

Clinical Communication

EMBRYO TRANSFER FROM EXOTIC TO INDIGENOUS GOATS IN KENYA

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INTRODUCTION

As the population of the developing world increases, the land available for food production is bound to decrease. This is particularly so where land is divided between family members. If the demands for high quality proteins, particularly those of animal origin in the form of meat and milk are to be met, then the dairy goat may be the optimum animal for small units.

The local East African goat is of little value as a milk producer. Although crossbreeding this breed with highly productive exotic animals should result in offspring of high productivity, this is a long term programme. More rapid gains could be achieved by using the technique of embryo transfer. In this way, many good quality animals could be obtained using an initial small nucleus of pure-bred highly productive dairy goats. The work reported here was carried out in an attempt to increase rapidly the numbers of offspring from a small flock of Toggenburg dairy goats in order to meet a high demand.

MATERIALS AND METHODS

Six Toggenburg dairy goats varying in age from 2 to 6 years, which had previously kidded, were used as donors and 15 mature East African Dwarf goats were used as recipients. Oestrus was synchronized in both groups with progesterone ear implants (Synchromate-B, Ceva Laboratories, USA) which were left in place for 17 days. On the day before implant removal, each donor was injected subcutaneously with 1000 IU of PMSG (Folligon, Intervet International BV, Boxmeer, The Netherlands). Vasectomized bucks were used for detection of oestrus and the donor does were mated to a buck of known fertility during the ensuing oestrus. A previously described surgical technique (Hunter *et al.*, 1955; Moore, 1974; Eppleston, 1981) was used. In this procedure, the reproductive tracts of both donor and recipient does were exteriorized by mid-ventral laparotomy under general anaesthesia. Collection was

TABLE I
The effect of superovulation on ovarian activity, egg recovery and subsequent reproduction in six Toggenburg does

Donor no. (parity)	Ovarian activity		Number and percentage of ova				Kids born following	
	Corpora lutea	Unovulated follicles	Total	Fertilized	Transferred	Embryo transfer	Subsequent natural cycle	
1 (4)	15	2	15	14 (93%)	12	4	2	
2 (3)	8	19	4	2 (50%)	2	-	1	
3 (5)	5	6	5	4 (80%)	4	2	1	
4 (3)	-	4	-	-	-	-	1	
5 (2)	11	6	10	8 (80%)	8	2	2	
6 (2)	7	3	5	4 (80%)	4	-	1	
Total	46	40	39	32 (82%)	30	8	8	

achieved by flushing both the uterine horns and the oviducts of each donor with modified Dulbecco's phosphate buffered saline solution enriched with 10% inactivated goat serum. The transferred embryos were deposited into the anterior third of the ipsilateral uterine horn through a puncture made in the uterine wall.

RESULTS

Most of the does (four donors and 10 recipients) showed oestrus 36 to 48 hours after implant removal, with a slightly earlier occurrence in the donors. Details of the results are shown in Table I. Thirty-two five-day-old embryos were collected from five donors. One of the donors did not ovulate. Thirty of these embryos were transferred in pairs to 15 oestrus-synchronized recipients. Seven of the recipients conceived and produced eight kids (26.7%). The donors were subsequently mated during their second natural oestrus and produced eight kids.

DISCUSSION

A total of 16 pure Toggenburg kids were born from the six donors in seven months, which is a marked improvement on what would be expected naturally. However, the conception rates following these transfers were much lower than those reported by Holm and colleagues (1990). Large differences in superovulatory response occurred between the donors, which concurs with the observations in other species (Drost, 1986). It is therefore concluded that, although the factors limiting both the superovulatory response and the conception rate still need to be investigated further, the embryo transfer technique has potential value for rapidly raising purebred Toggenburg kids from local Kenyan goats.

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