

**EFFECT OF SUPEROVULATION ON MILK YIELD IN THE NILI-RAVI BUFFALO (*BUBALUS BUBALIS*)**

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*Animal Reproduction Laboratory, Animal Sciences Institute, National Agricultural Research Centre, P.O. NIH, Islamabad 45500, Pakistan***ABSTRACT**

This study determined the effect of superovulatory treatment on milk yield of buffaloes. Eleven lactating buffaloes of the Nili-Ravi breed were treated with follicle stimulating hormone for superovulation. Milk yield of these buffaloes was recorded for 15 days before and 15 days after superovulation. Milk yield of another 11 untreated buffaloes of similar lactation, during the same days, was also recorded and compared with that of treated buffaloes. This comparison showed no difference between the milk yield of treated and untreated animals. It was concluded that there was no ill effect of superovulation on milk yield in buffaloes.

**Keywords:** Superovulation, buffalo, milk yield.

**INTRODUCTION**

Multiple ovulation and embryo transfer are being used for genetic improvement in livestock. Only small-scale embryo transfer trials have been conducted in the buffalo in Pakistan. Buffalo calves have been produced as a result of these trials and practical difficulties encountered in adopting these techniques commercially have been delineated (Anwar *et al.*, 2000). During the course of embryo transfer programmes in buffaloes in Pakistan, the use of hormones like follicle stimulating hormone (FSH) and pregnant mare serum gonadotropin (PMSG) has been made for inducing superovulation (Mehmood *et al.*, 1989; Anwar and Ullah, 1998). The effect of superovulation, brought about by hormonal therapy, on milk production of these buffaloes was a matter of concern for the breeders. There are some reports available regarding effect of superovulation on milk yield in cattle (Takahashi and Saito, 1981; Bak *et al.*, 1989; Arpe, 1997), but there is no such report available in the buffalo. The current report is a retrospective analysis of the milk yield in lactating buffaloes that were included in a multiple ovulation and embryo transfer programme during one year period.

**MATERIALS AND METHODS**

Eleven pluriparous, cycling Nili-Ravi buffaloes in their 3<sup>rd</sup> to 5<sup>th</sup> lactation were treated with 40 mg FSH each for superovulation in their mid luteal phase. The FSH was administered intra-muscular in eight equally divided doses over four days. Luteal regression was brought about with Prostaglandin F2 $\alpha$  48 hours after the start of the FSH treatment. The buffaloes were

inseminated twice at twelve hours interval after heat detection. Embryo recovery was made by non-surgical uterine flushing with 500 to 1000 ml of phosphate buffered saline solution supplemented with 1% foetal calf serum.

Milk production of each treated buffalo was recorded 15 days before and 15 days after superovulation. Another 11 untreated lactating buffaloes at the same stage of lactation kept under similar feeding and management were included as control. Milk production of control buffaloes was recorded on the same days as of treated ones. Average milk production of treated buffaloes 15 days before (Period-I) and 15 days after (Period-II) superovulation was compared with that of untreated buffaloes. The data were analyzed by using one-way analysis of variance.

**RESULTS**

Milk production in superovulated and control buffaloes during period-I and period-II of the study is presented in Table-1. The means for these two periods did not differ for both treated and control animals. However, there was a slight decrease in overall milk production of treated buffaloes during period-II compared to period-I.

**DISCUSSION**

The present study was conducted to investigate the effect of superovulation treatment with FSH on milk production in buffaloes. It was noted that milk production in treated buffaloes did not differ as compared to un-treated control animals in post-

**Table 1: Comparison of milk production (mean  $\pm$  SD) in pre and post superovulatory periods in FSH treated and untreated Nili-Ravi buffaloes**

Periods	N	Milk production (Kg/day)	
		Treated buffaloes	Untreated buffaloes
Pre-treatment (Period-I)	11	5.95 $\pm$ 1.74	5.38 $\pm$ 1.54
Post-treatment (Period-II)	11	5.64 $\pm$ 1.94	5.68 $\pm$ 1.22

Means within a row and a column do not differ (P>0.05).

superovulatory period. The results are in agreement with a few reports in temperate cattle (Foote *et al.* 1982), where milk production was not affected by superovulation and non-surgical collection of embryos. However, Takahashi and Saito (1981) observed a decrease in milk production by superovulation in cows.

Although the difference in milk production did not reach significant levels, a small decrease was recorded in FSH treated buffaloes as compared to control ones which might have occurred due to a stress imposed by hormonal treatment on animal's body. Similar effect was recorded in cattle causing a greater variation in daily yield (Bak *et al.*, 1989). This variation may result in a small reduction in total milk yield over 305 days, but is generally not affected by the treatment if corrected for the variation in days open (Cowen and Sasnik, 1987). It was concluded that no marked effect of superovulation treatment on milk yield occurred in buffaloes.

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## DISCUSSION

The present study was conducted to investigate the effect of superovulation treatment with FSH on milk production in buffaloes. It was noted that milk production in treated buffaloes did not differ significantly from that of untreated control animals. It was

## MATERIALS AND METHODS

Eleven buffaloes cycling Nili-Ravi buffaloes in their 3<sup>rd</sup> or 4<sup>th</sup> lactation were treated with 40 mg FSH at the beginning of their mid luteal phase. The treatment was administered intramuscularly in eight equal doses over four days. Luteal regression was noted about two postpartum FSH 48 hours after the start of the FSH treatment. The buffaloes were