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Short Communication

Embryo production and kids born through embryo transfer in Jakhrana goats treated with pFSH

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ABSTRACT

The present investigation was aimed to study the embryo production potential of Jakhrana goats and to know embryo survivability in recipients. Goats were superovulated by using 16 mg pFSH (Sigma, USA) in reducing dose schedule over a period of 3 days at 12 hours interval. Lutalyse (Dinoprost tromethamine, Upjohn, USA) and Crestar implant (Intervet, Holland) were used to synchronize oestrus. Ovarian response and embryo recovery averaged 9.40 ±2.53 and 5.20 ± 2.71, respectively. Twelve good quality embryos (4 to 16 cell stage) were surgically transferred in five oestrus synchronized recipients. Embryo survivability was 42.00%. A total of five kids were born through embryo transfer.

Key words: Goat, pFSH, embryo production and survivability, ET kids

Jakhrana, a descript goat breed of western semi - arid zone of India is a dual purpose breed of medium size having average milk production of 1.50 – 2.00 Kg/ day. Twinning is not common (15 - 20.00%) as ovulation rate of 1.33± 0.11 is reported in this breed (Goel and Agrawal, 2003).Considering its production potential, there is ample scope to enhance its reproduction rate through superovulation and embryo transfer. Present experiment was, therefore planned to study superovulatory potential, embryo recovery and kid production in this important goat breed of India.

Jakhrana goats maintained at the experimental sheds of the division were monitored for oestrus regularity at 12 hr interval using an aproned buck. Six adult cycling Jakhrana goats (age 2.5 - 3.5 yr) were selected and subjected to hormonal treatments during the period of peak sexual activity (June to August). Donors were oestrus synchronized using Lutalyse (Dinoprost tromethamine, Upjohn, USA) @ 7.5 mg im /goat in single dose schedule (3 goats) 12 hr prior to administration of final dose of pFSH or 1/2 Crestar implant (Norgestomet + Oestradiol Valerate, Intervet, Holland) sc on 3rd day of oestrous cycle for 9 days (3 goats). Recipients were treated similarly by using Crestar implants. Responded donors were naturally mated initially at the onset of oestrus and 12 hr later by superior Jakhrana buck. Super ovulatory treatment was initiated at 12-14 days of the oestrous cycle using 16 mg p-FSH (Sigma, USA) im in reducing dose schedule at 12 hr interval for 3 days. Each responded goat was injected 500 IU hCG (Chorulon, Intervet, Holland) 10-12 hr after the commencement of synchronized oestrus. After visualization of ovulatory response, embryos from responded donors were surgically collected by flushing fallopian tubes 72 - 84 hr after the onset of oestrus using D-PBS+0.4% BSA. Recovered medium was immediately examined under stereo -zoom microscope (50 x) for presence and grading of embryos. Twelve good quality (4 to 16 cell stage) embryos were surgically transferred in five oestrus synchronized recipients (2-3 embryos/recipient) at utero-tubal junction or in the fallopian tubes. Pregnancy was determined on non-return basis and by ultrasonic technique.

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Five (83.33%) donors responded to hormonal treatment within 24-36 hours of treatment withdrawal and stayed in oestrus for 24–48 hr. Average superovulatory response and transferable embryo recovery were 9.40 ± 2.53 and 5.20 ± 2.71, respectively (total embryos recovered 26). Embryos of varying developmental stages (4 to 16 cell stage) were recovered. Super ovulation followed by embryo recovery is essential steps in embryo transfer aimed to enhance reproduction rate of superior animals. Oestrus synchronization response of 83.33% in our study is better than obtained (65.62 , 66.12 and 70.10%) by Goel *et al.* (1995) in indigenous goats, Ishwar and Pandey (1992) in Black Bengal and Nowshari *et al.* (1995) in Boer goats , respectively. Present results are comparable (87.00%) with the findings of Holtz and Sohnrey (1992) by using Crestar implants in goats and Takarkhede *et al.* (1997) in ewes. Mean superovulatory response (9.40± 2.53) in terms of established corpora lutea in our study is comparable to reports in Jamunapari goats (Goel and Agrawal, 1990) and Boer goats (Noshari *et al.*, 1992) treated with similar type of hormonal regimens. On the contrary present response is comparatively lower than reported by Mahmood *et al.* (1991) in Pashmina goats and Baril and Vallet (1990) in Alpine goats. Mean embryo recovery (5.20± 2.71) in the present study is well comparable to that reported by Goel and Agrawal (1990) in Jamunapari. It was higher than earlier report in Pashmina goats of Indian origin (Mahmood *et al.*, 1991).

Variations in superovulatory response and embryo recovery reported by other workers appears due to difference in dose level of hormones, breeds and seasons. Embryo survivability in the present study (42.00%) is better than reported by Mahmood *et al.* (1991) in Pashmina goats and Goel *et al.* (1994) in Sirohi and Jamunapari goats. It is concluded from the present study that multiple ovulation and embryo transfer can be used for exploitation of genetic potential in this important goat breed of India.

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