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## Effect of PUFA on conception rate in repeat breeding cows: A preliminary report

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#### Abstract

The aim of present study to investigate effect of polyunsaturated fatty acids (PUFA) in the form of crushed flaxseed @ 500 g per day for 30 days in addition to conventional feed is a strategy to increase conception rate in repeat breeding cows.

**Keywords:** Repeat breeding cow - PUFA - conception rate

#### Introduction

The dairy cows play an important role in maintaining a sustainable food production in the developing countries (Pasha and Hayat, 2012) [1]. The overall productivity of cow remains decreased due to poor management, breeding and nutrition (Oltenucu *et al.* 1991) [2]. The infertility investigations have shown that the anoestrus and repeat breeding syndrome (RBS) are the two major causes of infertility in high yielding dairy cows. However, the incidence of repeat breeding is about 18.79 percent (Nowicki, 2021) [3]. Past several decades, many methods to settle down the sub-fertility in dairy cows but results were inconsistent between the studies. The supplementation of fat may improve fertility by improving energy status of the cow leading to stimulating the requirement of ovarian follicles, ovulation and increasing P4 production (Ambrose and Kastelic, 2003) [4]. Hence, the PUFA supplementations to improve reproductive efficiency of RBS cows by reduce the embryonic loss (Mattos *et al.*, 2000) [5].

#### Materials and Methods

The clinically normal and failure to conceive with consecutive inseminations were included in this study (n = 60). The selected cows randomly categorised into Groups I (control), Group II and III (Treatment), each group comprised of 20 infertile cows. Group I (control, n = 20) were orally supplemented rice bran @ 500 gram per day for 30 days from day 10 of the cycle and Group II and III cows (n = 20) was treated with crushed flaxseed @ 500 gram and groundnut seed @ 500 gram respectively per day for 30 days @ 10% of dry matter (DM) fed along with routine feed for 30 days and all experiment cows were observed for estrus signs and inseminated. Pregnancy was confirmed (Fig.1) by ultrasonography at 50-60 days post insemination.

#### Results and Discussion

The conception rates (percent) were obtained in experimental animals following treatments are presented in Table - 1. The first service, second service and overall conception rates obtained was 10, 35 and 15 percent and 5, 10 and 10 percent and 15, 45 and 25 percent in groups I, II and III respectively. It might be indicated that the crushed flaxseed @ 500 gram per day along with routine feed from day 10 of the cycle for 30 days and cows were inseminated twice at an interval of 12 hours considerably increased the conception rate (group II) in repeat breeding cows.

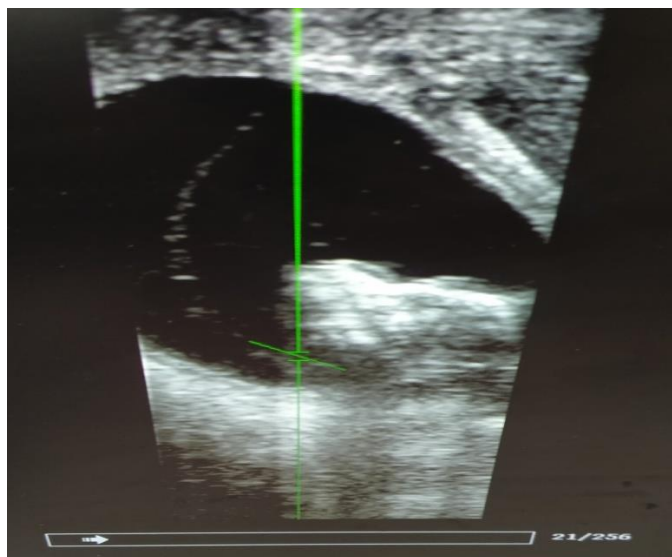
Fat is one of the major nutrients to enhance reproductive performance by increasing the energy status of lactation cows and thus stimulated the ovarian follicular growth and luteal functions (Nugroho *et al.*, 2021) [6]. The dietary changes which alter circulating PUFA concentrations are also reflected in the follicular fluid constituents and endometrium (Childs *et al.*, 2008) [7]. It has been suggested that n-3 PUFA supplementation may suppress endometrial luteolytic PGF2 $\alpha$  production and that this in turn may be beneficial for early embryo survival, particularly in dairy cattle (Santos *et al.*, 2008) [8].

The similar study were reported that the supplementation of flax seed which is rich in omega-3 fatty acids or fish oil which is rich in omega-6 fatty acids to improved fertility through

reduced pregnancy losses in dairy cows (Ambrose *et al.*, 2006) [6].

**Table 1:** Effect of Pufa on conception rates in repeat breeding cows

S.No.	Treatment groups	Conception Rate (Percent)		
		First service conception rate	Second service conception rate	Overall conception rate
1.	Group I (Control)	10 (2/20)	5 (1/20)	15 (3/20)
2.	Group II (Flaxseed)	35 (7/20)	10 (2/20)	45 (9/20)
3.	Group III (Groundnut seed)	15 (3/20)	10 (2/20)	25 (5/20)



**Fig 1:** Pregnancy confirmation by USG

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## Conclusion

The authors concluded that the pregnancy rates were enhanced repeat breeding dairy cows fed with PUFAs in the form of flaxseed as compared to saturated fatty acids (Groundnut seed).

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