

Report on regulatory and voluntary surveillance of **infectious bovine rhinotracheitis** in 2013/2014: a stable situation and new opportunities

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Abstract

Infectious bovine rhinotracheitis (IBR) is a viral disease caused by bovine herpesvirus 1 (BoHV-1). The virus mainly manifests respiratory tract and genital tropism. Currently, IBR infection in French holdings is usually asymptomatic and is therefore now mainly a commercial issue both on the national market and abroad. The 2013/2014 surveillance campaign for IBR ended with a national prevalence rate of 9.8%, with the incidence rate reaching 1.9% over this same period. While the national certification rate of IBR-free farms continues to increase slowly (65.9% as of 31 May 2014), it is clear that the current control scheme no longer enables significant improvement in the epidemiological situation. Thus, measures should be taken to improve current analytical tools and to speed up the eradication process, which will also contribute to EU-level recognition of the French control programme.

Keywords

Infectious bovine rhinotracheitis, IBR, Cattle, Category 2 health hazard

Résumé

Bilan de la surveillance réglementée et facultative de l'IBR en France en 2013-2014 : une situation stable et de nouvelles perspectives

La rhinotrachéite infectieuse bovine est une maladie virale, provoquée par l'herpesvirus bovin de type 1 (BHV-1) qui possède un tropisme essentiellement respiratoire et génital. Dans l'élevage français actuellement, l'infection reste le plus souvent asymptomatique et la maladie présente maintenant un enjeu surtout commercial tant sur le marché national qu'à l'étranger. La campagne 2013/2014 de surveillance de la rhinotrachéite infectieuse bovine s'est terminée sur un taux de prévalence nationale de 9,8% (le taux d'incidence sur 2013/2014 s'élève à 1,9%). Si la proportion de cheptels sous appellation « indemne d'IBR » continue lentement d'augmenter (65,9% au 31 mai 2014), force est de constater que l'actuel dispositif de lutte ne permet plus d'améliorer significativement la situation épidémiologique. Aussi des mesures devraient être prises d'une part pour améliorer les outils analytiques existants et d'autre part pour permettre l'accélération du processus d'éradication, ce qui contribuera également à la reconnaissance européenne du programme de lutte.

Mots-clés

Rhinotrachéite infectieuse bovine, IBR, bovins, danger sanitaire de catégorie 2

Infectious bovine rhinotracheitis (IBR) is a viral disease caused by bovine herpesvirus 1 (BoHV-1). The virus mainly manifests as respiratory tract and genital tropism. However, in French livestock currently, the infection mostly remains asymptomatic and the disease is therefore primarily a trade concern. IBR is included in the Terrestrial Animal Health Code of the World Organisation for Animal Health (OIE) and can therefore be associated with additional guarantees at the European level. This was the background that led to implementation of IBR control measures.

There are currently two complementary surveillance and control schemes for IBR, one mandatory, set up in 2006, and the other voluntary, that leads to certification of farms.

The [Box](#) opposite summarises the objectives of the control programme, surveillance procedures, and health control measures for this disease.

This article presents the results obtained for the certification and control systems for the 2013-2014 campaigns (period from 1 June 2013 to 31 May 2014). The results presented below are taken from specific data collection from the GDS using an annual update questionnaire.

Results from the mandatory scheme

Prevalence and incidence

As of 31 May 2014, mandatory IBR screening of herds revealed that 9.8% of tested herds on average had at least one seropositive animal (data from 86 *départements*). This prevalence is stable compared to the previous campaign (prevalence was 9.8% on 31 May 2013) and

varies from 0.03% to 89.6% depending on the *département* (lowest prevalence rates are found in the *départements* primarily focussed on milk production) ([Figure 1](#)).

The IBR incidence rate for the 2013-2014 campaign was 1.9% (data for 85 *départements*) with values ranging from 0% to 10%, depending on the *département* ([Figure 2](#)). Like prevalence rates, incidence was relatively stable compared to the previous campaign (for 2012-2013, it was 1.7%).

For the 2013-2014 campaign, the effective national rate of programmed screening reached 94.1% (data from 86 *départements*). This rate was 94.2% for the 2012-2013 campaign.

Results of testing on introduction of animals to a herd

Data collected for 88 *départements* indicate a proportion of 1.4% seropositive cattle on purchase for all introduced animals, whether certified or not, excluding exempt establishments (i.e. 19,001 cattle out of 1,390,926).

