WOAH Standards on vector surveillance

Webinar on
Vector surveillance and control for AHS in Asia and the Pacific

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World Organisation for Animal Health
Founded as OIE

Organisation mondiale de la santé animale
Fondée en tant qu'OIE

Organización Mundial de Sanidad Animal
Fundada como OIE

WOAH international standards

WOAH establishes standards for the improvement of animal health and welfare and veterinary public health worldwide, including the prevention of disease spread through international trade of animals and animal products.

Ensuring transparency and **enhancing knowledge** of the **worldwide animal health situation.**

Development of **national policies and national sanitary systems**

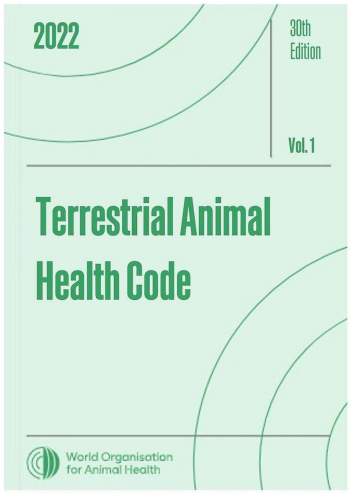
Assessment of potential trading partners and **their health situation**

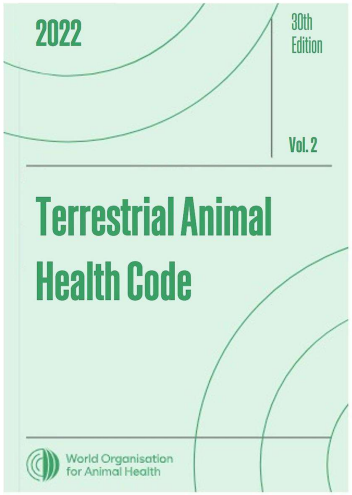
Drafting of **import sanitary measures**, according to the commodity and their origin

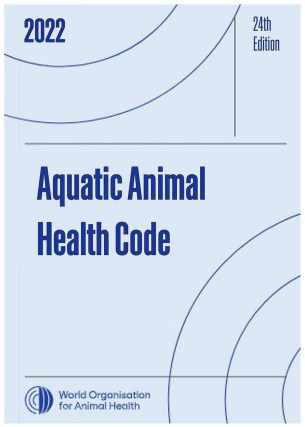
Veterinary certification and **export/import procedures**

