196 Fertilization Rate in Superovulated Criolla Goats Following Artificial Insemination or Natural Mating

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Abstract

The Criolla breed is a local genetic resource, distributed in Patagonia, Argentina, whose primary production is meat. In the Criolla goat, efforts were made to locate productively superior males and to conserve their genetic material. Studies were carried on the feasibility of obtaining superior offspring through the implementation of embryo transfer programs. We assessed the fertilization rate and embryo production following AI with frozen semen or natural mating in Criolla goats subjected to a superovulation program. During the breeding season (May, 41° S), 26 Criolla goats were treated for oestrus with sponges (60 mg of medroxyprogesterone acetate, Progespon®, Syntex, Buenos Aires, Argentina) placed for 13 days. Goat donors were superovulated with a total of 80 mg of porcine (p)FSH (Folltropin V®, Bioniche, Ontario, Canada) every 12 h in 6 decreasing doses (18, 18, 14, 14, 8, and 8 mg) during the last 3 days of progestagen treatment. A dose of 125 µg of cloprostenol (Estrumate®, Schering-Plough, Quebec, Canada) was given in conjunction with the first dose of pFSH. Oestrus detection was performed every 12 h, starting at 24 h after sponge removal. Females were considered to be in oestrus if they passively accepted buck mounting. Goats were randomly assigned to the following treatments: (1) natural mating (NM, n = 12): donors detected in oestrus were individually mated with one proven fertile buck at oestrus and 12 h post-oestrus; does were remove from the male in between (Conventionally accepted treatment); (2) AI (n = 14): donors detected in oestrus were inseminated 12 ± 2 h after the onset of oestrus by laparoscopy with frozen-thawed semen (200 × 10^6 spermatozoa) from the same fertile buck. Embryo recovery was done by surgical prepubic laparotomy at Day 8 after sponge removal. Superovulation response was estimated by counting the number of corpora lutea (CL). Analysis of variance was used to compare fertilization rate (total number of embryos recovered for each animal, expressed as a proportion of the total number of embryos/oocytes recovered) and embryo production between treatments. Results were expressed as mean ± SEM. Statistical significance was accepted at $P < 0.05$. A total of 92.3% goats were recorded in oestrus (24/26) between 24 and 48 h after sponge removal (10 and 14 goats for NM and AI, respectively). An average of 16.6 ± 2.0 CL (range: 2–32) was observed in response to superovulation treatment. The recovery rate of embryos/oocytes was 60.0 ± 6.9%. No statistical difference was observed in the fertilization rate (52.1 ± 12.1 and 68.6 ± 12.1% for AI and NM, respectively) or the number of total (6.8 ± 2.0 and 4.8 ± 2.4 for AI and NM, respectively) and transferable embryos (5.6 ± 1.4 and 4.0 ± 1.7 for AI and NM, respectively) between

treatments ($P > 0.05$). In conclusion, fertilization rates did not differ following laparoscopic insemination with frozen semen compared to natural mating in superovulated Criolla goats.