Requirements of the *Terrestrial Code* for PPR surveillance

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The PPR Global Control and Eradication Strategy (GCES)

- Adopted during the FAO/OIE International
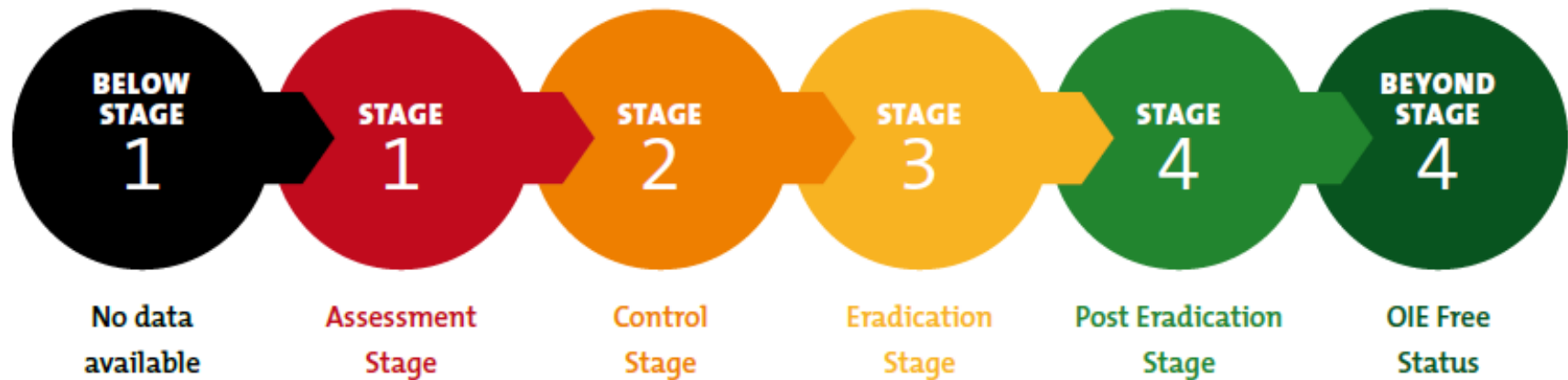
Conference, Abidjan, April 2015

Specific Objectives:

- **The eradication of PPR by 2030**

- Reinforcing Veterinary Services

- Improving animal health globally by reducing the impact of other major infectious diseases of small ruminants

- Details in the GCES OIE and FAO booklet: *http://www.fao.org/3/a-i4460e.pdf*
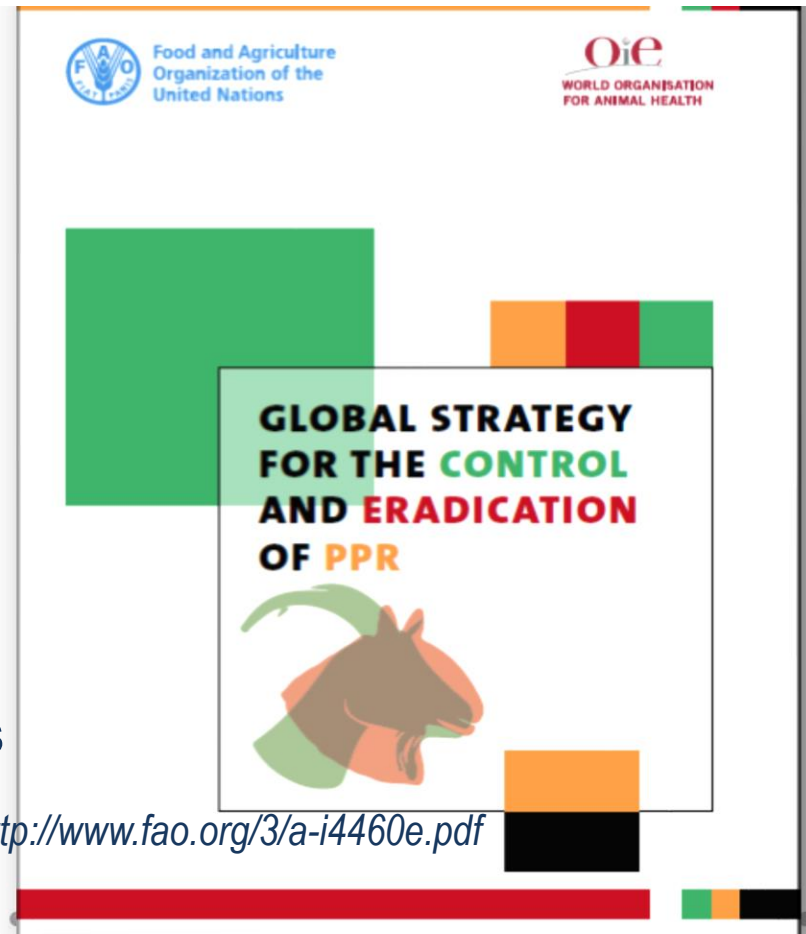
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Step-wise approach of GCES to eradication at national level:

| BELOW STAGE 1	STAGE 1	STAGE 2	STAGE 3	STAGE 4	BEYOND STAGE 4
No data available	Assessment Stage	Control Stage	Eradication Stage	Post Eradication Stage	OIE Free Status

The Stages correspond to a combination of decreasing levels of epidemiological risks and increasing levels of prevention and control

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Step-wise approach of GCES to eradication at national level:

Details in the GCES OIE and FAO booklet: http://www.fao.org/3/a-i4460e.pdf
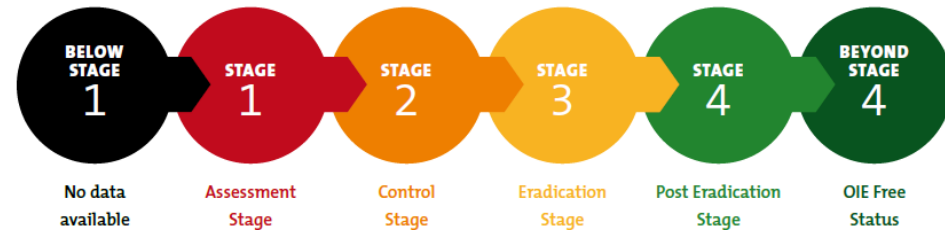
- Below stage 1: No data available
- Stage 1: Assessment stage. Duration 1 - 3 years:
- Stage 2: Control stage. Duration 2 - 5 years
- Stage 3: Eradication stage. Duration 2 – 5 years
- Stage 4: Post eradication stage. Duration 1- 3 years
- Beyond stage 4: OIE free status

Each stage will be assessed by a technical plan

- National assessment plan
- Control plan
- Eradication plan
- Dossier showing :
  -vaccination is stopped,
  - evidence no virus circulation
  - ready to apply for official OIE PPR-free status recognition

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A surveillance strategy in place in support to an OIE endorsed official control program for PPR:

Principles and guide for surveillance in:

Chapters and articles of the OIE Terrestrial Code

to follow by member countries – OIE Manual

- Establishing and then strengthening surveillance for PPR will be an absolute priority to achieve the step-wise approach of the official control program to attain free status for PPR

    - Allowing the early detection of the disease through clinical surveillance suggestive of PPR, recorded and quantified

    - Laboratory diagnosis to complete clinical symptoms observed

    - Control measures to which the animals are subject as soon as there is confirmation (prophylactic measures, quarantines, sanitary cordon etc..)

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A surveillance strategy in place in support to an OIE endorsed official control program for PPR:

Horizontal as well as disease specific

Chapters and articles of the OIE Terrestrial Code

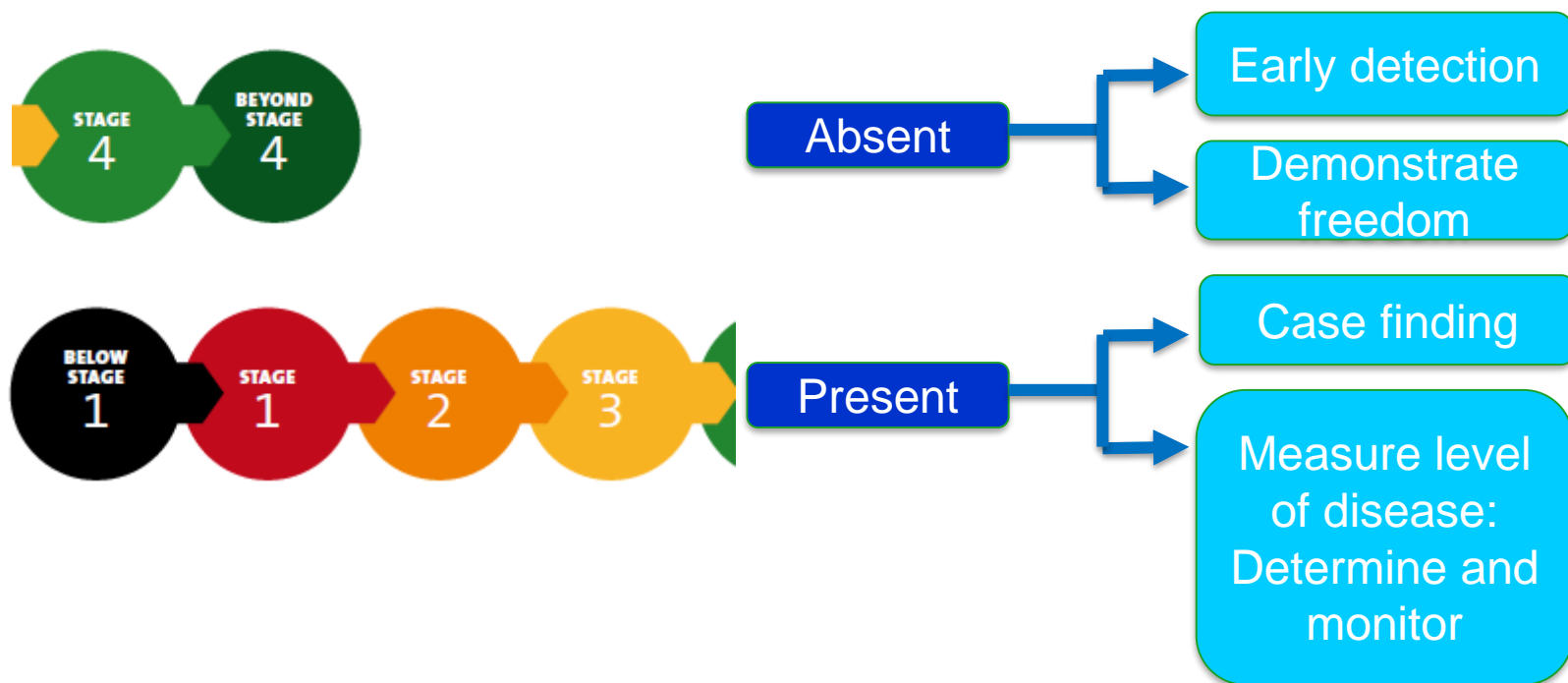*to follow by member countries – OIE Manual*

Countries should submit dossiers to the OIE addressing concisely how PPR surveillance system is in place in compliance with the Terrestrial Code:

- Meant to achieve?
- How?
- By whom? Etc…

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Surveillance strategies employed in support to an OIE endorsed official control program for PPR:

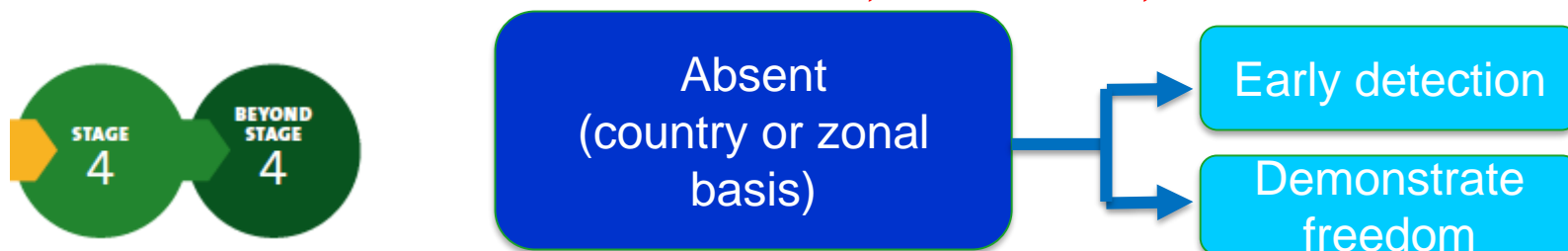✓ Meant to?: *Code, Chapter 1.4/1.12/Article 14.7.27– 14.7.34*

Absent
- Early detection
- Demonstrate freedom

Present
- Case finding
- Measure level of disease: Determine and monitor

BEYOND STAGE 4 | STAGE 4

BELOW STAGE 1 | STAGE 1 | STAGE 2 | STAGE 3

Context of official free status recognition

✓ Meant to?:*Code Article 1.4.6, 1.12.1&2,14.7.28 - 14.7.33*

STAGE 4 — **BEYOND STAGE 4**

| Absent (country or zonal basis) | → Early detection |
| | → Demonstrate freedom |

▪**Demonstrate freedom:**

  ▪ Surveillance system in place showing that the disease is not present (with a specified probability). History.

