A NEW DEVICE AND METHOD FOR SUCCESSFUL VITRIFICATION OF *IN-VITRO* PRODUCED OVINE EMBRYOS

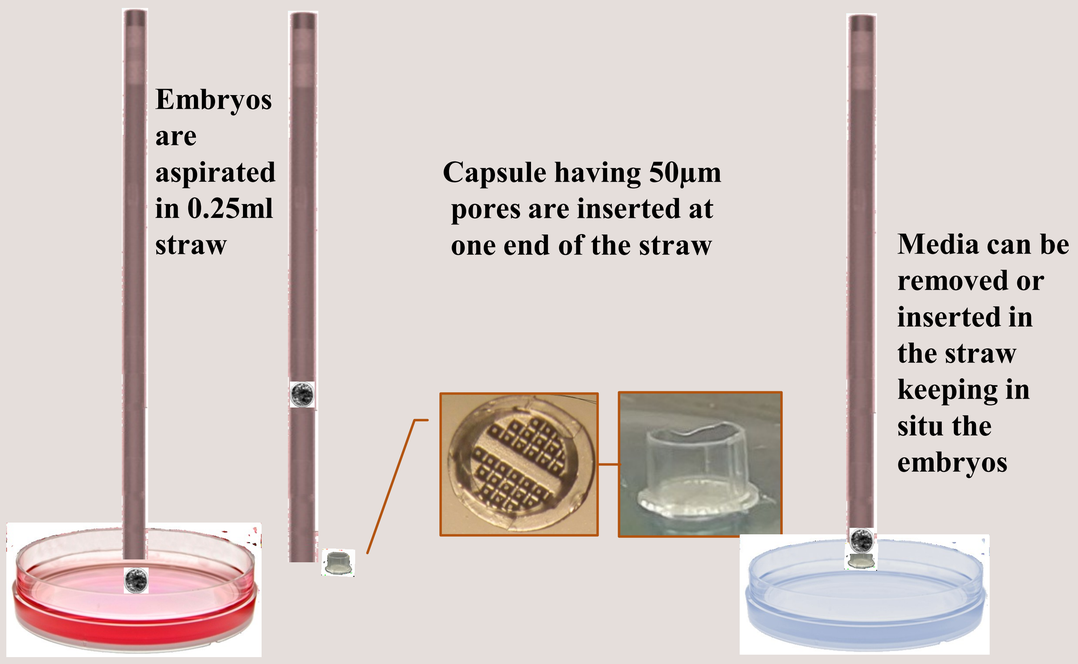
S Ledda[1], J.M. Kelly[2], S.K. Walker[2], Y. Natan[3], A. Arav[3]

[1] Department of Veterinary Medicine, University of Sassari, Italy
[2] Turretfield Research Centre, South Australia Research and Development Institute
[3] FertilSafe Ltd, Ness Ziona, Israel

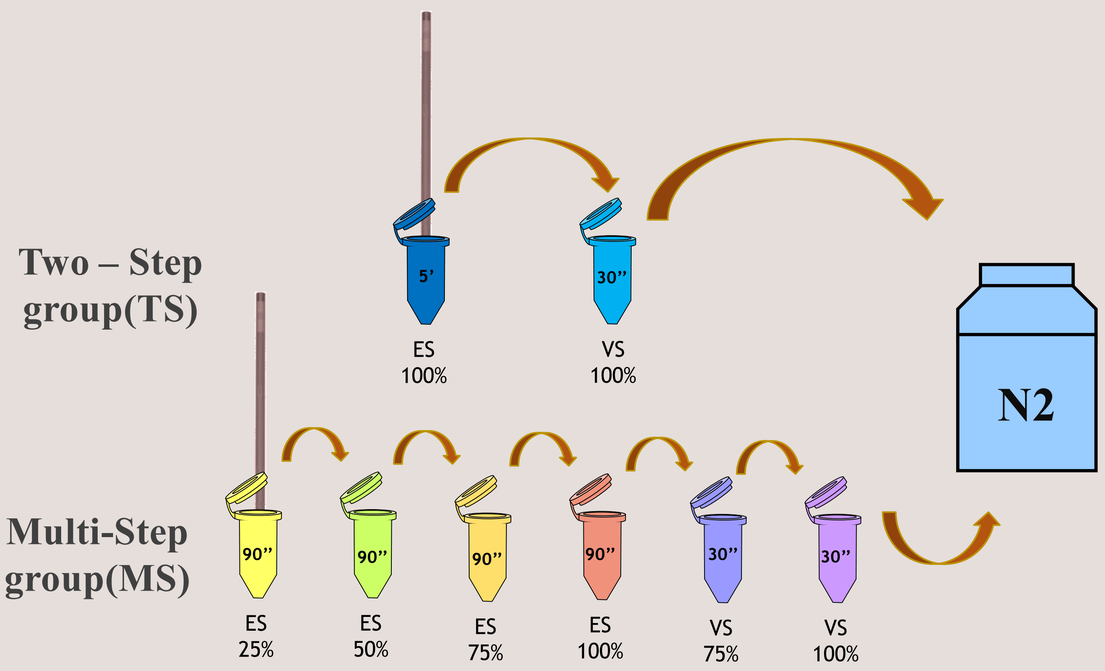
To advance the use of embryo vitrification technology in veterinary practice, we developed a system in which embryo vitrification, warming and dilution can be performed within a straw. An in-straw embryo cryopreservation method reduces the need for equipment and technical skills and can facilitate direct embryo transfer to the uterus.
This study proposes the use of a new device named "Sarah" that is designed to permit all in-straw embryo cryopreservation procedures.

