CHAPTER 8.12.

RINDERPEST

Article 8.12.1.

General provisions

For the purposes of the *Terrestrial Code*, the *incubation period* for rinderpest (RP) shall be 21 days.

For the purpose of this chapter, a *case* includes an animal infected with rinderpest virus (RPV).

For the purpose of this chapter, susceptible *animals* apply to both domestic and wild artiodactyls.

For the purposes of *international trade*, this chapter deals not only with the occurrence of clinical signs caused by RPV, but also with the presence of infection with RPV in the absence of clinical signs.

Ban on vaccination against RP means a ban on administering a RP vaccine to any susceptible *animal* and a heterologous vaccine against RP to any large ruminants or pigs.

1. *Animal* not vaccinated against RP means:
   a) for large ruminants and pigs: an *animal* that has received neither a RP vaccine nor a heterologous vaccine against RP;
   b) for small ruminants: an *animal* that has not received a RP vaccine.
2. The following defines the occurrence of RPV infection:
   a) RPV has been isolated and identified as such from an *animal* or a product derived from that *animal*; or
   b) viral antigen or viral ribonucleic acid (RNA) specific to RP has been identified in samples from one or more *animals* showing one or more clinical signs consistent with RP, or epidemiologically linked to an *outbreak* of RP, or giving cause for suspicion of association or contact with RP; or
   c) antibodies to RPV antigens which are not the consequence of vaccination, have been identified in one or more *animals* with either epidemiological links to a confirmed or suspected *outbreak* of RP in susceptible *animals*, or showing clinical signs consistent with recent infection with RP.

Standards for diagnostic tests and vaccines are described in the *Terrestrial Manual*.

Article 8.12.2.

Rinderpest free country

To qualify for inclusion in the existing list of RP free countries, a Member should:

1. have a record of regular and prompt animal disease reporting;
2. send a declaration to the OIE stating that:
   a) there has been no *outbreak* of RP during the past 24 months,

b) no evidence of RPV infection has been found during the past 24 months,

c) no vaccination against RP has been carried out during the past 24 months,

3. supply documented evidence that *surveillance* for both RP and RPV infection in accordance with Articles 8.12.20. to 8.12.27. is in operation and that regulatory measures for the prevention and control of RP have been implemented;

4. not have imported since the cessation of vaccination any *animals* vaccinated against RP.

The Member will be included in the list only after the submitted evidence has been accepted by the OIE. Retention on the list requires that the information in points 2a), 2b) and 2c) above be re-submitted annually and changes in the epidemiological situation or other significant events should be reported to the OIE according to the requirements in Chapter 1.1.

Article 8.12.3.

Recovery of free status

When a RP *outbreak* or RPV infection occurs in a RP free country, one of the following waiting periods is required to regain the status of RP free country:

1. 3 months after the last *case* where a *stamping-out policy* and serological *surveillance* are applied in accordance with Articles 8.12.20. to 8.12.27.; or

2. 3 months after the *slaughter* of all vaccinated *animals* where a *stamping-out policy*, emergency vaccination and serological *surveillance* are applied in accordance with Articles 8.12.20. to 8.12.27.; or

3. 6 months after the last *case* or the last vaccination (according to the event that occurs the latest), where a *stamping-out policy*, emergency vaccination not followed by the *slaughter* of all vaccinated *animals*, and serological *surveillance* are applied in accordance with Articles 8.12.20. to 8.12.27.

Where a *stamping-out policy* is not practised, the above waiting periods do not apply but Article 8.12.2. applies.

Article 8.12.4.

Infected country

When the requirements for acceptance as a RP free country are not fulfilled, a country shall be considered as RP infected.

Article 8.12.5.

Recommendations for importation from RP free countries

for RP susceptible animals

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that the *animals*:

1. showed no clinical sign of RP on the day of shipment;

2. remained in a RP free country since birth or for at least 30 days prior to shipment.

