**ORIGINAL ARTICLES**

**Effect of Two Types of Prostaglandins on the Synchronization and not Return to Estrus in Dairy Cows**

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**ABSTRACT**

The proper implementation of techniques and innovative biotechnologies in cattle production improves reproductive efficiency, synchronization of estrus is an example, you can use F2α prostaglandin analogues to shorten the estrous cycle, which improves estrus, facilitates artificial insemination (AI), can decrease the percentage return to estrus, resulting in better herd management, and obtained more homogeneous litters the animal production unit. The objective of this study was to evaluate the effect of administration of two types of prostaglandin F2α (sodium Cloprostenol dextrorotatory Cloprostenol) on the percentage of synchronization and not return to estrus in dairy cows. 200 cows were used in the production of Holstein Friesian, which were divided into two groups of 100 animals each. Before starting the study, animals were selected, using ultrasound to check the ovarian health. In group 1, using 100 cows, which were given 25 mg intramuscular sodium Cloprostenol. Group 2, with animals, which were given 25 mg of cloprostenol intramuscularly clockwise. Estrus detection was performed by observation of characteristic clinical signs and artificial insemination (AI) method was performed using AM / PM. He did not return to estrus was observed at 21 days after AI. The results of synchronization of estrus for the first group (Cloprostenol sodium) were 10% at 12 hours, 20% at 24 hours, 40% at 48 hours and 30% at 72 hours after administration of prostaglandin. Group 2 (dextrorotatory Cloprostenol), the percentage of synchronization was 20% at 48 hours, 10% at 56 hours and 70% at 72 hours. Both groups received 90% of non-return to estrus. In conclusion, the administration of sodium cloprostenol could represent an alternative for use in synchronization programs and return to estrus in lactating dairy cows.

**Key words:** Dairy cows, estrus synchronization, prostaglandin.

**Introduction**

At present there are different tools for manipulating the estrous cycle in cattle, in order to improve reproductive and productive efficiency in animal production units (APU). As the ultrasound technology has caused a great impact by facilitating the manipulation of the estrous cycle, and increases the accuracy rate improved the diagnosis of early pregnancy. Ultrasound is a technique that uses sound waves of high frequency to produce images of soft tissues and internal organs, which can be viewed using the ultrasound screen. The application of ultrasound in bovine and equine species corresponds to the 80, but their development and improvement for the study of reproductive events, has increased in this decade (Pieterse, 2004; Gnemmi, 2005). Synchronization of estrus or estrus control in conjunction with other techniques are very useful in order to increase reproductive efficiency in dairy cattle APU (Aréchiga, et al., 2004; Bo, et al., 2005).

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The objective of this study was to evaluate the effect of administration of two types of PGF2α on the percentage of synchronization and not return to estrus in dairy cows.

Material and Methods

The present work was performed at an EPS of dairy cattle in the State of Mexico. 200 cows were used in the production of the Holstein Friesian, managed two milkings a day, with an integral power supply for high production and body condition of 3-3.5 on a scale of 1-5, in addition, all animals were selected according to the following characteristics: ultrasound were examined that had a corpus luteum 2 or 3 (CL2 or CL3), the reproductive tract in good condition and have had at least one postpartum estrus. The animals were divided into two groups.

In group 1, using 100 cows, which were given 25 mg intramuscular sodium Cloprostenol. Group 2, with 100 animals, which were given 25 mg of dextrorotatory cloprostenol intramuscularly. Estrus detection was performed by observation of characteristic clinical signs and artificial insemination (AI) method was performed using AM / PM. He did not return to estrus was observed at 21 days after AI. The results were analyzed using descriptive statistics and analysis of timing and percentage return to estrus.

Results:

The following table presents the results of timing and not return to estrus in both groups. Percentage of sync and not return to estrus in both groups.

<table>
<thead>
<tr>
<th>No cows</th>
<th>Type Prostaglandin</th>
<th>% Estrus synchronization</th>
<th>% non-return to estrus</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>12 hours</td>
<td>24 hours</td>
</tr>
<tr>
<td>100 sodium Cloprostenol</td>
<td>10</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>100 dextrorotatory cloprostenol</td>
<td>-</td>
<td>-</td>
<td>20</td>
</tr>
</tbody>
</table>

With the use of sodium cloprostenol, 70% of the synchronization of estrus was 12 to 48 hours, whereas with dextrorotatory cloprostenol, 80% of cows were synchronized after 48 hours, however, both groups obtained a 90% non-return to estrus.

Discussion:

In 2003, Rodriguez said that there is little information on the effect of different analogues of PGF2 α, referring to two previous studies where no significant difference, compared with the results obtained in this work, where no difference in the time of presentation estrus, in the case of sodium Cloprostenol where synchronization within 48 hours, whereas with Cloprostenol clockwise, the highest percentage was later synchronization.

(Córdova, et al., 2004; Gonzales, et al., 2001) indicated that when used to synchronize estrus α PGF2 in cows with a corpus luteum between days 5 and 18 of the estrous cycle, they come into estrus in 2 to 7 days after application. Different studies show that while the cow present a functional corpus luteum, the injection of PGF2 α is effective in 90-95% of the animals, similar to the results obtained in this study, where both groups showed estrus on up to 3 days (72 hours).

The return to estrus obtained in this study (10%) is explained as indicated by (Hernandez, et al., 2001), who explained that embryonic survival depends on a correct synchronization between the embryo and the mother for the pregnancy is carried out to term, there must be excellent communication between the developing embryo and maternal environment. In conclusion, the administration of sodium cloprostenol could represent an alternative for use in synchronization programs and return to estrus in lactating dairy cows.

References