Methods

Ovine *in-vitro* produced embryos (IVP) were vitrified at either early blastocyst stage (EBs, n.65, 6 days post IVF) or fully expanded blastocyst stage (FBs, n.168, 7 days post IVF).

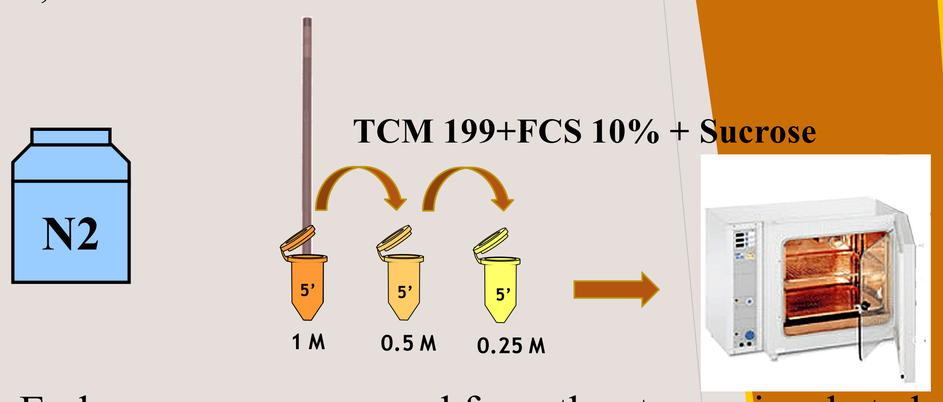


Embryos at each stage (EBs and FBs) were divided into two subgroups and vitrified by one of two methods: Two-Step(TS) and Multi-Step(MS) method.



ES: 7.5% DMSO +7.5% EG + 20% FCS in TCM-199
VS: 18% DMSO +18% EG + 0.5M Trehalose + BSA in TCM-199

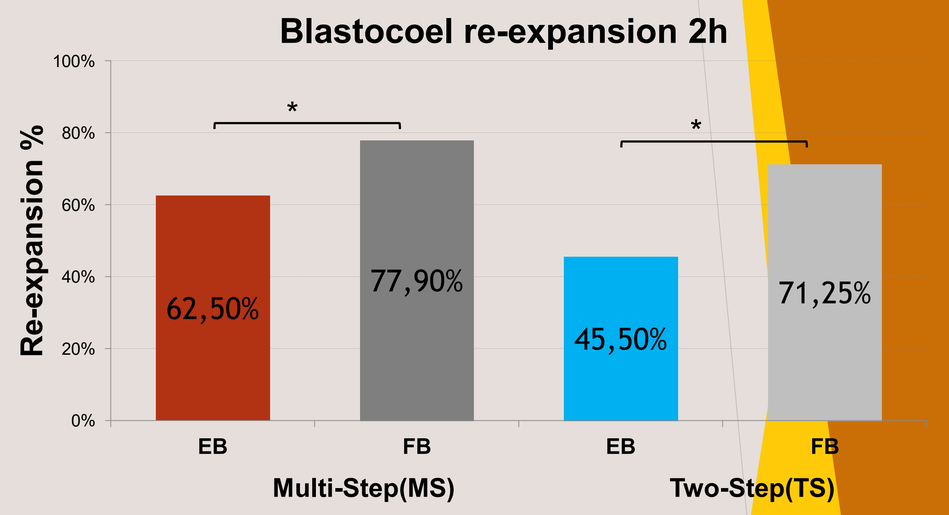
This work was supported by Regione Autonoma della Sardegna – RAS
Progetto Migliovingensar

