

EFFECT OF SCROTAL TEMPERATURE ON SEMEN CHARACTERISTICS IN MORADA  
NOVA RAMS

EFEITO DA TEMPERATURA ESCROTAL SOBRE A QUALIDADE ESPERMÁTICA EM OVINOS  
MORADA NOVA

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Native sheep breeds have satisfactory reproductive activity throughout the year, but nutritional and climatic factors such as high temperature during the dry period can affect the semen quality, causing a decrease in sperm motility and an increase in the percentage of morphologically abnormal sperm. To protect itself against the deleterious effect of high temperature, the testicle has a complex mechanism of thermoregulation sites. The scrotal skin has an important function in the maintenance of testicular temperature, since it is thin, poor in subcutaneous fat, relatively hairless and has a well-developed blood and lymphatic system, facilitating thermal loss by radiation and evaporation. This study aimed to evaluate the effect of scrotal temperature on sperm quality in Morada Nova sheep. Temperature was measured with a laser thermometer and three classes of average testicular temperature were established: class 1 = 28°C to 31°C, class 2 = 31.01°C to 33°C and class 3 = >33°C. The ejaculate of each animal was collected using an artificial vagina for further evaluation of volume, aspect, whirling, motility and sperm vigor. Then the sperm concentration and morphology were determined by examination of moist slides. Means were compared by the t-test and chi-square test using the SAS software (SAS Inst., Inc., Cary, NC). There was no difference ( $P>0.05$ ) for whirling (3.42±1.08%), concentration/mL ( $4.1 \times 10^9 \pm 2 \times 10^9$ ), total concentration ( $3.9 \times 10^9 \pm 1.1 \times 10^9$ ), coiled tails (42.46±14.48%), decapitation (1.58±3.67%), proximal (0.23±0.66%) and distal protoplasmic drop (0.04±0.2%), large defects (4.13±6.21%) and total defects (46.64±14.22%) in function of scrotal temperature. The variables volume, vigor, motility and piriform heads were different in relation to increased scrotal temperature ( $P<0.05$ ). Sheep with class 3 scrotal temperature had presence of coiled tails and minor defects 7.37% and 7.49% less, respectively, than the sheep with scrotal temperature class 1, but class 2 did not differ from classes 1 and 3. Therefore, it can be concluded that the increase in scrotal temperature can influence semen characteristics.

Table 1. Means and standard deviation of classes of testicular temperature (Temp), volume (Vol), vigor, motility (Mot) and piriform head (Pir)

Temp	Vol	Vigor	Mot (%)	Pir
1	1.00±0.21 a	3.69±0.46 a	83.96±7.88 a	0±0 a
2	0.98±0.25 a	3.29±0.82 b	77.41±14.59 ab	0.41±1.62 ab
3	1.15±0.32 b	3.32±0.97 ab	71.45±23.35 b	1.41±4.00 b

Means followed by different letters in the same column differ statistically ( $P<0.05$ ) by t test and chi-square.

Keywords: climatic factors, ram, sperm.

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