WOAH international standards

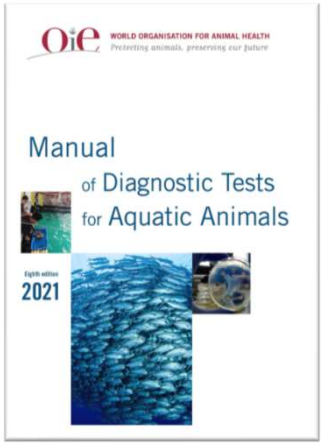
Codes



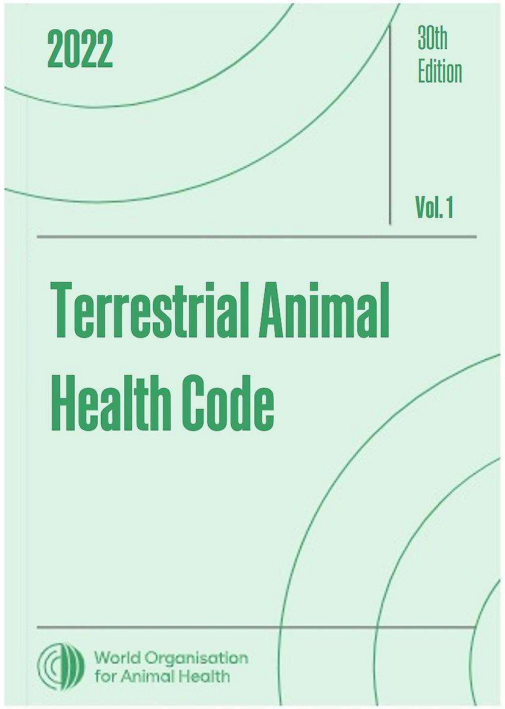




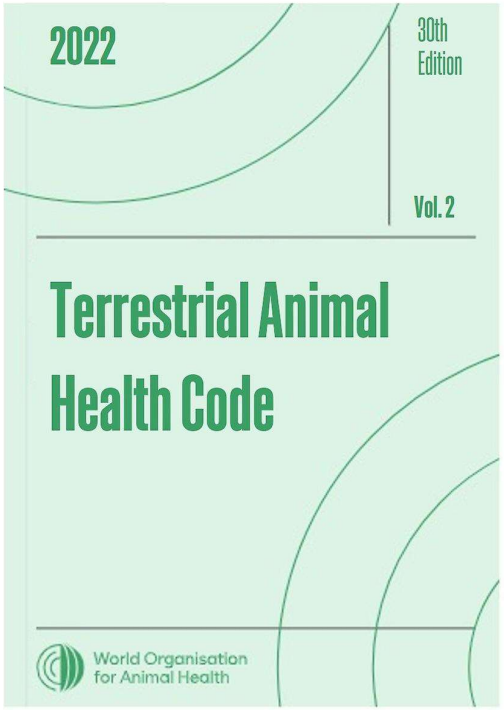
Manuals



Terrestrial Code



Volume I
User's guide and Horizontal chapters



Volume II
Disease-specific chapters

- New version every year
- Latest version publicly available on the WOAH website
- Previous editions are also available

Terrestrial Code - content

Volume I: Horizontal chapters

- User's Guide
- Glossary
- Animal disease diagnosis, surveillance and notification
- Risk analysis
- Quality of Veterinary Services
- Disease prevention and control
- Trade measures, import-export procedures and veterinary certification
- Veterinary public health
- Animal welfare

Volume II: Disease-specific chapters

- **Definition of infection/ infestation** and specific epidemiological considerations
- **Safe commodities** where appropriate
  - Safe commodities = based on absence of the pathogenic agent in the traded commodity OR inactivation by processing or treatment that the commodity has undergone
  - Importing countries should not apply trade restrictions to safe commodities with respect to the pathogenic agent concerned
- **Determination of the animal health status** of a country, zone or compartment
  - Official status recognition
  - Self declaration of animal health status
- **Recommendations on safe trade** for live animals, genetic material, other products of animal origin (meat, milk, eggs, skins, etc.)
- **Specific management** of commodities, e.g.
  - Recommendations on inactivation
  - Vector-protection during transport
- **Recommendations on surveillance**
  - Surveillance strategies specific to infection/ infestation
  - Link to Chapter 1.4 and 1.5 on animal health and vector surveillance

Specific WOAH Standards

Terrestrial Code Chapter 1.5. Surveillance for arthropod vectors of animal diseases

SECTION 1. ANIMAL DISEASE DIAGNOSIS, SURVEILLANCE AND NOTIFICATION

Chapter 1.1. Notification of diseases and provision of epidemiological information

Chapter 1.2. Criteria for the inclusion in the OIE list

Chapter 1.3. Diseases, infections and infestations listed by the OIE

Chapter 1.4. Animal health surveillance

Chapter 1.5. Surveillance for arthropod vectors of animal diseases

Chapter 1.6. Procedures for official recognition of AH status, by the OIE

Chapter 1.7.-1.12. Application for official recognition by the OIE of free status for …

Terrestrial Code

Chapter 1.5. Surveillance for arthropod vectors of animal diseases

CHAPTER 1.5.

SURVEILLANCE FOR ARTHROPOD VECTORS OF ANIMAL DISEASES

Article 1.5.1.

Introduction

Vector-borne diseases are of increasing importance economically and to human and animal health.

Environmental (including climate change), sociological and economical changes may affect the distribution and impact of these diseases.

Improved understanding of the distribution and population dynamics of the *vectors* is a key element for assessing and managing the *risks* associated with *vector*-borne animal and zoonotic diseases.

The *Terrestrial Code* contains recommendations for the *surveillance* of several *vector*-borne diseases and general recommendations for animal health *surveillance*.

The need has arisen to complement these general recommendations on *surveillance* with advice on the *surveillance* for *vectors* themselves. This chapter only addresses *surveillance* for arthropod *vectors*.

For the purpose of trade, it should be noted that there is no conclusive relationship between the presence of *vectors* and the disease status of a country/*zone*, and also that the apparent absence of *vectors* does not by itself confirm *vector*-free status.

A decision tree for *vector surveillance* is presented in Figure 1.

Article 1.5.2.

First adopted in 2009;

Most recent update adopted in 2010.

Chapter 1.5.

Article 1.5.1. Introduction

(…)

- The Terrestrial Code contains recommendations for the surveillance of several vector-borne diseases and general recommendations for animal health surveillance.
- The need has arisen to complement these general recommendations on surveillance with advice on the surveillance for vectors themselves. This chapter only addresses surveillance for arthropod vectors.
- For the purpose of trade, it should be noted that there is no conclusive relationship between the presence of vectors and the disease status of a country/zone, and also that the apparent absence of vectors does not by itself confirm vector-free status.

