THE EFFECT OF AN INJECTION OF GNRH DURING INSEMINATION ON DAYS OPEN AND CONCEPTION RATE IN IRANIAN HOLSTEIN DAIRY COWS

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Getting cows pregnant is the major goal in any dairy farm's reproductive program. There has been a lot of research done to determine the cost of number of days open after a cow's voluntary waiting period following calving. The range varies from $3.00- $6.00 per day open per cow. With the average cow needing to be inseminated about 3 times to conceive, the sooner she can be exposed to the chance to becoming pregnant the better. Gonadotropin releasing hormone (GnRH) is a decapetide that regulates both lutenising hormone (LH) and follicle stimulating hormone release in farm animals. Gonadotropin releasing hormone has been used to induce the release of LH in lactating dairy cows. The postpartum period in cattle is characterised by a low frequency of pulsatile LH. This pulsatile release of LH is relatively low immediately after parturition (~0.5 ng/mL) and its concentration increases near the time of first ovulation. Exogenous GnRH can induce LH release in cycling cows, and an injection of exogenous GnRH can be used to promote ovarian activity.

This study was carried out in the Dasht dairy farm, which is located in the northeast of Iran. Total mixed rations for milking cows were calculated according to NRC (1989) and cows were milked 3 times a day at regular intervals. We determined the effect of an injection of GnRH after insemination on days open (DO) and conception rate (CR), and investigated the reasons for the prevention of ovulation in Iranian Holstein dairy cows (especially high producing cows).

Ninety cows were divided into 2 similar groups. Cows that did not show heat until 38 ± 4 days postpartum were selected, and 2.5 mL PGF2α were injected before they were allocated randomly to 1 of 2 treatments. They also received a PGF2α injection again 14 days later if they didn't show heat. In treatment 1, during artificial insemination, cows received 5 mL of GnRH, while treatment 2 was the control. Pregnancy tests were undertaken 40-45 days after insemination by rectal palpation. Parity, adjusted 305 day milk production, conception rate (CR) and days open (DO) were measured for each cow and analysed by general linear procedures and ANOVA to evaluate differences among experimental groups. Means were compared using Duncan test.

Table 1. The effect of an injection of GnRH on days open (DO), conception rate (CR) and milk yield.

Treatment	DO	CR	Milk 305 d (kg)	Parity
An injection at insemination	105.31[b]	1.94[b]	10065[a]	3.81[a]
Control	156.16[a]	2.31[a]	9271[a]	4.43[a]

Although 305 day milk yields and parity are generally adversely associated with fertility, DO and CR were significantly reduced by the use of a GnRH injection, while there were no significant differences in milk yield or parity between treatments (Table 1). Based on these results, it seems that an injection of GnRH during artificial insemination under Iranian dairy farm conditions should improve reproductive performance.

NRC (1989). 'Nutrient Requirements of Dairy Cattle.' (National Academy of Sciences: Washington, DC).

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