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Radio frequency identification of animals — Standardization of injection sites for different animal species —

Part 2: Equine (horses, donkeys and zebras)

PROOF/ÉPREUVE

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Contents

Page

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 documents 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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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organisation (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 19, *Agricultural electronics*.

A list of all parts in the ISO 15639 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document can be used as a basis for legal decisions.

Since 1989 animals around the world started to be identified with implants. At that stage there was no standardised technology and also no standardised method of using these implants.

Since 1996 the ISO standards ISO 11784 and ISO 11785 are in force and many countries around the world are relying on these technical standards. The ISO 11784 and ISO 11785 technologies are used to identify animals with ear tag transponders, bolus transponders, leg tag transponders and injectable transponders. For the identification of Equidae only injectable transponders are relevant. There is no clear guideline where to inject the glass tube transponder. This needs to be standardised for all animal species which are identified with these transponders.

The standardised methods of identifying species allow a quick, reliable and effective reading of animal identification codes and a reliable recovery of the transponder when slaughtering the animals.

This document is relevant for veterinarians, animal owners, and authorities responsible for checking the identification of animals, such as customs offices, veterinary clinics, shelters and slaughterhouses.

The standardisation of the injection sites of animal species is related to different species and several fields of interest.

After decennia of market experience, migration of the transponder is still a problem in most animal species being identified by injectable transponders. Migration is related to several points. The major points are the injection site and the application of the injectable transponder, but the correct injection site can be related to the dimensions (length and diameter) of the injectable transponder. In dogs and cats, this is not a big issue, as the transponders that are commonly used are the smallest readily available. There are several publications that precisely describe the application of injectable transponders in an anatomical way, but there is a demand from the community to have a comprehensive overview of all aspects related to the application and use of injectable transponders for different animal species.

Radio frequency identification of animals — Standardization of injection sites for different animal species —

Part 2: Equine (horses, donkeys and zebras)

1 Scope

This document specifies injectable transponders to all animals included in the Equidae family. It describes two (2) injection sites already in use for official identification in different countries. It pictures the anatomically defined injection point as well as the angle and the deepness of the cannula to be inserted into the body

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological 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
equine
all animals included in the Equidae family including horses, donkeys and zebras and their crosses

3.2
transceiver (reader)
device, according to ISO 11785, used to communicate with both ISO FDX-B and ISO HDX transponders

3.3
transponder
radio frequency identification (RFID) device that transmits its stored information when activated by a transceiver and that can be able to store new information

Note 1 to entry: As defined in ISO 11784 and ISO 11785.

3.4
ISO 11784 transponder
RFID device that transmits its transponder code, according to ISO 11784, when activated by a transceiver according to ISO 11785

3.5
advanced transponder
ISO 14223 transponder, compatible according to ISO 11785, with additional functionality (e.g. anti-collision, sensor measurements) and memory options

3.6
para-veterinarians
non-veterinarians having made a particular training on injecting transponders into animals

4 Abbreviated terms

FDX-B full duplex communication protocol (conforming to ISO 11785)

HDX half duplex communication protocol

RFID radio frequency identification device

5 Identification of animals with injectable transponders

5.1 General

Injectable transponders shall be injected only by veterinarians or para-veterinarians since it is a clinical intervention based on a parenteral via.

A transponder is the link between an animal and information about the animal in a database. It is preferable to register animals in internationally accessible and nationally recognized databases.

Injectable transponders may be injected parenterally in most animal species and theoretically in any site where injection is possible. From a practical point of view, injection sites should meet the following conditions.

a) Animal size and physiological development

To be considered to minimize the effect of the application of the device on the animal's physiology.

b) Migration rate

Migration should be minimized by injecting the transponder in areas with low migration rate.

c) Breakage risk

The bigger the device, the more risk of breakage there is, although this is a very rare phenomenon.

There is evidently more risk in superficial injection sites, such as subcutaneous injection, due to the exposure to impacts, bites, etc.

d) Reading distance required

Reading distance is proportional to the size of the transponder and the antenna of the reader. Very small devices are not registered properly in dynamic reading. It is important to take into consideration that a transponder injected into a foal can get deeper into the body when the animal grows and so the distance between the transponder and the skin can change compared to the distance at the time when the animal has been injected. For a safe reading of the ISO 11784 transponder, it is necessary to use a transceiver according to ISO 11785 with a big antenna and an excellent performance.

The same injection procedures shall also be in force for advanced transponders.

The following are the other factors to be considered.

— Injection site shall entail the minimum risk and stress possible for the animal. Therefore, devices should not be injected in sensitive areas, such as the hoof or the axilla skinfold.

— Areas close to important organs, such as eyelids, should be avoided.

— The injection site shall be easily accessed both for injection and reading of the device. It should be safe for the user to implant and read the device.

— The injection site shall be in a reasonably clean area of the body. Special care should be taken with sites such as the perianal region or the distal portions of the extremities.

— Impact areas, where the animal is subject to frequent traumas, should be avoided.

— The site shall possess anatomic characteristics that facilitate the natural retention of the devices, reducing migration.

— The site shall endeavour to not interfere with general practices of husbandry or generally accepted equipment used on equines.