Article 8.12.6.

Recommendations for importation from RP infected countries

for RP susceptible animals

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that:

1. RP is the subject of a national *surveillance* programme according to Articles 8.12.20. to 8.12.27.;
2. RP has not occurred within a 10-kilometre radius of the *establishment* of origin of the *animals* destined for export for at least 21 days prior to their shipment to the *quarantine station* referred to in point 3b) below;
3. the *animals*:
    a) showed no clinical sign of RP on the day of shipment;
    b) were kept in the *establishment* of origin since birth or for at least 21 days before introduction into the *quarantine station* referred to in point c) below;
    c) have not been vaccinated against RP, were isolated in a *quarantine station* for the 30 days prior to shipment, and were subjected to a diagnostic test for RP on two occasions with negative results, at an interval of not less than 21 days;
    d) were not exposed to any source of *infection* during their transportation from the *quarantine station* to the place of shipment;
4. RP has not occurred within a ten-kilometre radius of the *quarantine station* for 30 days prior to shipment.

Article 8.12.7.

Recommendations for importation from RP free countries

for semen of RP susceptible animals

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that:

1. the donor *animals*:
    a) showed no clinical sign of RP on the day of collection of the semen;
    b) were kept in a RP free country for at least 3 months prior to collection;
2. the semen was collected, processed and stored in conformity with the provisions of Chapters 4.5. and 4.6.

Article 8.12.8.

Recommendations for importation from RP infected countries

for semen of RP susceptible animals

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that:

1. RP is the subject of a national *surveillance* programme according to Articles 8.12.20. to 8.12.27.;
2. the donor *animals*:
   a) showed no clinical sign of RP on the day of collection of the semen;
   b) were kept in an *establishment* where no RP susceptible *animals* had been added in the 21 days before collection, and that RP has not occurred within 10 kilometres of the *establishment* for the 21 days before and after collection;
   c) were vaccinated against RP at least 3 months prior to collection; or
   d) have not been vaccinated against RP, and were subjected to a diagnostic test on two occasions with negative results, at an interval of not less than 21 days within the 30 days prior to collection;
3. the semen was collected, processed and stored in conformity with the provisions of Chapters 4.5. and 4.6.

Article 8.12.9.

Recommendations for importation from RP free countries

for *in vivo* derived embryos of RP susceptible animals

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that:

1. the donor females were kept in an *establishment* located in a RP free country at the time of collection;
2. the embryos were collected, processed and stored in conformity with the provisions of Chapters 4.7. and 4.9., as relevant.

Article 8.12.10.

Recommendations for importation from RP infected countries

for *in vivo* derived embryos of RP susceptible animals

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that:

1. RP is the subject of a national *surveillance* programme according to Articles 8.12.20. to 8.12.27.;
2. the donor females:
   a) and all other *animals* in the *establishment* showed no clinical sign of RP at the time of collection and for the following 21 days;
   b) were kept in an *establishment* where no RP susceptible *animals* had been added in the 21 days before collection of the embryos;
   c) were vaccinated against RP at least 3 months prior to collection; or

d) have not been vaccinated against RP, and were subjected to a diagnostic test for RP on two occasions with negative results, at an interval of not less than 21 days within the 30 days prior to collection;

3. the embryos were collected, processed and stored in conformity with the provisions of Chapters 4.7. and 4.9., as relevant.

Article 8.12.11.

Recommendations for importation from RP free countries

for fresh meat or meat products of susceptible animals

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that the entire consignment comes from *animals* which have been kept in the country since birth or for at least 3 months prior to *slaughter*.

Article 8.12.12.