Results from the voluntary scheme

Herd certification level

As of 31 May 2014, 65.9% of herds in mainland France (excluding exempt farms) had an IBR-free or an IBR-controlled status (data from 86 *départements*). Here again, the picture is not consistent country-wide with herd certification percentages varying from 0.4% to 98.2% depending on the *département* ([Figure 3](#)).

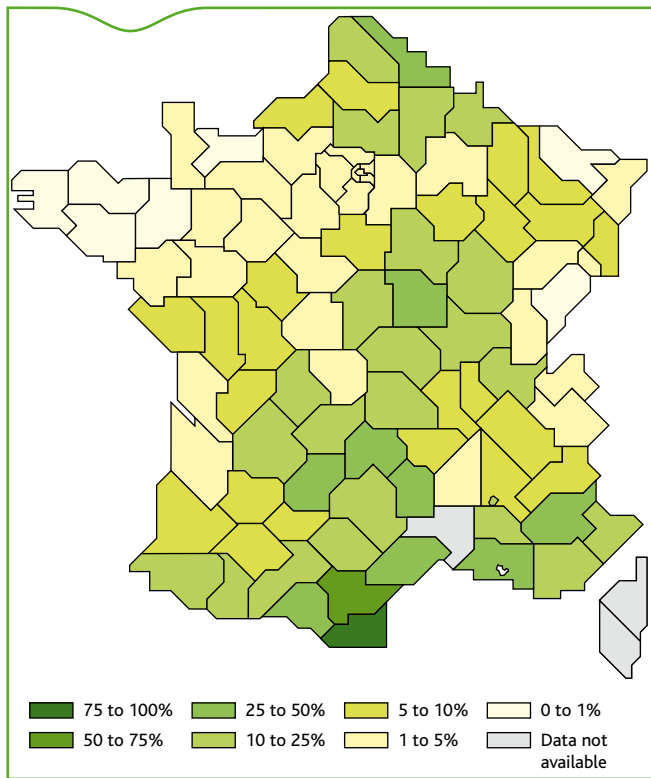


Figure 1. Prevalence (herds) by département as of 31 May 2014 (GDS France data)

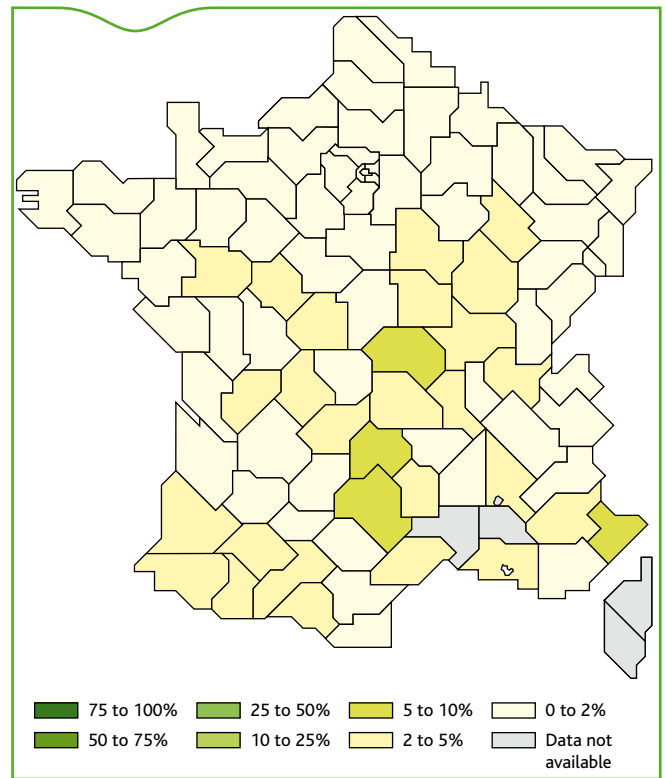


Figure 2. Incidence (herds) by département as of 31 May 2014 (GDS France data)

Box 1. Surveillance and health control measures for infectious bovine rhinotracheitis (IBR)

Objectives

- To determine the estimated prevalence of IBR in cattle.
- To contribute to certification of the health status of herds in France.

The population monitored

Domestic cattle across mainland France.

