

Dorper rams have been used to obtain crossbreed animals with a better carcass. However, there are reports indicating a higher percentage of sperm defects in Dorper rams compared with native breed rams in Brazilian semi-arid regions. Considering the importance of testicular thermoregulation for sperm quality, the goal of this study was to evaluate the relationship between scrotal surface thermography and sperm parameters in Dorper rams.

Scrotal surface thermographies from 12 purebred Dorper rams were obtained (Thermal imager FLIR® i7, Figure 1), followed by measurement of rectal temperature and semen collection with artificial vagina. The images were evaluated using FLIR tools® software (version 5.13.18.31.2002), to obtain the temperatures of right and left sides and calculate the averages in the regions of scrotum neck (SN), medium portion of the testes (TT), and the epididymis tail (ET), as well as general testicular average (TA) was obtained using the ellipse tool, which allows determining an average temperature of both testes area.

Sperm samples were evaluated regarding morphology using phase-contrast microscopy in a humid chamber, plasma membrane integrity (PMI; eosin-nigrosin) and membrane functionality (HOST; hypoosmotic swelling test). Pearson correlations were determined using R software and $p < 0.05$ was considered significant.

There was a high and positive correlation ($p < 0.001$) among all the thermographic values. Rectal temperature and PMI were not correlated with other parameters evaluated. Other correlations are displayed in Table 1.

Table 1. Correlation between scrotal surface thermographies and sperm parameters in Dorper rams

Parameters evaluated		Correlation	P value
% normal sperm	HOST	$r = 0.6$	0.03
SN	% normal sperm	$r = 0.6$	0.03
ET	% normal sperm	$r = 0.7$	0.02
TA	% normal sperm	$r = 0.6$	0.03
SN	Major sperm defects	$r = -0.7$	0.01
TT	Major sperm defects	$r = -0.6$	0.04
ET	Major sperm defects	$r = -0.7$	0.02
TA	Major sperm defects	$r = -0.6$	0.02

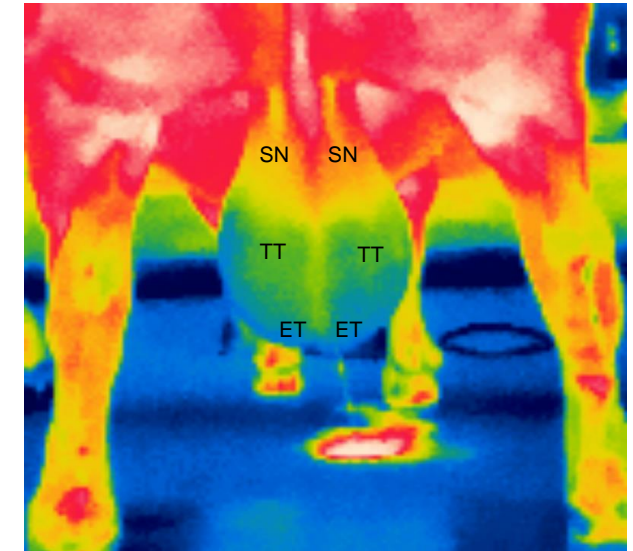


Figure 1. Surface scrotal thermography in a Dorper ram. SN, scrotum neck; TT, medium portion of the testes; ET, epididymis tail.

In conclusion, scrotal surface temperatures in different areas, detected by thermography, are correlated with total and major sperm defects in Dorper rams.