

The costs of breed reconstruction from cryopreserved material in mammalian livestock species.

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The aim of this work was to compare costs, in the horse, cattle, sheep, swine, and rabbit species, for the creation of gene banks for reconstruction of an extinct breed, using different strategies: embryos-only, embryos in combination with semen, and semen-only. Three cost measures were used: time required for population reconstruction, cost for creation of the gene bank, number of years-keeping-female to reach reconstruction. Semen costs were estimated across four scenarios: the presence or absence of a commercial market for semen, purchase of semen donors, and semen extracted from the epididymus. The number of cells were doubled to take into account the creation of two storage sites. The strategy embryos-only required the shortest time to reach reconstruction. With the strategy embryos + semen, time increased with decreasing proportions of embryos. With semen-only, reconstruction time varied from 2 to 21 years. A high variation of costs was observed across species and strategies, from 360 Euros in the rabbit to 1,092,300 in the horse. In all species, the embryos-only strategy was about 10% more expensive than using 90% embryos + semen. Decreasing the percentage of embryos further diminished costs. The number of years-keeping-female ranged across strategies, from 2 in the rabbit, to a maximum of 12,878 in the horse.

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Organizational structure and information technological support of national gene banks

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Abstract

Implementation of national gene bank collections requires organizational structures of participants in the scheme as well as technical information technology (IT) support for its operation. The former is described for the Dutch gene bank collections while the IT support has been developed as a generic procedure adaptable to other gene bank collections