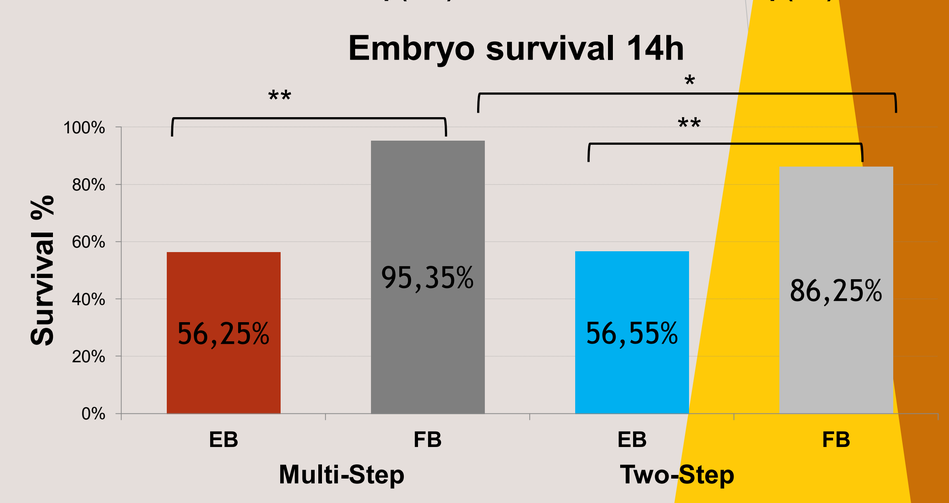


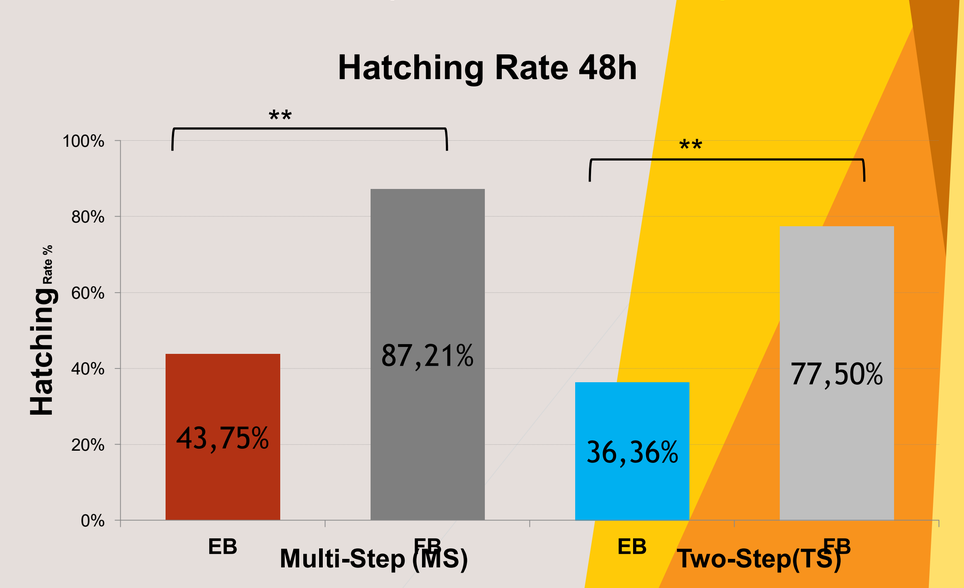
Embryos were recovered from the straws, incubated at 38.6 C in 5% CO_2 in air in TCM 199 + 5% FCS and evaluated for:

- **blastocoel re-expansion 2 h**
- **embryo survival 14 h**
- **hatching rate 48 h**

Results







EB= Early Blastocyst, **FB**= Full Blastocysts. : *= P<0.005 **= P<0.001

Conclusions

In conclusion this study shows that a high survival rate of IVP embryos can be achieved by this new in-straw vitrification and warming device. This method has the potential for use in direct embryo transfer in field conditions.