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THE ROLE AND IMPORTANCE OF REPRODUCTIVE BIOTECHNOLOGIES IN ANIMAL BIODIVERSITY

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The role and importance of recent biotechnology is constantly growing due to the need to maintain and conservation of biodiversity, as well as increase animal productivity. One of the main biotechnologies of interventions in increasing the improvement of livestock is the continuous improvement of the reproductive properties of the most valuable males, selected from existing livestock based on scientific criteria argued biologically and technologically. Also, the increase of the rhythm of improvement of the herds, foresees the wide application of the reproductive biotechnologies by methods, procedures and operations necessary for the obtaining in optimal conditions, of new generations of animals. The performance of efficient reproductive biotechnologies and their monitoring are imperative for sustainability in any system of breeding and obtaining products of animal origin. Therefore, the existence of obvious challenges for increasing animal productivity in changing environmental conditions can be achieved through conventional breeding biotechnologies. The main effects of the application of reproductive biotechnologies are both in the accelerated improvement of livestock and their health, and in the conditions of reducing the cost price per unit of product. The emergence and use of modern reproductive biotechnologies have opened many avenues for scientific research into the reproductive phenomenon both *in vitro* and *in vivo*. For example, the technology of sex sorting of sperm, which is an advantage in raising animals, to obtain offspring of the desired sex, either male or female. Some biotechnologies also include certain biotechnologies, among which is the induction of estrus and ovulation in physiological off-season, the induction of poliovulation, the synchronization of estrus, the programming of calvings, etc. Animal breeding biotechnologies are currently an area of major importance and performance, a new and promising field of contemporary biology. At the fundamental scientific level with experimental applications, the effects of sperm encapsulation are currently being investigated for a longer preservation of sperm i*n vivo.* This biotechnology has been designed to extend the life of sperm at body temperature and to allow the progressive release of viable sperm over several days in various species, including humans. Moreover, biotechnology research is currently being applied on the transcriptomics of the mRNA study at various stages of development, including spermatogenesis; identifying different biomarkers in semen and predicting fertility; biotechnology of intracytoplasmic sperm injection used to treat male infertility, as well as the application of other biotechnologies in various allied fields such as genomics, proteomics, bioinformatics, etc., which are already used in various fields of reproduction, including various animal species. Therefore, there is a need for a clear policy for the correct application and handling of biotechnologies with a multi-institutional approach to solving animal reproduction problems.

Keywords: biotechnologie, biodiversity, animal breeding, reproduction problems.