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THE USAGE OF SEMEN SELECTED DIAGNOSTIC TESTS IN ANIMAL'S ASSISTED REPRODUCTION

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In domestic animals, fertility evaluation is of high importance, especially in males used for breeding and artificial insemination (AI). The infertility issues associated with sperm can adversely affect the breeding outcomes of large number of animals. Accurate sperm evaluation is of paramount importance in the application of artificial insemination and assisted reproductive technology. The selection of an appropriate test or a set of tests and parameters is required to accurately determine the fertility of individual animal species.
The basis semen examination of morphology and motility is still fundamental. In the last decade the possibility of using Computer Assisted Semen Analysis (CASA) on a wider scale allowed for better understanding of information from the basic semen analysis as well as evaluate some of its functionalites. CASA allows to describe different kinematic parameters including curvilinear velocity (VCL), straight-line velocity (VSL), average path velocity (VAP), linearity (LIN), straightness (STR), which can correlate with the pregnancy rate in some species as well as determine such important events like hyperactivation.
However, the information is still not complete and some of infertile male remain undiagnosed. Additional laboratory methodes that corelate with the pregnancy rate and life birth rate can take fertility prediction to the next level. The specificity of semen of each species allows, in accordance with the current knowledge, to propose the correct diagnosis of infertility for each. Among the important and performed functional and structural tests with clinical application are the DNA integrity test, acrosom status, acrosom reaction, oxidative stress, plasma membrane integrity and mitochondrial integirty.
Proper selection of diagnostic tools allows for the assessment of male fertility as well as for assessment of the impact of performed procedures (such as cryopreservation) on the quality of the obtained semen. In addition, good diagnostics allows to choose an appropriate method of selection and further management of a male with altered fertility.

Keywords: semen, ART, artificial insemination