Surveillance procedures

Mandatory surveillance

This scheme was implemented at the request of farmers, with adoption of a Ministerial Order (Ministerial Order of 27 November 2006) on the basis of the "60% rule", i.e. measures can be imposed if they concern more than 60% of animals or farms in a *département* or a region. This scheme includes:

- Serological screening on introduction of transferred animals not known to be positive and/or vaccinated,
- Serological screening of cattle herds: every 6 months, of bulk tank milk on dairy farms, and annually, through blood sampling of cattle over 24 months of age on beef cattle farms. Exempt fattening herds, as defined in Article 2 of the Order of 22 February 2005, and exclusively housed in closed facilities, are also exempt with regard to this screening.

This scheme is supervised by the GDSs.

Voluntary certification of herds

Since 1996, through officially recognised certification of herds, cattle buyers can be given health guarantees for IBR. The certification system is managed by Acersa. The health requirements underlying herd certification are stipulated in a statement of requirements approved by the Ministry of Agriculture. The certification protocol is based on mandatory screening rules with additional measures for testing on transfer, for contact among animals (summer grazing, competitions, etc.), and if results are not seronegative (positive or doubtful) in the various tests (National Statement of Requirements CC IBR 01, version N,

approved by notice appearing in the Official Journal of 20 June 2012). In herds certified "IBR-free", all the animals have IBR-free certification, which is mentioned on the Preliminary health certificate (ASDA). In herds with "IBR-controlled" status, only animals under 48 months of age on the day certification is granted can have this "IBR-controlled" status on their health certificates. Farms are certified by local certification units, called STCs, which bring together the GDS, Veterinary technical groups (GTVs), and analytical laboratories within a *département* or a region. These STCs are authorised by Acersa to issue IBR-free and IBR-controlled certifications, and the accreditation to do so is maintained by an audit procedure.

In both schemes, analysis of pooled sera is used for annual screening, with non-negative pooled samples then giving rise to individual analysis of each serum sample. Controls on introduction are carried out by individual analysis. Any non-negative individual result obtained for an animal with a certification results in a second analysis using a different kit. Quality control of these analyses is ensured by the ANSES Niort Laboratory, designated IBR National Reference Laboratory (NRL) in 2013.

Health control measures

Any animal that is positive must be vaccinated within two months of notification of results, unless the animal is slaughtered.

Regulatory references

Ministerial Order of 27 November 2006 establishing collective control measures for infectious bovine rhinotracheitis.

Order of 22 February 2005 establishing health conditions for possession, movement, and trade of cattle.

Order of 19 August 2011 amending the Order dated 20 November 2001 approving Acersa as an organisation for official certification in animal diseases.

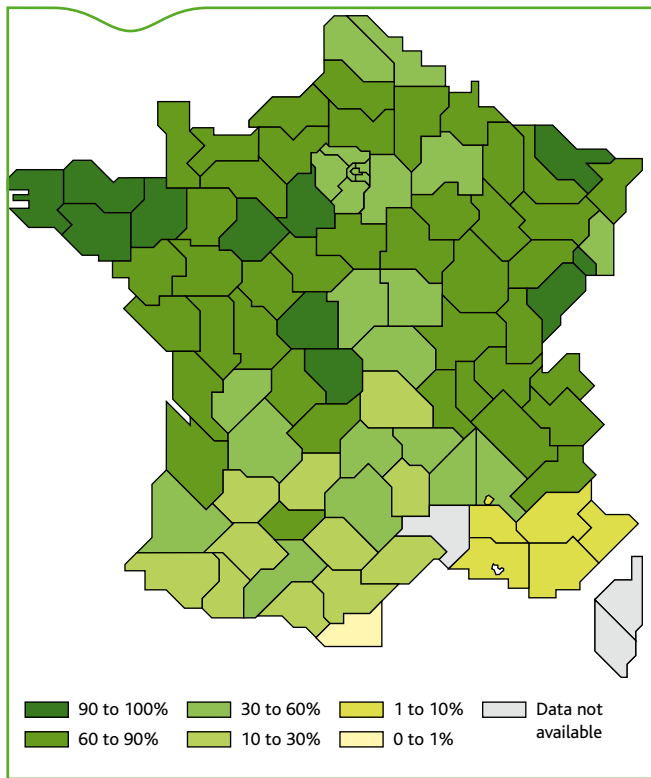


Figure 3. Proportion of certified herds by département as of 31 May 2014 (Acersa data)

