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ABSTRACT

The habilitation thesis: "Control of animal reproduction through embryo technologies" presents the most relevant results obtained after the doctoral thesis (2009). During this period, 99 publications were published in the subject area, represented by 10 books and book chapters, 27 ISI articles, of which 14 with IF and 52 BDI.

The scientific articles that I have published have received international visibility, thus, the scientific contribution is materialized by the following indicators: in Google Academic 153 citations with h-index 6, in Scopus 59 citations with 4 h-index, and in Web of Science 74 citations and h-index 4.

The habilitation thesis is structured, according to the criteria recommended by CNATDCU, in 3 sections, as follows: Section I - scientific achievements, in which the main research directions and the results obtained, professional and academic achievements are briefly presented. Section II - career evolution and development plan and Section III - bibliographic references.

Representative results for the evolution of one's own research career are presented in Chapter I and are systematized in three interdisciplinary research directions:

1) Reproductive biotechnologies applied for genetic progress,

2) Sperm quality control,

3) Challenges in ensuring obstetric-gynecological health.

The results are presented in the context of the current state of scientific research in the field of animal reproduction, highlighting the original contributions and their relevance for the field.

The first research direction refers to the main reproductive biotechnologies applied to animals of economic interest for the control of genetic progress. The results were capitalized in this regard, through 23 publications: a practical guide to Biotechnologies, a chapter in an international book and 21 articles (3 ISI, 3 proceeding, 3 abstract in ISI journals and 12 BDI).

The first study described was developed to evaluate to what extent Suffolk sheep, acclimatized in Romania, can be used as a source of genes in obtaining embryos and their transfer to local sheep breeds. The research was designed as a pilot study, and the results demonstrated that the IVD protocol can guarantee the success of ET activity in Suffolk in Romania.

Comparative induction of polyovulation in Suffolk and Ille de France using different conditions, provided valuable insights into in vivo embryo production, improving embryo transfer programs and genetic progress in meat sheep. The Pluset 500mg protocol after 13 days of progesterone, gives a strong polyovulatory response with an average of 29 corpora lutea (CL) and over 75% qualitative embryos.

Several synchronization methods in embryo recipient ewes were studied to recommend the most suitable and efficient option, personalized for the farmer. In Țurcana in the off-season, the best protocol generated an ovulation synchronization of 60% and a conception rate (CR) of 38.80%. In the Țigaie crossbreed in the spring season, the P4-12-eCG-hCG method was the most efficient because it groups ovulation at 84.21% with a CR of 68.7%.

After several protocols and IVD ET sessions, the first calf of the Romanian Indigenous Buffalo obtained ET was obtained and reported internationally.

Other experiments aimed at the production of embryos in dairy (Holstain) and beef (Aberden Angus) cows and through careful ultrasound monitoring of polyovulation and AI with sexed semen, an average of 4.2 blastocysts / flushing and a gestation rate of 53.8% were obtained.

Another research aimed at applying and improving the conception rate through modern AI techniques in species with limited access such as buffaloes. Improvement of the unicornuate FTAI protocol after ultrasound monitoring, were carried out to reduce waste and maximize OvSynch hormonal therapy.

Semen quality control, represents the second research direction that brought me numerous results. The results of the research came after carrying out a postdoctoral fellowship and a research grant, they were published in two monographs in university publishing and 21 articles, of which 6 ISI.

Significant differences in the results provided by CASA were observed depending on the type of analytical chamber used for sperm evaluation. As CASA systems are increasingly used for semen examination, the tendency of certain analytical chambers to underestimate the values may have economic repercussions on the centers.

Another study aimed to establish the microbiological profile of boar semen and to choose the most effective antiseptic measures to limit sperm contamination with bacteria and

fungi in order to control and optimize AI reproduction in pigs. In this regard, the term "mycospermia" was introduced into the literature, referring to fungal contamination of boar semen and its possible effects.

Research on assisted reproduction in the Mangalitsa breed has shown that the obtained reproduction indices guarantee the suitability of this breed for intensive exploitation and the possibility of applying reproductive biotechnologies to these rustic breeds.

For contemporary beekeeping farms, assisted reproduction of bees is one of the most promising desired, and if it is well known and controlled, it leads to increased productivity. This study aimed to test the applicability of collecting semen from drones depending on age and collection technique (55.5%).

In the last research direction: Challenges in ensuring obstetric-gynecological health, the problem of animal infertility is addressed, which poses considerable challenges in ensuring and maintaining reproductive status in animals. Maintaining genital health is essential for the success of assisted reproduction and is the basis for the productivity and sustainability of farms. The research results were presented at various thematic conferences and published in various forms such as: 6 books and monographs, 2 of which are single-authored, 5 ISI-quoted articles, 3 ISI-indexed articles and 23 BDI articles.

In chapters II and III, the most important results of the professional and academic activity, which I have obtained after completing the doctoral thesis and up to the present, are found.

In section II, the plan for the evolution and development of the professional, scientific and academic career is presented, which includes the proposed objectives, as well as possibilities for their implementation.

Section III includes the list of bibliographical references consulted in the preparation of this thesis and the articles included in it.

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