  ▪ Vet services have to have a good understanding of risk factors that influence the disease.

  ▪ It is possible to design risk-based surveillance, in which high-risk populations and areas are included in the surveillance

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Context of official free status recognition

✓ Meant to?:*Code Article 1.4.6, 1.12.1&2,14.7.28 - 14.7.33*

STAGE 4 — **BEYOND STAGE 4**

Absent (country or zonal basis)
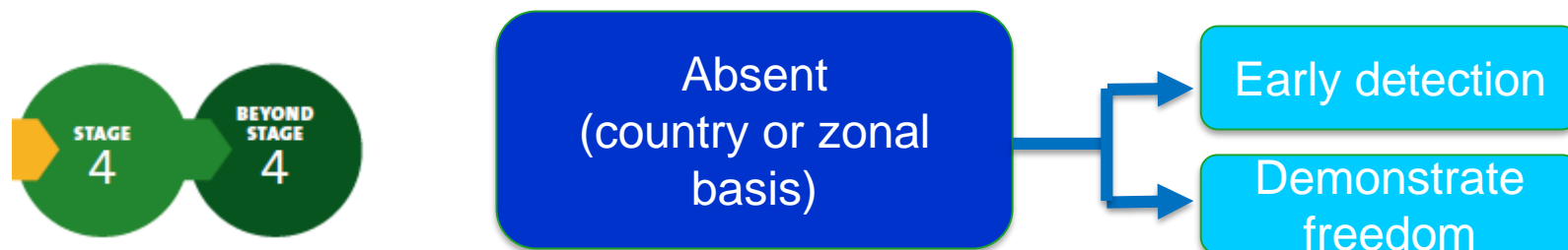
→ Early detection

→ Demonstrate freedom

▪ Early warning system, some examples:

- ▪ Early capacity to detect, sample, and confirm;
- ▪ Early recognition of a disease incursion throughout the entire production, marketing and processing chain etc..
- ▪ Communication SOPs for early warnings
- ▪ Early detection = Early response. The cost and effectiveness of control of a disease is normally directly related to the delay in detection of the outbreak.

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Context of official free status recognition

✓ Meant to?: *Code Article 1.4.6, 1.12.1&2,14.7.28 - 14.7.33*

STAGE 4 • BEYOND STAGE 4

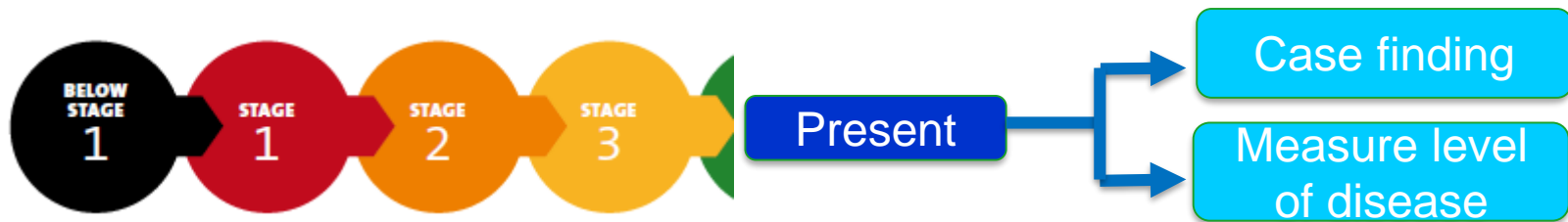**Absent (country or zonal basis)** → **Early detection** / **Demonstrate freedom**

■Early warning system, some examples:

■ Procedures for the rapid collection and transport of samples to a laboratory for PPR diagnosis; Sampling and diagnosis kits and other equipment available

■Trained Field, Veterinary and Laboratory personnel.

