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Comparative Study of Pregnancy Rate of Dairy Cows Synchronized Through Select Synch with Estrous Synchronization by $PGF_{2\alpha}$

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Abstract: Historically, estrus synchronization has been promoted as a labor saving tool for those producers who want to capitalize on the superior genetics available through use of AI. However, the labor saving aspect is peanuts compared to the economic returns available when estrus synchronization is used as a reproductive management tool. The aim of this study was to comparison of the two different methods: select synch and estrous synchronization by $PGF_{2\alpha}$. In this study, about 68 newly parturited cows were examined about 25 days after their parturition for clean test. About 45 days after parturition cows were divided into 2 groups and prepared for artificial insemination. Animals of group 1 (36 cows) were inseminated by select Synch Method. Animals of group 2 were treated as estrus synchronization. Based on data obtained from Chi-square test, it has been revealed that there is no significant difference between two groups ($p>0.05$).

Key words: Pregnancy, select synch, $PGF_{2\alpha}$, dairy cows, genetics, producers

INTRODUCTION

The estrus synchronization allows artificial insemination planning according to a time scheme, also allows to stagger the plan parturitions beginning in a specific period of time and allows the use of the IA in animal groups in time fixed. Also, allows to control and to inseminate individually. The control of estrus in dairy calves means that they can be inseminated with semen of superior genetic origin to the normal one with which is increased the genetic improvement. This must remember that the good handling of the animal is essential, means to consider the lodgings, the breeds and to avoid agglomerations (Martineau, 2003). The possibility of modifying the estrus cycle through hormonal treatments has allowed designing a variety of protocols to reduce the calving interval and the 1st service of the IA. The control of the estrus cycle can reduce the associated problems of handling to the detection of heaths, especially in now-a-days production systems where the intensification influenced negatively so that the cows show signs of estrus. Estrus can be induced by means of the $PGF_{2\alpha}$ administration (Zi, 2003). At the now-a-days time, the $PGF_{2\alpha}$ have great importance in this activity given to that their lutheolytic power and because its use has been approved and spread mainly in milk bovine (Gumen and Seguin, 2003). The $PGF_{2\alpha}$ acid is hidroxilated, saturated with lutheolytic action in different species in such a way that its action is exerted individually when a corpus luteum or yellow body in the ovaries exists (Hirsbrunner *et al*., 2003). The use of prostaglandin for heaths synchronization is an excellent tool also commonly is used during postpartum early to improve the uterine involution and the fertility in the milk cattle (Melendez *et al*., 2004). In fact, the prostaglandin is the natural substance produced by the uterus of the cow to cause the normal regression of the CL. Therefore, the prostaglandin injection is a way to selectively induce the regression of the CL of a way similar to the normal process.

The percentage of conception with this method is similar to the one of the natural process, at least in comparison within each unit of dairy farms. This hormone was the base of the 1st method of heath synchronization, although the answer depends on the presence of a functional CL (day 7-16 of the cycle). In fact, the prostaglandin is the natural substance produced by the uterus of the cow to cause the normal regression of the CL.

Therefore, the prostaglandin injection is a way to selectively induce the regression of the CL of a way similar to the normal process. The percentage of conception with this method is similar to the one of the natural process, at least in comparisons within each unit of dairy farm. This hormone was the base of the first methods of heath synchronization, although the answer depends on the presence of a functional CL (days 7-16 of the cycle) and varies according to the day of the estrus cycle in which it is applied. The premature luteolysis shortens the bovine estrus cycle and is a phenomenon commonly followed the 1st ovulation in the puberty or immediately after milking. Some of the mechanisms of these short estrus completely have not been understood, recent findings as resulting from indicate an early

formation of CL, premature liberation of prostaglandins from the uterus (Taponen *et al*., 2003). The efficiency in the detection of estrus is one of the most important factors that they limit the reproductive performance in milk cows. The great amount of cows has created a new problem for the reproductive handling of the cows. The traditional methods for the detection of estrus are inefficient applying them in cattle ranches of great productions in where the number of cows by worker has been increased being a loss in the efficient detection from estrus. In agreement with recent studies, <50% of the milk cows estrus was detected being a prolonged interval between insemination and insemination and less gain for milk production (Portaluppi and Stevenson, 2005). In the cow like in other species, a total fertility is essential assuring when estrus is synchronized.

The detection of estrus in synchronous animal groups can be difficult because many of them can display heats at the same time. It has been suggested difference of the number of cows that are in estrus (based on the aid for the heat detection and the visualization) and the real number of them (based on the determination of the progesterone concentration) can help us to explain the poor index of conception that occasionally are from the synchronization of estrus in some farms; the difficulty does not have to be overestimated individually to identify the cows that are in truth estrus in synchronous animal groups (Peters and Pursley, 2002). The estrus synchronization is considered like the stage of the estrus cycle that has been applied after the detection of non pregnant cows by means of the rectal palpation or of the uterus based on the presence or absence of the corpus luteum.

