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Biobanking — Germplasm —

Part 1: Agricultural animal species

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Partie 1: Espèces animales agricoles

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Contents

Page

Foreword ... **iv**
Introduction ... **v**
1 Scope ... **1**
2 Normative references ... **1**
3 Terms and definitions ... **1**
4 General requirements ... **3**
4.1 General ... 3
4.2 Legal and ethical ... 4
4.2.1 General ... 4
4.2.2 Animal welfare ... 4
4.3 Health and safety ... 4
4.3.1 General ... 4
4.3.2 Personnel safety ... 5
4.3.3 Chemical safety ... 5
5 Reception ... **5**
6 Preparation and cryopreservation ... **5**
7 Storage ... **6**
8 Distribution ... **6**
9 Management of information and data ... **7**
Annex A (informative) **Examples of evidence of compliance** ... **8**
Annex B (informative) **Potential elements to consider for storage processes** ... **9**
Annex C (informative) **Germplasm quality control** ... **10**
Bibliography ... **11**

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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A list of all parts in the ISO 16677 series can be found on the ISO website.

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Introduction

The protection of the genetic biodiversity of all living species is globally important. Although there is considerable social, economic and scientific guidance at the national and international levels, including protocols and treaties regulating the movement and development of species, these do not provide practical documents for individuals and organizations to ensure the stability of the future of genetic resource management. Biobanking germplasm is a major component of conserving animal genetic resources.[1] Effectively constructing such biobanks requires the ability to conserve various germplasms through cryopreservation, a robust information technology infrastructure and an understanding of how to evaluate genetic resources to facilitate use of the collection.[2]

A variety of animal genetic resource collections exist worldwide, as can be seen in the Domestic Animal Diversity Information System (DAD-IS) from the Food and Agriculture Organization (FAO) of the United Nations, performing a wide range of biobank activities for the short- and long-term needs of research communities and industry.[3] Animal biobanking is a comprehensive and dynamic process that can span decades of continued sample curation and evaluation of the collection, while projecting future needs[4]. The goal of a germplasm biobank is to provide society with a broad range of genetic options for different types of future use. Within the agricultural sector, the maintenance of sufficient genetic diversity of animal germplasm for future use faces challenges (e.g. low number of national and regional biobanks, animal health restrictions, lack of technology for wild species).[5][6] Therefore, stakeholder engagement can help to determine the scope of biobank activities and associated strategies to support food security.[7]

This document provides guidance for animal germplasm biobanks that can be used for the conservation of animal genetic resources for food and agriculture, and harmonization of strategy to capture the existing genetic diversity for future use.[6][8]

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Biobanking — Germplasm —

Part 1: Agricultural animal species

1 Scope

This document specifies requirements for the biobanking of animal germplasm, e.g. semen, embryos, oocytes, gonads and related tissue, including reception, preparation, quality control, storage and distribution.

This document is applicable to animal species for food and agriculture.

This document is applicable to all organizations performing biobanking of animal biological material and associated data, such as public or private gene banks and germplasm livestock collections centres.

NOTE International, national or regional regulations or requirements, or combinations of them, can also apply to specific topics covered in this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 20387:2018, *Biotechnology — Biobanking — General requirements for biobanking*

ISO/TS 20388:2021, *Biotechnology — Biobanking — Requirements for animal biological material*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 20387 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
agricultural animal species
all animal populations used for food and agricultural production

3.2
associated data
any information affiliated with *biological material* (3.6) including but not limited to research, phenotypic, clinical, epidemiologic, genetic, taxonomic, systematic, geographic location and procedural data

Note 1 to entry: Associated data can include metadata.

[SOURCE: ISO 20387:2018, 3.3, modified — “genetic, taxonomic, systematic, geographic location” and Note 1 to entry added.]

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