Recommendations for importation from RP infected countries

for fresh meat (excluding offal) of susceptible animals

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that the entire consignment of *meat*:

1. comes from a country where RP is the subject of a national *surveillance* programme according to Articles 8.12.20. to 8.12.27.;

2. comes from *animals* which:

   a) showed no clinical sign of RP within 24 hours before *slaughter*;

   b) have remained in the country for at least 3 months prior to *slaughter*;

   c) were kept in the *establishment* of origin since birth or for at least 30 days prior to shipment to the approved *abattoir*, and that RP has not occurred within a ten-kilometre radius of the *establishment* during that period;

   d) were vaccinated against RP at least 3 months prior to shipment to the approved *abattoir*;

   e) had been transported, in a *vehicle* which was cleansed and disinfected before the *animals* were loaded, directly from the *establishment* of origin to the approved *abattoir* without coming into contact with other *animals* which do not fulfil the required conditions for export;

   f) were slaughtered in an approved *abattoir* in which no RP has been detected during the period between the last *disinfection* carried out before *abattoir* and the date on which the shipment has been dispatched.

Article 8.12.13.

Recommendations for importation from RP infected countries

for meat products of susceptible animals

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that:

1. only *fresh meat* complying with the provisions of Article 8.12.12. has been used in the preparation of the *meat products*; or
2. the *meat products* have been processed to ensure the destruction of the RPV in conformity with one of the procedures referred to in Article 8.5.34.;
3. the necessary precautions were taken after processing to avoid contact of the *meat products* with any possible source of RPV.

Article 8.12.14.

Recommendations for importation from RP free countries

for milk and milk products intended for human consumption and for products of animal origin (from RP susceptible animals) intended for use in animal feeding or for agricultural or industrial use

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that these products come from *animals* which have been kept in the country since birth or for at least 3 months.

Article 8.12.15.

Recommendations for importation from RP infected countries

for milk and cream

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that:

1. these products:
   a) originate from *herds* or *flocks* which were not subjected to any restrictions due to RP at the time of *milk* collection;
   b) have been processed to ensure the destruction of the RPV in conformity with one of the procedures referred to in Articles 8.5.38. and 8.5.39.;
2. the necessary precautions were taken after processing to avoid contact of the products with any potential source of RPV.

Article 8.12.16.

Recommendations for importation from RP infected countries

for milk products

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that:

1. these products are derived from *milk* complying with the above requirements;

2. the necessary precautions were taken after processing to avoid contact of the *milk products* with a potential source of RPV.

Article 8.12.17.

Recommendations for importation from RP infected countries

for blood and meat-meals (from susceptible animals)

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that the manufacturing method for these products included heating to a minimum internal temperature of 70°C for at least 30 minutes.

Article 8.12.18.

Recommendations for importation from RP infected countries

for wool, hair, bristles, raw hides and skins (from susceptible animals)

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that:

1. these products have been processed to ensure the destruction of the RPV in conformity with one of the procedures referred to in Articles 8.5.35., 8.5.36. and 8.5.37.;
2. the necessary precautions were taken after processing to avoid contact of the products with any potential source of RPV.

Veterinary Authorities can authorise, without restriction, the import or transit through their territory of semi-processed hides and skins (limed hides, pickled pelts, and semi-processed leather - e.g. wet blue and crust leather), provided that these products have been submitted to the usual chemical and mechanical processes in use in the tanning industry.

Article 8.12.19.

Recommendations for importation from RP infected countries

for hooves, claws, bones and horns, hunting trophies and preparations destined for museums (from susceptible animals)

Veterinary Authorities should require the presentation of an *international veterinary certificate* attesting that these products:

1. were completely dried and had no trace on them of skin, flesh or tendon; and/or
2. have been adequately disinfected.

Article 8.12.20.

Surveillance: introduction

Articles 8.12.20. to 8.12.27. define the principles and provides a guide for the *surveillance* of RP in accordance with Chapter 1.4. applicable to Members seeking establishment of freedom from RP.

Guidance is provided for Members seeking reestablishment of freedom from RP, following an *outbreak* and for the maintenance of RP free status.