(…)

Chapter 1.5.

Article 1.5.2. Objectives

(…)

1) **gathering up-to-date information** on the spatial and temporal distribution and abundance of vectors of the arthropod-borne listed diseases and emerging diseases;

2) **monitoring changes** in the spatial and temporal distribution and abundance of these vectors;

3) collecting relevant data to **inform risk assessment** (including vector competency) and risk management of these vector-borne diseases;

4) **detecting the presence of specific vectors or confirming their absence**;

5) understanding **pathways of entry** for vectors and vector-borne pathogenic agents.

(…)

Chapter 1.5.

Article 1.5.3. Sampling methodology

(…) **1) Sampling plan**

c) The sampling plan should consider the following:

i) the **biology and ecology of the vectors**,

ii) the presence, distribution and abundance of the **vectors' host animal populations**,

iii) the **environmental**, climatic, ecological and topographic conditions of relevance to **vector ecology**,

iv) the need for a risk assessment to indicate the **areas at highest risk of Introduction** of a vector that is unlikely to be present.

d) Sampling should be aimed at:

i) establishing **vector presence or confirming vector absence** in country or zone (…)

ii) **describing** the **distribution** of the **vectors** within the country or zone,

iii) providing additional information on vector density and spatial/temporal variability,

iv) **early detection** of vectors or vector-borne pathogenic agents in areas with risks of entry and establishment.

(…) sampling plan design…

Chapter 1.5.

Article 1.5.3. Sampling methodology

(…) 2) Sampling methods

Many sampling methods have been developed for the capture of vector arthropods, and these differ in accordance with the disease/vector system under consideration.

a) The collection methods used should **be adapted as required to ensure reasonable confidence of collecting the vectors of concern**.

b) Collection methods should obtain the various developmental stages (such as eggs, larvae, nymphs, adults) and adult age categories, as appropriate to the species in question and the objectives of the surveillance. (…)

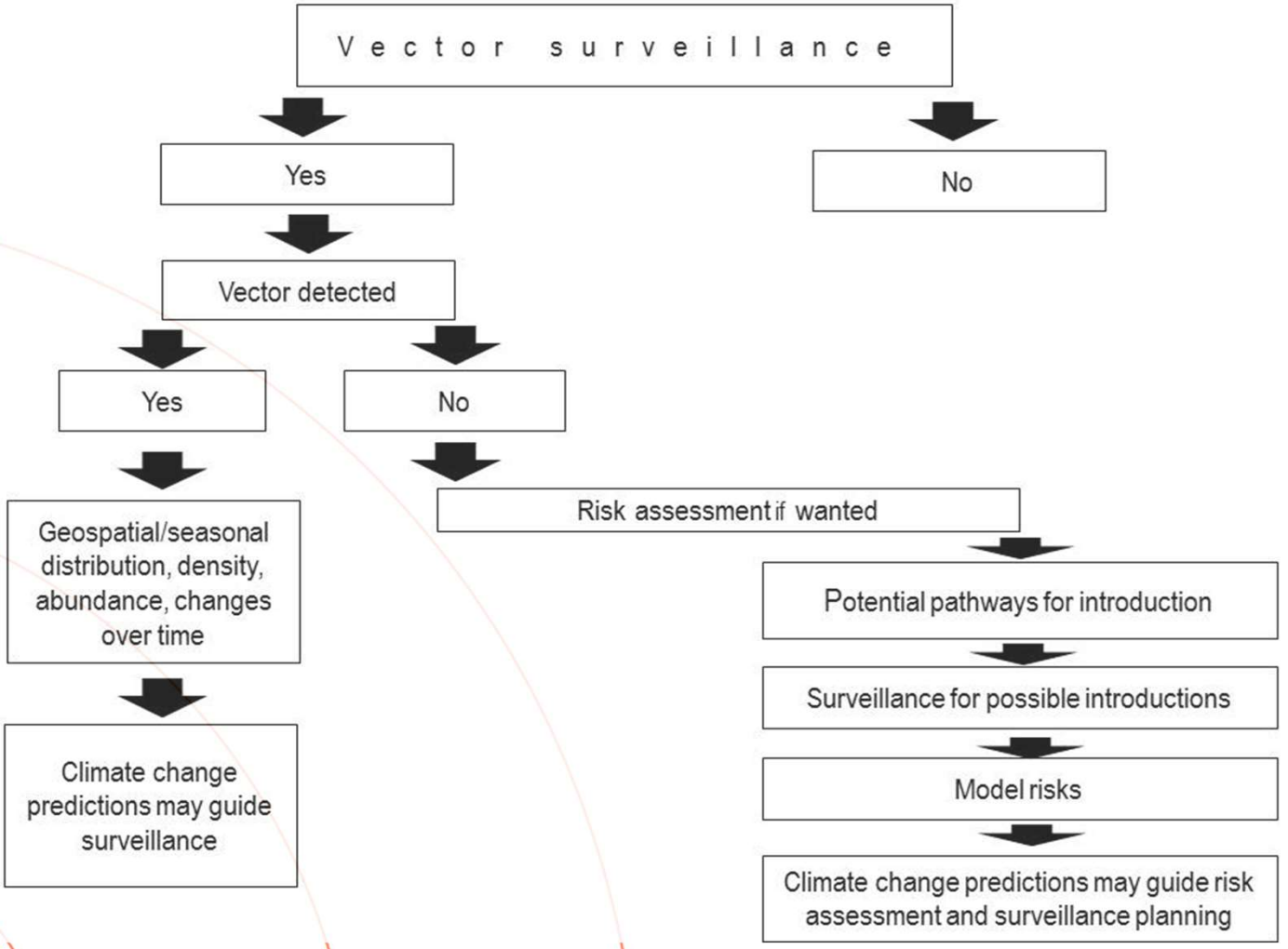
c) Different collection methods may be required to obtain samples from a single vector species, depending on the life stage or place of capture (…)

