



Reproduction in the goat Serrana breed: seasonal and individual factors affecting fresh and frozen semen performance, in vivo and in vitro fertility

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Seven bucks from Serrana breed were used for semen collection with artificial vagina along the year. Two hundred and eighteen ejaculates of good quality were collected, washed to remove seminal plasma, refrigerated (4 °C) and frozen in nitrogen vapours. Seminal traits were evaluated in fresh and frozen semen. Cervical insemination with frozen semen (n=35) or refrigerated semen (n=251) was done 43-45 hours after sponge removal and fertility and fecundity were evaluated. Frozen semen of two bucks x two seasons was tested on in vitro fertilization. In fresh semen individual differences were detected for volume, concentration, live, normal and sperm abnormalities and seasonal variation was found for volume, normal and mid piece abnormalities. Freezing decreased significantly all sperm traits exception made for intermediate piece abnormalities. In frozen/thawed semen, individual variations were detected in almost all seminal traits with exception of mid piece sperm abnormalities and seasonal variations were observed for sperm abnormalities, and for Host values at 5 and 25 minutes. In goats inseminated with refrigerated semen, fertility, fecundity and prolificacy were respectively 60.2 %, 106.0 % and 176.1 % with differences among males. Positive correlations between individual motility, live and normal sperm with fertility were found. Reproductive parameters in goats inseminated with frozen semen were respectively 27 %, 56 % and 208 %. At 24 hours post in vitro insemination (pi), independently of season of freezing, one of the bucks showed higher cleavage rates (39.9% vs. 25,3%, respectively, P<0.05) and produced significantly higher embryo rates at D6, D7 and D8 (P< 0.05). At 48 hours post-fertilisation, these differences among animals were no longer significant. Cleavage at 24 h (48.0% vs. 22.9%) and D6 (58.1% vs. 14.7%) rates of autumn frozen semen were also higher in the former best buck (P<0.05). Higher cleavage rate was observed in autumn than in winter frozen semen in one buck. At D7 and D8, seasonal effect on embryo rates was not significant.

Keywords: Serrana breed, frozen semen, seminal traits, AI, in vitro fertilization