5.2 Equine injection sites

5.2.1 General

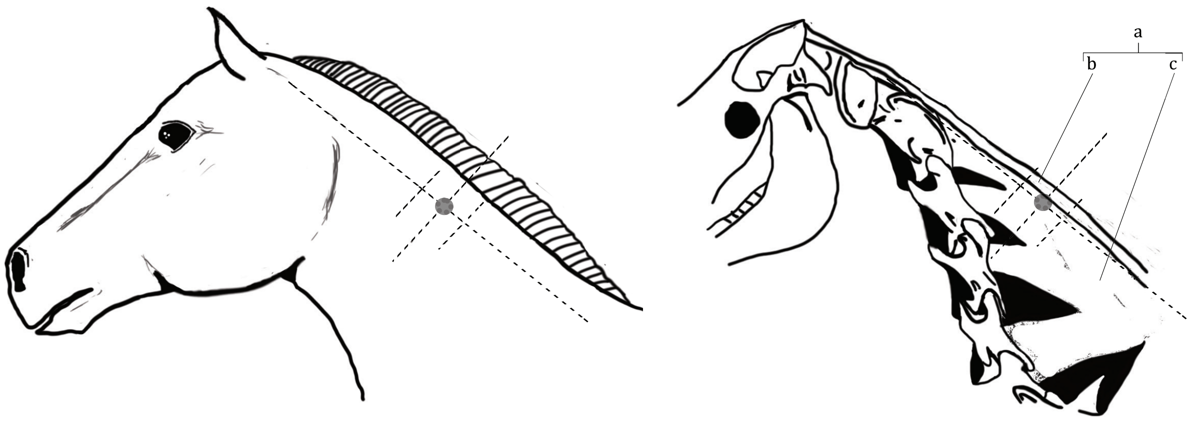
The transponders shall be put parenterally in the equine. The following are two recognized implantation sites in use worldwide. The general protocol for the application of injectable transponders in equine is described in Annex A.

5.2.2 Nuchal ligament

Injection in or around the nuchal ligament area is the most widespread injection site for equine in the world, although the lack of a standard defining precisely the injection site has led to many different variations in the site that may cause reading mistakes and recovery issues at the slaughterhouses.

Therefore, a precise description of the injection site and procedure is described as follows.

Insert the transponder halfway (equidistant) between the ear and the highest point of the withers in the imaginary midline of the nuchal ligament and insert the cannula perpendicularly in a deepness of 25 mm (2/3 of the cannula length) for foals to 35 mm (complete cannula length) for adult horses, depending on breed and age and push the transponder so that it will be positioned in or around the funiculus nuchae (the upper part of the ligamentum nuchae). See Figure 1.



Key

a nuchal ligament

b funicular part

c lamellar part

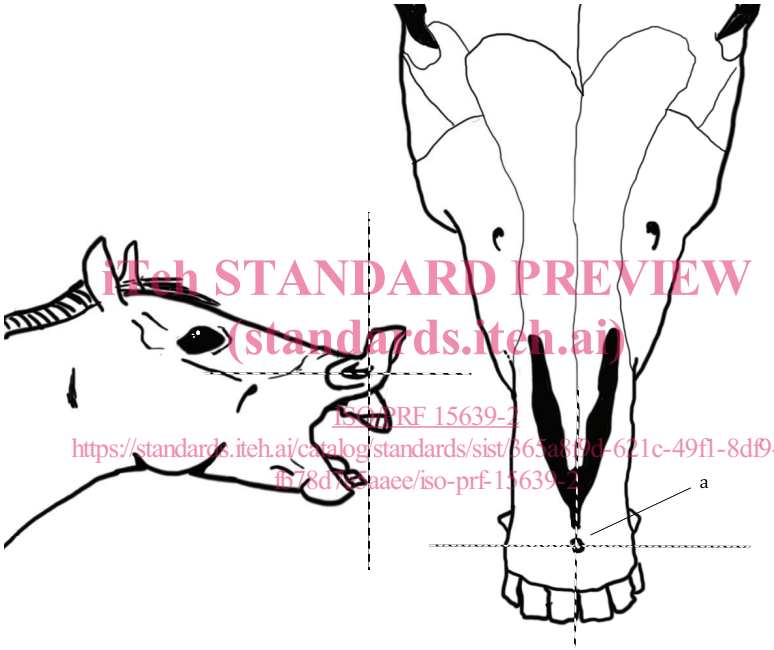
Figure 1 — Nuchal ligament injection site diagram

5.2.3 Nasolabial

Place the non-dominant hand on the equine's upper lip and fold the upper lip at a 90° angle over the fingers. Place the thumb of this hand on the inside (mucosal) surface of the upper lip to ensure the lip is securely in hand.

When ready to implant, place the tip of the cannula at the midline of the inner upper lip approximately 1,5 cm to 2 cm (approximately ¾ inch to 1 inch) above the junction between the labial and gingival mucosa. This region is approximately at the dorsal extent of the upper labial frenulum (with the lip folded dorsally) directly above and at midline on a line extending upward between the upper central incisor teeth (101 and 201, Modified Triadan System).

The long axis of the syringe should be canted toward the lip at an angle slightly off parallel to the exposed plane of the upper incisor teeth. This is to ensure you do not hit the underlying bone of the skull (rostral incisive bone) during implantation. The cannula should easily enter the upper lip without resistance. Be prepared for the equine to move or raise its head during this step. See Figure 2.



Key

a intrincisive canal

Figure 2 — Nasolabial injection site diagram

NOTE The intrincisive canal is only described for reference purposes, it is not intended to be used as injection site.

