



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

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Our objectives were to characterise seminal traits from fresh and frozen semen and in vivo and in vitro (IVF) fertility rates in Saloia breed. Five rams from this breed were used for semen collection with artificial vagina in spring, summer and autumn during three years. Eighty two ejaculates of good quality were collected, refrigerated (4 °C) and frozen in nitrogen vapours and its seminal traits evaluated. Cervical artificial insemination (AI, n=440) 55 hours after sponge removal and in vitro fertilisation of in vitro matured oocytes (n=1636) with semen frozen in autumn and winter were performed. In fresh semen significant differences ($p<0.05$) among seasons were detected for individual motility, live sperm, normal and tail abnormalities. Individual variations were detected for volume, concentration, live and normal sperm. For frozen/thawed semen traits, no differences among seasons were observed. No differences in fertility (15 %) and fecundity (20.2 %) were observed between semen frozen in autumn or winter. One of the rams presented higher fertility and fecundity rates when season of semen was not considered. No correlations were found for semen traits and AI results. Oocyte maturation rate was 79.47 ± 9.6 %, a higher maturation rate being observed during the shortening day length semester (83.5 % vs. 74.61 %; $p<0.05$). Following in vitro swim-up procedure, only sperm motility was different between two males in autumn (56.3 % vs. 36.3 %; $p<0.02$). No differences in cleavage rates between males or seasons were found (overall mean: 40.9 ± 16.5 %). In one of the males, embryo rates at Day 7 were higher when fertilisation with autumn rather than winter frozen semen was performed (38.1 % vs. 20.3 %; $p=0.01$). Only post-thawed sperm head abnormalities and embryo cleavage rates were highly and negatively correlated ($r = -0.99$; $p<0.05$). This study shows that seminal traits either in fresh or frozen semen were not predictable of in vivo or in vitro fertility rates with thawed semen in the Saloia breed.

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