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In support to an OIE endorsed official control program for PPR:
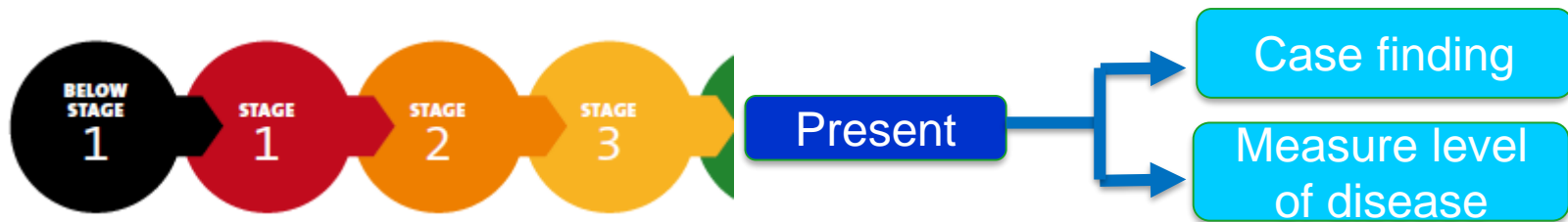
✓ Meant to?: *Code Article 1.4.1-5, 1.12.3,14.7.34*

- Measure level of disease.
- Monitoring program effectiveness
- Efficient case finding.
- Based on selective and clear priority settings

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In support to an OIE endorsed official control program for PPR:

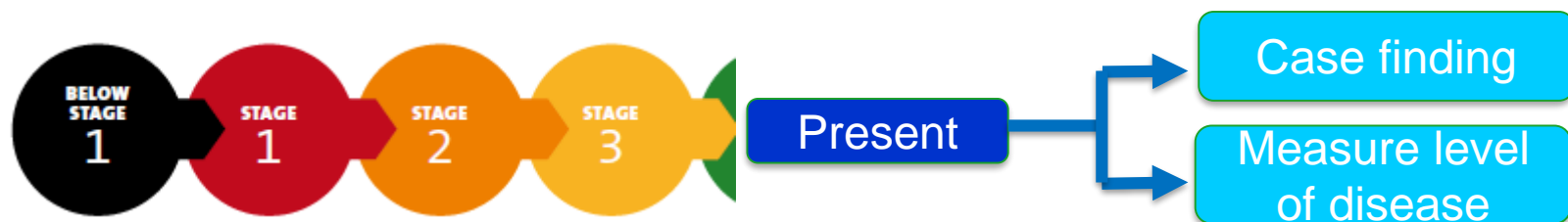✓ Meant to?: *Code Article 1.4.1-5, 1.12.3,14.7.34*

- Priority settings, some examples:
  - Implement surveillance to measure the level of disease
  - Epidemiological situation (country, zones and risk from neighboring countries). Provide maps of disease distribution, animal density, movements.
  - Highlight the current knowledge and gaps.

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In support to an OIE endorsed official control program for PPR:

✓ Meant to?: *Code Article 1.4.1-5, 1.12.3,14.7.34*

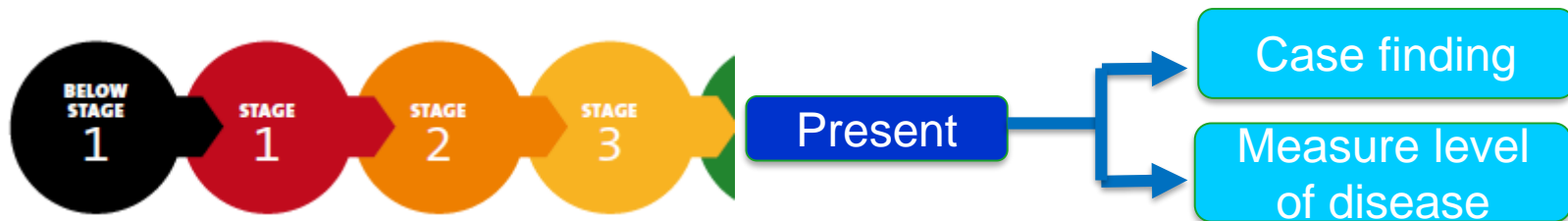BELOW STAGE 1 → STAGE 1 → STAGE 2 → STAGE 3 → Present → Case finding / Measure level of disease

▪Monitoring program effectiveness (cost effectiveness, impact etc..), includes:

- Describe and assess effectiveness of vaccination program,
  - population immunity before and after vaccination;
  - Impact of the program on the reduction in number of outbreaks and their distribution
- Procedures in place to prevent the introduction of PPR

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Surveillance step-wise approach

In support to an OIE endorsed official control program for PPR:

✓ Meant to?: *Code Article 1.4.1-5, 1.12.3,14.7.34*

BELOW STAGE 1 → **STAGE 1** → **STAGE 2** → **STAGE 3** → **Present** → Case finding / Measure level of disease

- **Efficient case finding activities:**
  - To remove all infected animals from the population
  - Appropriate case definition for evidence of infection or immune status
  - Effectiveness of case finding surveillance depends on a range of factors from field examination to laboratory testing
    - Performance: sensitivity, specificity and predictive values will have an impact on the conclusions from surveillance.

