



UNIVERSITY OF LIFE SCIENCES
"KING MIHAI I" FROM Timisoara
**Multidisciplinary Conference on
Sustainable Development**
15 – 16 May 2025



QUANTITY AND QUALITY RESEARCHES OF SPERM IN ORYCTOLAGUS CUNICULUS DEPENDING ON THE SAMPLING FREQUENCY

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Abstract: *This study evaluated the impact of semen collection frequency on sperm quantity and quality in domestic rabbits across several breeds. Results showed that increased collection frequency negatively affected semen parameters. Optimal sperm production and quality were achieved with 2–3 collections per week, supporting this regimen for effective use in artificial insemination and genetic improvement programs.*

• Introduction

Artificial insemination (AI) is a key biotechnology for improving genetic traits in domestic rabbits, especially by enhancing male line selection. Optimizing semen collection frequency is vital for maintaining high sperm quality and quantity. This study investigates how different collection intervals affect semen characteristics in selected rabbit breeds and hybrids.

• Material and method

The study involved *New Zealand White Large Chinchilla*, *Californian*, and F1 hybrid (♀NZW×♂CHL) rabbit males, all at reproductive maturity and optimal body weight. Semen samples were collected at varying frequencies and analyzed using the IVOS. Computerized Sperm Analysis System (Version 12, Hamilton-Thorne Bioscience) to assess volume, concentration, and motility



• Results and discussions

The study demonstrated a clear inverse relationship between semen collection frequency and the quality and quantity of sperm in domestic rabbits. More frequent collections (daily) led to reduced ejaculate volume, sperm concentration, and motility. In contrast, moderate frequencies (2-3 times per week) allowed the reproductive system adequate recovery time, preserving optimal sperm parameters. This balance is crucial in artificial insemination programs, where semen quality directly impacts conception rates and genetic gain.

A major advantage of applying AI with optimal collection schedules is the ability to utilize superior genetics from fewer males, reducing the need for large breeding population while accelerating genetic progress. Moreover, semen can be evaluated, processed, and distributed with precision allowing targeted breeding strategies.

• Conclusions

Semen collection at a frequency of 2–3 times per week provides optimal results for both sperm quantity and quality. This regimen supports the effective use of AI in domestic rabbits, ensuring sustainable genetic improvement through well-managed reproductive performance in breeding males.