The importance to reduce the interval between the 1st and 2nd artificial insemination has been simulated in the development of different strategies of synchronization for the return from estrus (Bartolome *et al*., 2005). If prostaglandins are used in cattle that does not know its cyclical state, it can be in a percentage of pregnancy with a rank from the 30-70%. The main factor that contributes to this variation is the percentage of cows cycling at the moment of the treatment (Hirsbunner, 2002). During the estrus control programs, the cattle will have to be free of stress to have a good handling and feeding organized the IA and to maintain severe registries if we want to achieve success.

MATERIALS AND METHODS

In this study, about 68 newly parturited cows were examined about 25 days after their parturition for clean test. About 45 days after parturition cows were divided into the 2 groups and prepared for artificial insemination. Animals of group 1 (36 cows) were inseminated by select Synch Method. In this method, 7 days after first administration of GnRH, administration of $PGF_{2\alpha}$ was conducted by follow up the estrus signs. Animals of group 2 were treated as estrus synchronization. In this method, after examination of corpus luteum from the rectal, first dose of $PGF_{2\alpha}$ administrated and was repeated after 11 days. In this method if cows shown estrus signs after first administration, the second dose not injected. Artificial insemination was exerted as AM-PM Method. About 45 days after artificial insemination, cows were examined for existence of pregnancy or no. Data were recorded and analyzed by SPSS software.

RESULTS AND DISCUSSION

Based on Table 1, 36 cows of group 1, 21 (58.33%) cows were pregnant and 15 (41.7%) cows were not pregnant. In group 2, of 32 cows, 16 (50%) cows were pregnant and 16 (50%) cows were not pregnant. Based on data obtained from Chi-square test, it has been revealed that there is no significant difference between two groups ($p>0.05$) as shown in Fig. 1 and 2. The use of schemes of estrus synchronization and in time fixed artificial insemination is a practical form in units of dairy intensive production systems could improve the reproductive efficiency since one of the main problems that affect these farms is associated to the low rate of detection of estrus according to Sepulved. The synchronization protocols that are carried out after the IA give to some advantages for the reproductive efficiency in units of milk dairy farm with a suitable detection of estrus. The protocols of

Table 1: Comparison of pregnancy rate in two groups

		Pregnant		Non-pregnant	
Groups	No.	No.	Percent	No.	Percent
1	36	21	58.33	15	41.7
2	32	16	50.00	16	50.0

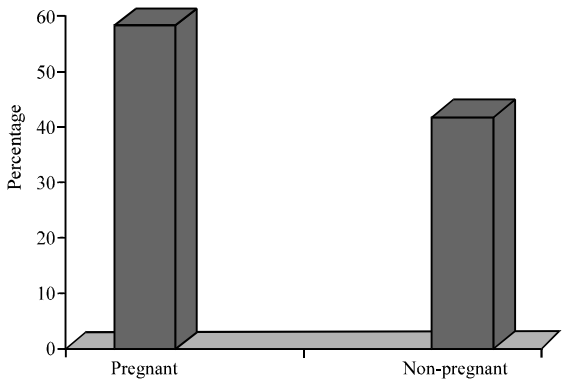

Fig. 1: Pregnancy rate in group 1 which treated by select Synch Method

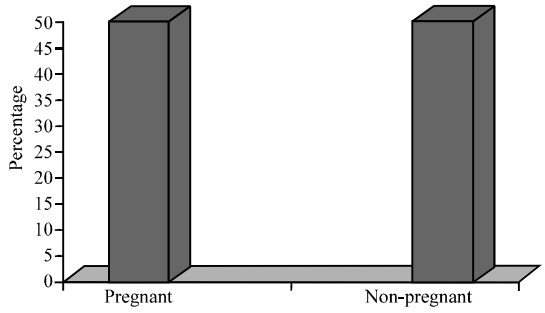

Fig. 2: Pregnancy rate in group 2 which treated by $PGF_{2\alpha}$ Method

synchronization of ovarian follicles and regression of the corpus luteum give to results of low levels of conception but high ranks of services compared with the protocols of estrus synchronization which usually increase the ranks of pregnancy in herds with low ranks of detection of estrus (Cerri *et al*., 2004).

The protocol used in this investigation for estrus synchronization gives advantages to increase of the pregnancy rank, reduces the possibility of human error in health detection, this can be corroborated since this protocol obtained like results a 77% in the T1 and a 93% in the T2 demonstrating that both gave high percentage of pregnancy when in time fixed insemination.

Pregnancy rank reduces to the rank on watch and the possibility of human error in heath detection; this can be corroborated since this protocol obtained like results a 77% in the T1 and a 93% in the T2 demonstrating that both gave high percentage of pregnancy when in time fixed insemination (Cordova-Izquierdo *et al*., 2009).

In a study, Cerri *et al*. (2004) obtained that the time of the artificial insemanation increases the results of rank of pregnancy in the chosen cows that were inseminates under protocol but the conception ranks were low and similar to those of the cows that insemination on cradles in the detection of estrus. Unlike Fricke that manipulation of the ovarian function mentions in his research that the estrus synchronization with $PGF_{2\alpha}$ has been successful if the inseminated cattle in estrus detected because the rate of detection of estrus is increased and the handling of the IA are more efficient is compared with the daily detection of estrus.

CONCLUSION

The results of the study showed that there is a no significant difference between two groups ($p>0.05$).

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