d) (…) Where the purpose of sampling is to detect or isolate pathogenic agents, specific protocols should be followed to ensure the samples are suitable for these assays.

3) Data management, analysis and interpretation

- Data management and analytical methodologies should be done in accordance with Ch.1.4

Chapter 1.5.


Vector surveillance
Yes
No
Vector detected
Yes
No
Geospatial/seasonal distribution, density, abundance, changes over time
Climate change predictions may guide surveillance
Risk assessment if wanted
Potential pathways for introduction
Surveillance for possible introductions
Model risks
Climate change predictions may guide risk assessment and surveillance planning

Volume II: Disease-specific chapters

1. Definition of infection/ infestation, its occurrence and specific epidemiological considerations (including relevant vectors)
2. Determination of the animal health status of a country, zone or compartment
3. Recommendations on safe trade for live animals, genetic material, other products of animal origin (meat, milk, eggs, skins, etc.)
4. Recommendations on surveillance

Chapter 12.1.

Infection with African horse sickness virus

Article 12.1.11. Introduction to surveillance

An important component of AHSV epidemiology is **vectorial capacity** which provides a measure of disease risk that incorporates vector competence, abundance, seasonal incidence, biting rates, survival rates and the extrinsic incubation period. However, methods and tools for measuring some of **these vector factors remain to be developed, particularly in a field contex**t.

Article 12.1.12. General conditions and methods for surveillance

Article 12.1.13. Surveillance strategies…

Chapter 12.1.

Infection with African horse sickness virus

Article 12.1.13. Surveillance strategies

5) Vector surveillance

1. AHSV is transmitted between equine hosts by species of ***Culicoides*** which vary across the world. It is therefore important to be able **to identify potential *vector* species** accurately although many such species are closely related and difficult to differentiate with certainty.
2. *Vector surveillance* is aimed at **demonstrating the absence** of *vectors* or **defining** high, medium and **low-risk** areas and local **details of seasonality** by determining the various species present in an area, their respective seasonal occurrence, and abundance. *Vector surveillance* has particular relevance to potential **areas of spread**. Long term *surveillance* can also be used to assess *vector* abatement measures or to confirm continued absence of *vectors*.
3. The most effective way of gathering this information should take account of the biology and behavioural characteristics of **the local *vector* species of *Culicoides*** and may include the use of Onderstepoort-type light traps or similar, operated from dusk to dawn in locations adjacent to equids.
4. *Vector surveillance* should be based on scientific sampling techniques. The choice of the number and types of traps to be used in *vector surveillance* and the frequency of their use should take into account the size and ecological characteristics of the area to be surveyed.
5. The operation of *vector surveillance* sites at the same locations as sentinel animals is advisable.
6. **The use of a *vector surveillance* system to detect the presence of circulating viruses is not recommended** as a routine procedure as the typically low *vector infection* rates mean that such detections can be rare. **Animal-based *surveillance* strategies are preferred to detect virus transmission**.