Surveillance strategies employed for demonstrating freedom from RP at an acceptable level of confidence will need to be adapted to the local situation. *Outbreaks* of RP in cattle may be graded as per-acute, acute or sub-acute. Differing clinical presentations reflect variations in levels of innate host resistance (*Bos indicus* breeds being more resistant than *B. taurus*), and variations in the virulence of the attacking strain. Experience has shown that syndromic *surveillance* strategies i.e. *surveillance* based on a predefined set of clinical signs (e.g. searching for "stomatitis-enteritis syndrome") are useful to increase the sensitivity of the system. It is generally accepted that unvaccinated populations of cattle are likely to promote the emergence of virulent strains and associated epidemics while partially vaccinated populations favour the emergence of mild strains associated with endemic situations. In the case of per-acute *cases* the presenting sign may be sudden death. In the case of sub-acute (mild) *cases*, clinical signs are irregularly displayed and difficult to detect.

In certain areas there are some key wildlife populations, especially African buffaloes, which act as sentinels for RP infection. These subpopulations should be included in the design of the *surveillance* strategy.

Surveillance for RP should be in the form of a continuing programme designed to establish that the whole country is free from RP virus (RPV) infection.

Article 8.12.21.

Surveillance: general conditions and methods

1. A *surveillance* system in accordance with Chapter 1.4. should be under the responsibility of the *Veterinary Authority*. A procedure should be in place for the rapid collection and transport of samples from suspect *cases* of RP to a *laboratory* for RP diagnoses as described in the *Terrestrial Manual*.

2. The RP *surveillance* programme should:

   a) include an early warning system throughout the production, marketing and processing chain for reporting suspicious *cases*. Farmers and workers who have day-to-day contact with livestock, as well as diagnosticians, should report promptly any suspicion of RP. They should be supported directly or indirectly (e.g. through private *veterinarians* or *veterinary para-professionals*) by government information programmes and the *Veterinary Authority*. All significant epidemiological events consistent with "stomatitis- enteritis syndrome" should be investigated immediately. Where suspicion cannot be resolved by epidemiological and clinical investigation, samples should be taken and submitted to a *laboratory*. This requires that sampling kits and other equipment are available for those responsible for *surveillance*. Personnel responsible for *surveillance* should be able to call for assistance from a team with expertise in RP diagnosis and control;

   b) implement, when relevant, regular and frequent clinical inspection and serological testing of high-risk groups of *animals*, such as those adjacent to a RP infected country.

   An effective *surveillance* system will periodically identify suspicious *cases* compatible with the "stomatitis-enteritis syndrome" that require follow-up and investigation to confirm or exclude that the cause of the condition is RPV. The rate at which such suspicious *cases* are likely to occur will differ between epidemiological situations and cannot therefore be predicted reliably. Applications for freedom from RPV infection should, in consequence, provide

details of the occurrence of suspicious *cases* and how they were investigated and dealt with. This should include the results of laboratory testing and the control measures to which the *animals* concerned were subjected during the investigation (quarantine, movement stand-still orders, etc.).

Article 8.12.22.

Surveillance strategies

1. Introduction

The target population for *surveillance* aimed at identifying *disease* and *infection* should cover all significant populations of susceptible species within the country to be recognised as free from RPV infection.

The strategy employed can be based on randomised sampling requiring *surveillance* consistent with demonstrating the absence of RPV infection at an acceptable level of statistical confidence. The frequency of sampling should be dependent on the epidemiological situation. Targeted *surveillance* (e.g. based on the increased likelihood of *infection* in particular localities or species) can be an appropriate strategy. The applicant Member should justify the *surveillance* strategy chosen as adequate to detect the presence of RPV infection in accordance with Chapter 1.4. and the epidemiological situation. It may, for example, be appropriate to target clinical *surveillance* at particular subpopulations likely to exhibit clear clinical signs. For targeted *surveillance* consideration should be given to the following:

a) historical disease patterns (risk mapping) – clinical, participatory and laboratory-based;

b) critical population size, structure and density;

c) livestock husbandry and farming systems;

d) movement and contact patterns – markets and other trade-related movements;

e) transmission parameters (e.g. virulence of the strain, animal movements);

f) wildlife and other species demography.

