

## Evaluation of the Cow's Fertility using Artificial Insemination in Sulaimani Region from 1999 to 2002

*Faraidoon A.S.M.Amin<sup>1</sup>*

A total number of cows artificially inseminated and became pregnant in Sulaimani region during 1999-2002 were 36952 and 15020 respectively.

The year 2001 showed the highest numbers of those inseminated and became pregnant, while year 1999 showed the lowest numbers, 1039 (5.197% ).

The overall mean of fertility rate was 40.647% however the total number of cows those treated with hormone was 8101 ( 21.92% ).

In August 2002 the total number of cows artificially inseminated was

2070, Sharazoor center performed the highest numbers followed Rania center then Kalar and Chamchamal, while Sulaimani center performed the lowest numbers. The fertility rate after GnRH treatment was found to be (74.71% ) while the fertility rate of cows during August 2002 for all locations was 53.87%

The objectives of this study was to the evaluate the reproductive performance of dairy cattle in Sulaimani region throughout the evaluation of the status of the process of Artificial Insemination from year 1999 up to 2002.

**" تقييم الكفاءة التناسلية لأبقار الحليب في منطقة السليمانية**

**بأستخدام السائل المنوي المجمد**

فريدون عبدالستار محمدامين<sup>II</sup>

**الخلاصة**

الهدف من اجراء هذا البحث هو لتقييم الكفاءة التناسلية لأبقار الحليب في منطقة السليمانية

بأستخدام التلقيح الاصطناعي من عام 1999 حتى 2002 ، حيث تم تسفيد 36952 بقرة اصطناعياً بواسطة الجس عن طريق المستقيم، بلغ مجموع الابقار التي اصبحت حاملا 15020.

<sup>I</sup> Department of Clinic & Surgery. College of Veterinary Medicine. University of Sulaimani. Sulaimani- Iraq

<sup>II</sup> فرع الكليник والجراحة - كلية الطب البيطري - جامعة السليمانية - السليمانية - العراق .

أظهرت نتائج الدراسة أكبر نسبة من الأبقار المسفدة والحامل عام 2001 بينما كان أقل نسبة في عام 1999. حيث بلغت نسبة الخصوبة 40.647 % بينما كان عدد الأبقار التي تمت معالجتها بالهرمونات 8101 بقرة.

وفي شهر اب 2002 ارتفع عدد الأبقار المسفدة اصطناعيا الى 2070 بقرة ، وكان العدد الأكبر من هذه الأبقار في منطقة شهرزور وجاءت منطقة رانية بالمرتبة الثانية وكلاهما وجمجمال في المرتبة الثالثة بينما ظهر العدد الأقل من نسبة الأبقار المسفدة في مركز السليمانية. على حين بلغت نسبة خصوبة الأبقار خلال شهر اب 2002 في جميع المناطق 53.87 % .

يستنتج من هذه الدراسة إن خصوبة الأبقار بعد العلاج بهورمون GnRH ( 0.5 ماكروغرام ) بلغت 74.71 % مقارنة بنسبة الخصوبة الأبقار في جميع مناطق السليمانية التي كانت 53.87 %

### **Introduction**

Friesian dairy cattle breed was introduced in to Iraq to be raised a pure breed and to grade up the indigenous cattle in an attempt to increase the output of milk yield in this country.

Information of imported friesian bulls to Iraq was therefore of great value for the future of dairy cattle improvement plans (1, 2). Furthermore (3, 4) reported that the pregnancy rate can be influenced by temperature and stress. However (5) found that animals susceptible to environmental factors effects on serum luteinizing hormone.

Therefore this study was designed to evaluate the reproductive performance of cows from different location according to determine the pregnancy rate after hormonal treatment with Gonadotropin releasing hormone GnRH ( Fertagyl).

### **Materials and Methods**

The process of artificial insemination had widely and successfully achieved in region and other neighboring locations of artificial insemination centers by FAO during 1999-2002.

The number of cows artificially inseminated in 1999 were (1039), in 2000 (7965), in 2001 (15869) and in 2002 were (12079).

The process of A.I that had been used in this program was frozen method. Frozen semen was obtained from the artificial insemination center in Abu-Graib at Baghdad. This material was distributed to five A.I centers at sulaimani region namely: sulaimani rania chamchammal : sharazoor and kalar .

