign with no, clinical detectable reproductive

disorder (Ahmed et al., 2010; Yusuf et al., 2010). The causes of repeat breeding syndrome can be divided into two major categories, fertilization failure and early embryonic death (Agarwal et al., 2011; Tanabe & Casida 1949). Amongst various factors associated with the occurrence of repeat breeding syndrome, asynchronous hormonal interplay is one of the major factors causing fertilization failure and early embryonic mortality (Singh et al., 1986). Corpus luteum (CL), a temporary endocrine gland on ovary secretes the hormone progesterone (P4), which is essential for maintenance of early pregnancy in almost all species (Mandal et al., 2009). Abnormal CL function in early and mid luteal phase results in low P4 concentration in peripheral circulation, which may cause early embryonic mortality (Bulman and Lamming, 1978). Serum progesterone level was significantly low during the mid-luteal phase of the estrus cycle in repeat breeder animals compared to normal animals (Ahmed et al., 2010). There is a paucity of literature on application of Cosynch and Ovsynch timed breeding protocols in repeat breeder Gir cows. The objective of this study was the practical application of Cosynch & Ovsynch estrus synchronization protocol for fertility improvement in repeat breeder Gir cows.

**Material & method:** A total of eighteen repeat breeder Gir cows of 2<sup>nd</sup>-4<sup>th</sup> parity were obtained from an organized herd of Gir cattle breeding farm, College of Veterinary and Animal Science, Navana, Vallabhnagar. Below 10 years of age were divided equally into three groups & subjected to Cosynch and Ovsynch protocols & a control group. All selected Gir cows were subjected to a general health check-up & gynaecological examination before inclusion in the study and cows with history of short or irregular estrous cycle, purulent or mucopurulent discharge were excluded from the study. The selected repeat breeder Gir cows were treated with hormonal preparation as per Cosynch & Ovsynch protocols.

In the first group, six repeat breeder Gir cows were included in the Ovsynch protocol with administration of an i/m injection of 20 micrograms (5 ml) of GnRH (Receptal, Intervet) on day 0, followed by an injection of 500 micrograms (2 ml) PGF<sub>2</sub>alpha (Pragma, Intas) on day 7 and a second GnRH injection of 20 micrograms (5 ml) on day 9. Fixed time AI was performed 22 hrs after the second GnRH injection.

In the second group, six repeat breeder Gir cows (Cosynch group) were treated with the single i/m injection of 20 micrograms (5 ml) GnRH, followed by an injection of 500 micrograms (2 ml) of PGF<sub>2</sub> alpha on day 7 and fixed time AI was performed 48 hrs after PG injection together with a single i/m injection of 20 micrograms (5 ml) of GnRH.

In third group six repeat breeder gir cows in control group were maintain with routine animal husbandry practices without any treatment and were monitored for estrous cycle, followed by heat detection, confirmation of estrus and then timely insemination with fertile semen. All the experimental gir cows were tested for pregnancy by per rectal palpation on 45<sup>th</sup> day after insemination.

### **Result & discussion:**

All the repeat breeder Gir cow from Cosynch & Ovsynch protocol exhibited estrus sign (100percent) within 48-72 hrs after PGF<sub>2</sub> alpha injection .Out of six gir cow 3 become pregnant(50 %) in Cosynch protocol and 4 out of six cows become pregnant (66.66%) with Ovsynch protocol and 2 out of six become pregnant(33.33%) in control group with out any treatment . All the Gir cows were confirmed by per rectal palpation on day 45 after A.I.

There is paucity of references on the present topic & hence the present study on attempting fixed timed insemination by cosynch protocol, pregnancy rate was found to be 50 percent. most field trials indicate only a small reduction in conception rates when Cosynch is compared to CIDR ovsynch (Pursley et al., 1998; Gearsy et al., 2001).

Estrus induction response in repeat breeder Gir cow treated with ovsuynch protocol in the present study 100 percent with 48-72 hrs of PGF<sub>2</sub> alpha injection, wherein, by ovsynch protocol in Gir cows the induction of estrus was 100 percent & also where in GnRH PGF<sub>2</sub> alpha GnRH protocol showed spontaneous estrus in all cows between day 2 up to day 5 with 100 percent estrus 9Yendraliza et al., 2011).

All the repeat breeder Gir cows of both treatment group shown estrus within 48-72 hrs post PGF<sub>2</sub> alpha injection & there result are similar as observed by Gupta et al (2008). Wherein all the cows & buffaloes were in heat 72 hrs post Pgf<sub>2</sub> alpha injection & cows &buffaloes in early & late stages of the cycle tend to exhibit heat with in 48-72 hrs after pgf<sub>2</sub> alpha administration.

In present study, on attempting fixed time insemination by Ovsynch protocol pregnancy rate was found to be 66%. The findings are almost similar reported by Neglia et al (2003) & Baruselli et al (2001).

It may be concluded that Ovsynch protocol is more efficacious in settling pregnancy than Cosynch protocol in repeat breeder gir cows (66.66% vs. 50%).The application of Ovsynch protocol for fertility improvement in repeat breeder Gir cows belonging to farmers herd is a useful tool. The use of GnRH in association with prostaglandin improves the efficiency of

fixed time insemination as it synchronizes ovulation in a short period of time and it overcome the problem of estrus detection.

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