For random surveys, the design of the sampling strategy will need to take into account the expected disease prevalence. The sample size selected for testing will need to be large enough to detect *infection* if it were to occur at a predetermined minimum rate. The sample size and expected disease prevalence determine the level of confidence in the results of the survey. The applicant Member must justify the choice of design prevalence and confidence level based on the objectives of *surveillance* and the epidemiological situation, in accordance with Chapter 1.4. Selection of the expected prevalence in particular clearly needs to be based on the prevailing or historical epidemiological situation.

Irrespective of the survey design selected, the sensitivity and specificity of the diagnostic tests employed are key factors in the design, sample size determination and interpretation of the results obtained.

Irrespective of the testing system employed, *surveillance* design should anticipate the occurrence of false positive reactions. If the characteristics of the testing system are known, the rate at which these false positives are likely to occur can be calculated in advance. There needs to be an effective procedure for following-up positives to subsequently determine with a high level of confidence, whether they are indicative of *infection* or not. This should involve both supplementary tests and follow-up investigation to collect diagnostic material from the original sampling unit as well as *herds* which may be epidemiologically linked to it.

The principles involved in *surveillance* for *disease/infection* are technically well defined in Chapter 1.4. The design of *surveillance* programmes to prove the absence of RPV infection needs to be carefully followed to ensure the reliability of results. The design of any *surveillance* programme, therefore, requires inputs from professionals competent and experienced in this field.

2. Clinical surveillance

Clinical *surveillance* aims at detecting clinical signs of "stomatitis-enteritis syndrome" by close physical examination of susceptible *animals*. Whereas significant emphasis is placed on the diagnostic value of mass serological screening, *surveillance* based on clinical inspection should not be underrated. It may be able to provide a high level of confidence of detection of *disease* if sufficiently large numbers of clinically susceptible *animals* are examined. It is essential that clinical *cases* detected be followed by the collection of appropriate samples such as ocular and nasal swabs, blood or other tissues for virus isolation. Clinical *surveillance* and laboratory testing should always be applied in series to clarify the status of RP suspects detected by either of these complementary diagnostic approaches. Laboratory testing may confirm clinical suspicion, while clinical *surveillance* may contribute to confirmation of positive serology. Any sampling unit within which suspicious *animals* are detected should be classified as infected until contrary evidence is produced.

Active search for clinical *disease* can include participatory disease searching, tracing backwards and forwards, and follow-up investigations. Participatory disease *surveillance* is a form of targeted active *surveillance* based upon methods to capture livestock owners perceptions on the prevalence and patterns of *disease*.

The labour requirements and the logistical difficulties involved in conducting clinical examinations should be taken into account.

It is essential that all RPV isolates are sent to an OIE Reference Laboratory to determine the biological characteristics of the causative virus as well as its genetic and antigenic characterization.

3. Virological surveillance

Given that RP is an acute *infection* with no known carrier state, virological *surveillance* using tests described in the *Terrestrial Manual* should be conducted to confirm clinically suspect *cases*. Applying virological methods in seropositive *animals* is not regarded as an efficient approach.

4. Serological surveillance

Serological *surveillance* aims at detecting antibodies against RPV. Positive RPV antibody test results can have four possible causes:

a) natural infection with RPV;

b) vaccination against RP;

c) maternal antibodies derived from an immune dam (maternal antibodies in cattle can be found only up to 12 months of age);

d) heterophile (cross) and other non-specific reactions.

Article 8.12.23.

Selection of cattle and buffaloes for serosurveillance

Mis-ageing of cattle selected for serosurveillance is the most common source of error. Colostral immunity can persist almost up to one year of age when measured by the H c-ELISA. Thus, it is essential to exclude from sampling buffaloes and cattle less than one year of age. In addition, it is frequently necessary to be able to exclude those which are older than a certain age, for example, to select only those born after cessation of vaccination.