33 team workers were allocated to cover most of the Sulaimani region for artificial insemination centers by FAO from June 1999 up to October 2002. This study was dealing on artificial insemination service from June 1999 up to October 2002 using individual records of each cow obtained from FAO sub-office in Sulaimani of cows artificially inseminated during different years and the numbers of these retested for pregnancy by rectal palpation and become pregnant for different sites.

During this investigation the effects of stress factor and hormonal treatment with Fertagyl ((intervet) 0.5 µg i.m by injecting on the day of A.I) and the years on the rate of fertility were also considered.

The fertility rate of a cow this study depended on the pregnancy diagnosis results.

Data of different locations of artificial insemination centers were analyzed by using chi-square analysis and the results were recorded<sup>(6)</sup>.

### Results

In the Sulaimani region, there was a gradual increasing in the number of artificially inseminated cows during the period of 1999-2002 (Table, 1).

The total numbers of cows artificially inseminated and became pregnant during 1999-2002 were 36952 and 15020 respectively, which differ during different years studied (Table, 1).

The year 2001 showed the highest numbers of those inseminated and became pregnant, while year 1999 showed the lowest numbers. However the overall mean of fertility rate (pregnancy rate) was 40.647%, in which was significantly ( $p < 0.05$ ) differ during different years studied. The fertility rate during 1999 and 2000 was significantly lower than those recorded during 2001 and 2002.

The total number of cows tested for pregnancy was 20102 (Table-1) which differs during different periods. However the pregnancy percentage of the total pregnancy cows tested was 74.71%, this ratio was significantly ( $p < 0.05$ ) lower than recorded in year 1999 compared with other years studied. The total number of cattle those treated with hormones was 8101. The ratio of the hormonal treated cows of the total artificially inseminated was 21.92%, this ratio was significantly ( $p < 0.05$ ) higher in 1999 compared with other years studied.

In August 2002 the total numbers of cows artificially inseminated was 2070 (Table-2), Sharazoor center performed the highest numbers follow Rania center then Kalar and Chamchamal, while Sulaimani center performed the lowest numbers. However the fertility rate of cows during August 2002 for all locations was 53.87% which was significantly ( $p < 0.05$ ) differ due to different location centers, Kalar center revealed the highest ratio (80.90%), while Chamchamal

center deducted the lowest ratio. However the ratio of the pregnancy test due to the total numbers of cows artificially inseminated was 78.91%, which was significantly ( $p < 0.05$ ) differ due to different locations viz: Kalar center performed significantly better than other locations, Chamchamal deducted the lowest ratio

(Table-2).

The total number of hormonal treated cows was 1876, while the ratio of the hormonal treated animals to the total numbers of cows artificially inseminated was 90.63%, which wasn't differ due to different location center.



### **Discussion**

A progress in the number of artificially inseminated cows with time during the period 1999-2002 might be due to an increase in the number of cows in these

areas and more experience and facilities of the team workers, which was in contrast with the findings of (7). However the fertility rate of this study was 40.647%, which was similar (40%) to that found by (8).

In Brazil using Zebu herd and lower than of F1 crosses (Indo Brazil & holstein) which recorded 37%. Other workers showed higher fertility rate in different countries (9), in Iraq (10) in UK (11) in Brazil and Iraq (7). Year of study had significant effect on fertility rate, these results were in agreement with those found by (7). These differences could be due to the effects of heat stress because (12,4) mentioned that the heat stress have a direct adverse effect of increased body temperature and hence uterine temperature leading to fertilization failure or due to an indirect effect consequent to altered endocrine and uterine function, also management effect such as feeding regime have role in this variation because (13,14) showed that the seasonal effect on fertility may have an interaction with the levels and quality of feed.

However the pregnant cows of those tested for pregnancy in 1999 was significantly ( $p < 0.05$ ) lower in 1999 compared with the other years studied, this could be attributed to the activity of the team workers and their experience (15).

The total percentage of the cows treated with hormones was 21.92% which was significantly differ due to different periods studied. The injection of Fertagyl on the day of A.I in order to hasten ovulation and to improve conception rate through its effects on LH release (16). In 1999 high ratio of hormonal treated cows was conducted this could be due to the low numbers of cows inseminated at that time and the project was at its beginning.

In general, Kalar center showed higher performance in its work compared with other locations, these differences could be attributed to many factors such as number of animals spread, the activities and facilities of the team workers of the centers. However (17) showed the same trend but (18) showed no differences in the reproductive performance of different location.

Therefore it could be concluded that the fertility rate, the diagnosis of pregnancy ratio and hormonal treated cows ratio differ with time and the site of artificial insemination centers in Sulaimani regions.

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