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A surveillance strategy in place :

✓ How?:*Article1.4.3,1.12.1-3, 14.7.29; OIE Manual, Chapter 2.7.10. – Peste des petits ruminants*

▪ Surveillance based on different data sources and ways:

▪ Most commonly used : clinical/virological/serological surveillance

- Clinical surveillance supported by all necessary epidemiological information and also

- Virological and serological (vaccine/infection) surveillance to confirm or rule out field investigations.

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Procedure for specimen collection: *Article 1.4.5, 14.7.29; OIE Manual, Chapter 2.7.10. – Peste des petits ruminants*

	Uninfected/unvaccinated	Infected		Recovered/vaccinated
Status			Post-mortem	
Samples to collect	Serum	Conjunctival, buccal cavity, nasal and rectal swabs, whole blood in EDTA	LN and affected sections of the alimentary tract omasum, duodenum, ileum, caecum, lung, spleen*	Serum
Tests to perform	Antibody ELISA VNT	Isolation VERO-SLAM	Gene and Antigen RT-PCR, ICE, field test, Immunostaining	Antibody ELISA VNT
Test results	NEGATIVE Absence of Ab		POSITIVE by One or several tests	POSITIVE Presence of Ab

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A surveillance strategy in place :

✓ How?:*Chapter1.4., 1.12.*

- Surveillance strategy (<u>active</u>/versus passive),

- Based on systematic/<u>targeted</u>/randomized sampling

- Active surveillance normally takes the form of a structured <u>survey</u>, designed to collect specific information to answer a specific question.

  - Measuring the level of disease

  - Identify changes in the disease over time

  - Detect differences in disease between regions, etc…

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A surveillance strategy in place :

✓ How?: *Chapter1.4., 1.12.*

- Surveys: Quick guide
  - 1. Identify the purpose of the survey and the question that is being asked.
  - 2. Identify the population of interest. Determine the first stage sampling unit (epidemiological unit).
  - 3. Obtain or generate a sampling frame. This is a list of all the villages or farms for the population of interest.
  - 4. Choose the right survey design for calculating the appropriate sample size, (one or two – stage sampling).

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A surveillance strategy in place :

✓ How?: *Chapter1.4., 1.12.*

- Surveys: Quick guide

  - 5. Calculate the best sample size. Large enough to detect infection. Factors influencing the sample size calculation :

    - The confidence level (By convention, a confidence level of 95% is used most of the time);

    - The estimated prevalence (the lower the prevalence, the larger the sample size)

    - The desired precision : example ±5%, a survey resulting in a prevalence estimate of 50% would have a confidence interval of 45–55%;

    - The variance in the population (how different individuals are from each other); and

    - Test Performance is expressed in terms of sensitivity and specificity

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A surveillance strategy in place :

✓ How?:*Chapter1.4., 1.12.*

- Surveys: Quick guide
    - 5. Results
        - Tabulated results:
            - Break-down in EpUn/An present/sampled/dates visit/date results
            - Break-down in of results by age group/positive or negative
    - Maps showing location of EpUn/An sampled/positive
    - Details of the control measures
    - Results of the epidemiological enquiry of the survey
- Conclusion in compliance with the *OIE Terrestrial Code*

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A surveillance strategy in place :

✓By whom?: *Horizontal Chapters 3.1. Veterinary Services and 3.2. Evaluation of Veterinary Services,*

- Veterinary Services have responsibility, competency for ensuring or supervising the implementation of animal health and welfare measures
- Thus, supervising, control, enforce and monitor all PPR-related activities.

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A surveillance strategy in place :

- ✓ By whom?: *Horizontal Chapters 3.1. Veterinary Services and 3.2. Evaluation of Veterinary Services,*
  - Should be under the responsibility of the Veterinary Authority comprising:
    - Veterinarians, whether public or private sector
   - Other professionals and paraprofessionals, including community animal health workers

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A surveillance strategy in place :

✓ For which population? *Article 14.7.29-31,* :

- ▪ Domestic population (sheep and goat) throughout the production, marketing and processing chain

- ▪ Population of a susceptible wildlife species may act as sentinels indicating the spill over of PPRV from domestic sheep and goats

- ▪ High-risk groups of animals

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A surveillance strategy in place :

✓When?: *Article 14.7.27-31*

- Surveillance for PPR detection should be in the form of a continuing program (designed in whole country or zone). History: 10 years.