Using Terrestrial Code Standards on Vector Surveillance

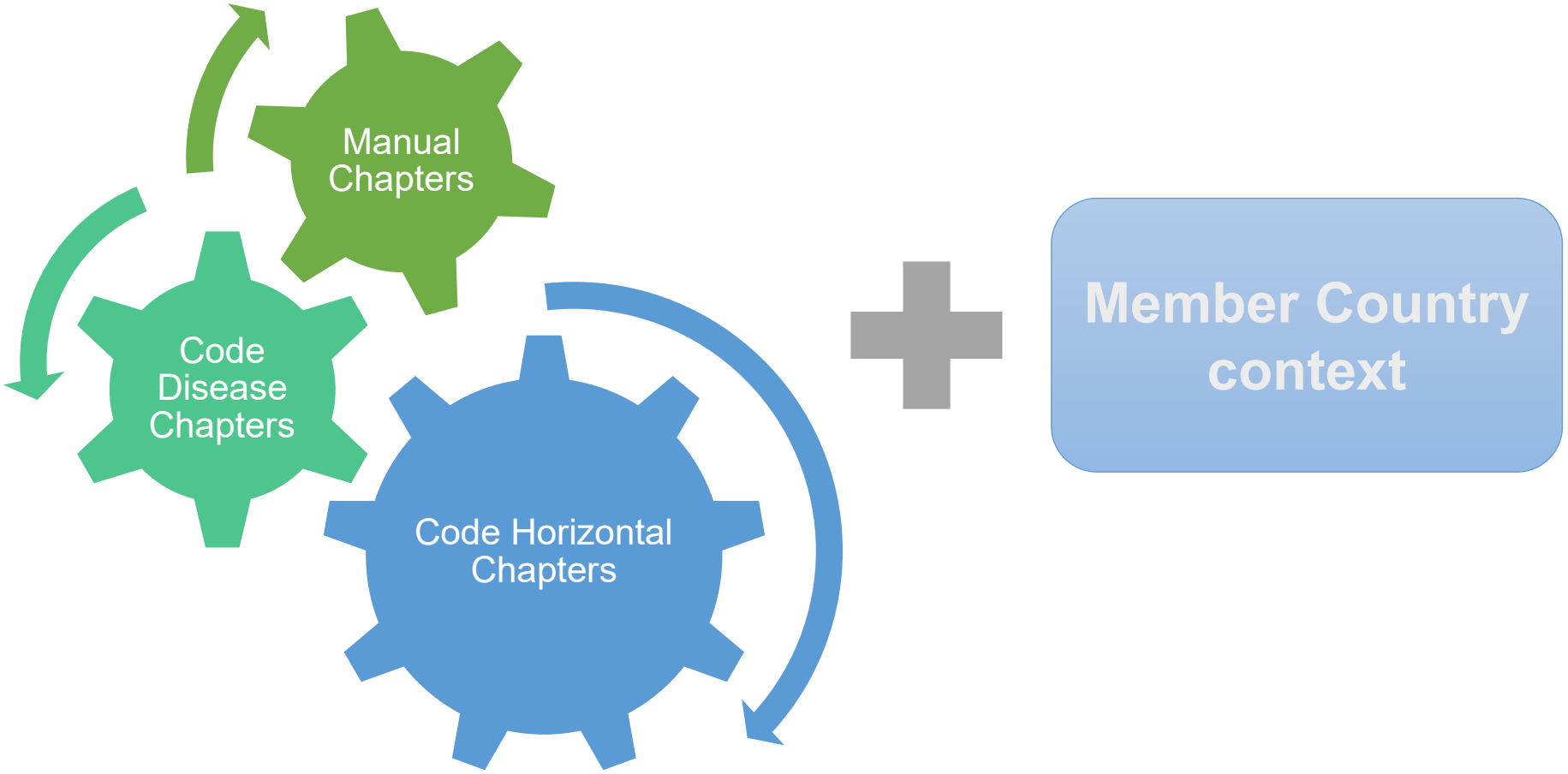
Chapter 1.4. Animal health surveillance
Chapter 1.5. Surveillance for arthropod vectors of animal diseases

Chapter 4.4. Zoning and compartmentalisation
Chapter 4.18. Vaccination
Chapter 4.19. Official control programmes for listed and emerging diseases

Volume II: Disease-specific chapters

Chapter 1.6. Procedures for official recognition of AH status, by the OIE
Chapter 1.7.-1.12. Application for official recognition by the OIE of free status for …

Using the WOAH international standards



Thank you

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