It is important to select a cohort of cattle possessing only one pair of permanent incisors to preclude any interference from maternal immunity derived from earlier vaccination or *infection* and ensure that vaccinated cattle are not included.

Although it is stressed here that *animals* with milk teeth only are not suitable for *surveillance* based on serology, they are of particular interest and importance in *surveillance* for clinical *disease*. After the loss of colostral immunity, by about one year of age, these are the *animals* which are most likely to suffer the more severe disease form and in which to look for lesions indicative of RP.

It may be possible to use serum collected for other survey purposes for RP *surveillance*. However, the principles of survey design described in this chapter and the requirement for a statistically valid survey for the presence of RPV should not be compromised.

The discovery of clustering of seropositive reactions should be foreseen. It may reflect any of a series of events, including but not limited to the demographics of the population sampled, vaccinal exposure or the presence of field strain *infection*. As clustering may signal field strain *infection*, the investigation of all instances must be incorporated in the survey design.

The results of random or targeted serological surveys are important in providing reliable evidence that RPV infection is not present in a country. It is therefore essential that the survey be adequately documented.

Article 8.12.24.

Wildlife surveillance where a significant susceptible wildlife population exists

There are some key wildlife populations, especially African buffaloes, which act as sentinels for RP infection. Where a significant population of a susceptible wildlife species exists, serosurveillance data should be collected to support absence of *infection*. Detection of virus circulation in wildlife can be undertaken indirectly by sampling contiguous livestock populations.

Obtaining meaningful data from wildlife *surveillance* can be enhanced by close coordination of activities in the regions and countries. Both purposive and opportunistic samplings are used to obtain material for analysis in national and reference *laboratories*. The latter are required because many countries do not have adequate facilities to perform the full testing protocol for detecting RP antibodies in wildlife sera.

Targeted sampling is the preferred method to provide wildlife data to evaluate the status of RP infection. In reality, the capacity to perform targeted *surveillance* in the majority of countries remains minimal. However, samples can be obtained from hunted *animals*, and these may provide useful background information.

Wildlife form transboundary populations; therefore, any data from the population could be used to represent the result for the ecosystem and be submitted by more than one Member in an

application to the OIE (even if the sampling was not obtained in the territory of the OIE Member submitting the application). It is recommended therefore that the OIE Member Countries or Territories represented in a particular ecosystem should coordinate their sampling programmes.

Where the serological history of the *herd* is known from previous work (as might be the case for a sentinel *herd*), repeat sampling need only focus on the untested age groups, born since the last known *infection*. The sample needs to be taken according to the known epidemiology of the *disease* in a given species. Samples collected from hunted *animals*, which are positive, should not be interpreted without a targeted survey to confirm the validity of these results. Such sampling cannot follow a defined protocol and therefore can only provide background information.

Article 8.12.25.

Members applying for recognition of freedom from RP

In addition to the general conditions described in this chapter, a Member applying for recognition of RP freedom for the country should provide evidence for the existence of an effective *surveillance* programme. The strategy and design of the *surveillance* programme will depend on the prevailing epidemiological circumstances and will be planned and implemented according to general conditions and methods in this chapter, to demonstrate absence of RPV infection, during the preceding 24 months in susceptible populations. This requires the support of a national or other *laboratory* able to undertake identification of RPV infection through virus/antigen/genome detection and antibody tests described in the *Terrestrial Manual*.

Article 8.12.26.

Members re-applying for recognition of freedom from RP following an outbreak

Following an *outbreak*, or *outbreaks*, of RP in a Member at any time after recognition of RP freedom, the origin of the virus strain should be thoroughly investigated. In particular it is important to determine if this is due to the re-introduction of virus or re-emergence from an undetected focus of *infection*. Ideally, the virus should be isolated and compared with historical strains from the same area as well as those representatives of other possible sources.