- In the context of applications for freedom, surveillance should demonstrate absence of infection during the last 24 months.

- With the need to provide details of the occurrence of suspected cases and how they were investigated and dealt with.

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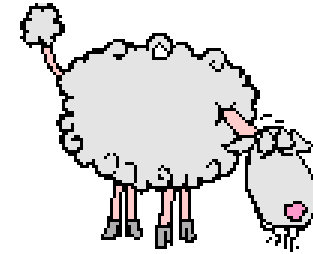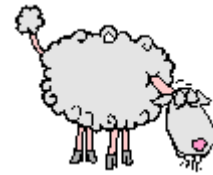
Thank you
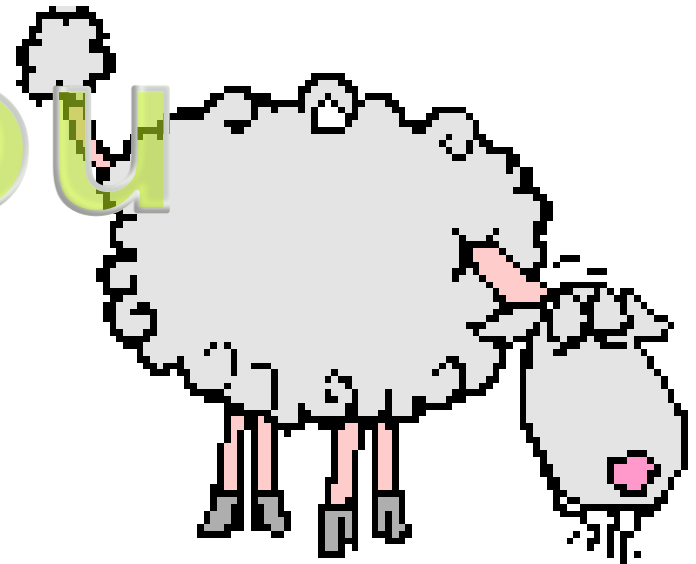
Terrestrial Animal Health Code and Manual:

- ✓ Horizontal Chapters
  - ✓ Animal health surveillance (1.4.)
  - ✓ Veterinary Services (3.1.) and Evaluation of Veterinary Services (3.2,)
- ✓ PPR Specific Chapters.
  - ✓ Application for official recognition by the OIE of free status for peste des petits ruminants (1,12)
  - ✓ Infection with peste des petits ruminants virus (14.7.)
  - ✓ OIE Manual, Chapter 2.7.10. – Peste des petits ruminants

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Terrestrial Animal Health Code and Manual:

- ✓ Surveillance
  - ✓ Animal health surveillance (1.4.)
  - ✓ Application for official recognition by the OIE of free status for peste des petits ruminanst (1.12.)
  - ✓ Introduction to surveillance of PPR (14.7.27.)
  - ✓ General conditions and methods for surveillance (14.7.28.)
  - ✓ Surveillance strategies (14.7.29.)
  - ✓ Surveillance in wildlife (14.7.30.)
  - ✓ Applying for OIE recognition of PPR free status (14.7.31.)
  - ✓ For recovery of free status (14.7.32)
  - ✓ The use and interpretation of serological tests for serosurveillance of PPR (14.7.33)

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Terrestrial Animal Health Code and Manual:

✓ Surveillance in the context of official free status recognition

- ✓ Surveillance to demonstrate freedom from disease or infection (1.4.6)
- ✓ Country free from infection with peste des petits ruminants virus (1.12.1)
- ✓ Zone free from infection with peste des petits ruminants virus (1.12.2)
- ✓ And PPR specific articles (14.7.28 - 14.7.33)

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Terrestrial Animal Health Code and Manual:

- ✓ Surveillance to support to an OIE endorsed official control program for PPR
  - ✓ Introduction, objectives and principles (1.4.1-14.5.)
  - ✓ Application for endorsement by the OIE of an official control programme for peste des petits ruminants (1.12.3.)
  - ✓ OIE endorsed official control programme for PPR (14.7.34)

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