After elimination of the *outbreak* or *outbreaks*, a Member wishing to regain the status 'free from rinderpest' should undertake serosurveillance according to this chapter to determine the extent of virus spread. In addition to the general conditions described in this chapter, a Member re-applying for recognition of country freedom from RP should show evidence of an active *surveillance* programme for RP as well as absence of RPV infection.

If investigations show the *outbreak* virus originated from outside the country, provided the *outbreak* was localised, rapidly contained and speedily eliminated, and provided there was no serological evidence of virus spread outside the index infected area, accreditation of freedom could proceed rapidly. It should be established that the *outbreaks* were contained, eliminated and did not represent endemic *infection*.

Article 8.12.27.

The use and interpretation of serological tests for serosurveillance of RP

Serological testing is an appropriate tool to use for RP *surveillance*. The prescribed serological tests which should be used for RP *surveillance* are described in the *Terrestrial Manual*; these are of high diagnostic specificity and minimise the proportion of false positive reactions. Antibodies to virulent strains and the Kabete O vaccine strain of RPV can be detected in cattle from about 10 days post *infection* (approximately 7 days after the appearance of fever) and peak around 30 to 40 days post *infection*. Antibodies then persist for many years, possibly for life, although titres decline with time. In the case of less virulent strains the detection of the antibody response by ELISA may be delayed by as much as three weeks. There is only one serotype of virus and the tests will detect antibodies elicited by *infection* with all RP viruses but the tests cannot discriminate between antibodies to field *infection* and those from vaccination with attenuated vaccines. This fact compromises serosurveillance in vaccinated populations and realistically meaningful serosurveillance can only commence once vaccination has ceased for several years. In these circumstances, dental ageing of cattle and buffaloes is of great value to minimise the inclusion of *animals* seropositive by virtue of colostral immunity and historic vaccination or *infection*. The cohort of cattle with one single set of central incisors is the most appropriate to sample (see footnote [2]).

The test most amenable to the mass testing of sera as required to demonstrate freedom from *infection* is the H c-ELISA. Practical experience from well-controlled serological *surveillance* in non-vaccinated populations in Africa and Asia demonstrate that one can expect false positive reactions in 0.05% or less of sera tested. The sensitivity of the test approaches 100% (relative to the VNT) in Kabete O vaccinated cattle and *infection* with highly virulent viruses but is lower in the case of low virulence strains. Experience supported by experimental studies indicates that in all cases sensitivity exceeds 70%.

Only tests approved by OIE as indicated in the *Terrestrial Manual* should be used to generate data presented in support of applications for accreditation of RP freedom. It is necessary to demonstrate that apparently positive serological results have been adequately investigated. The follow-up studies should use appropriate clinical, epidemiological, serological and virological investigations. By this means the investigation should examine all evidence that might confirm or refute the hypothesis that the positive results to the serological tests employed in the survey were not due to virus circulation.

The prescribed serological tests have not been fully validated for use in all wild species. From the collective experience of the reference laboratories and experts over the years, an appropriate test protocol for wildlife is based on the high expected sero-prevalence in a previously infected buffalo *herd* which is 99% seroconversion of eligible *animals* within a *herd* as detected by use of a 100% sensitive test. No single test can achieve this but combining the H c-ELISA with the VNT raises sensitivity close to 100%.

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1 JAMES A.D. (1998). Guide to epidemiological surveillance for rinderpest. *Rev. Sci. Tech.* 17 **(3)**, 796–824.

2 Pragmatically and solely for the purposes of serosurveillance, it can be accepted that cattle having one pair of erupted permanent central incisor teeth are aged between 21 and 36 months (Asian buffaloes 24 to 48 months) and cattle having only two pairs of erupted permanent central incisor teeth are aged between 30 and 48 months (Asian buffaloes 48-60 months).