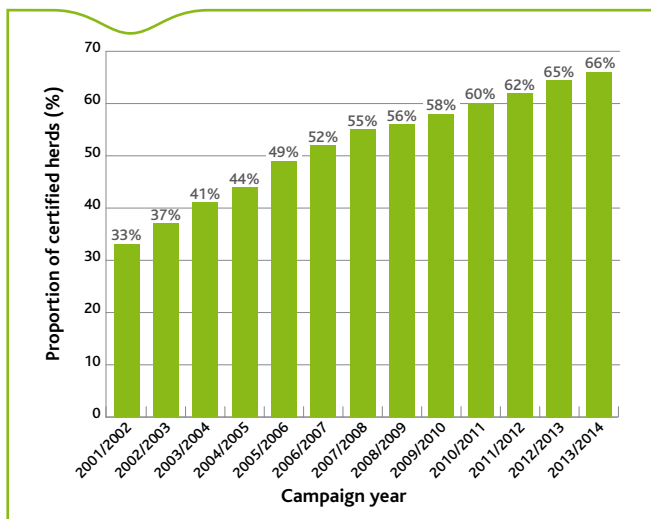


Figure 4. Change in the proportion of IBR certified herds since 2001

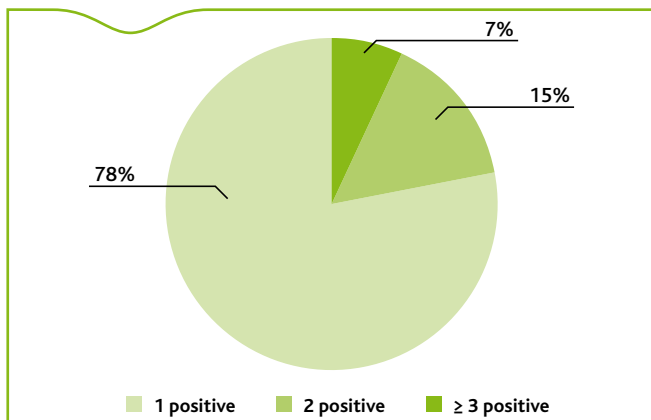


Figure 5. Distribution of IBR-A certified herds in which positive animals were detected during the 2013-2014 campaign, based on the number of positive cases

The number of certified herds has increased steadily since the certification system was introduced as part of Acersa, rapidly between 2001 and 2007, then more slowly in recent years (Figure 4).

Overall, as of 31 May 2014, 123,070 herds were certified. IBR-A certified herds, corresponding to the IBR-free status, were the most common, accounting for 99.4% of certified herds (i.e. 122,330 herds), versus only 0.6% with IBR-B certification for IBR-controlled herds (740 herds). This low percentage can be explained by the fact that IBR-controlled status is in general no more than a transitional step for a herd in the process of eradicating the disease.

Incidence of IBR in herds with IBR-A certification

Screened animals were found to be positive during the 2013-2014 campaign in 1,303 herds that had IBR-A certification on 1 June 2013 (representing 1.1% of herds under IBR-A at the start of the campaign) versus 1,150 herds for the 2012-2013 campaign (a rate of 0.9% of IBR-A herds as of 1 June 2012).

In 93% of cases, the herds had one or two positive animals (Figure 5), known as "isolated positive". This proportion is increasing compared to that observed for the two previous campaigns (82% of herds with one or two positive animals in the 2011-2012 campaign, 87% for the 2012-2013 campaign).

Discussion of changes in the epidemiological picture and the control scheme

Despite the control measures currently in place, the epidemiological picture has changed little at the national scale and from one campaign to the next. Nonetheless, significant changes have been made or observed concerning the IBR surveillance scheme.

The transfer of the NRL from Sophia Antipolis to the ANSES laboratory located in Niort in May 2013 gave new impetus to projects with various partners.

During the 2013-2014 campaign, some field managers in départements with mainly meat production found a significant increase in the number of "positive" analyses of pooled sera that were not confirmed on individual analysis of the sera making up the pooled samples. They also found a higher number of inconsistent results, i.e. individual analyses with positive results using the first kit and negative with the second. Although this ultimately has no impact on the status of the farms involved, an unfortunate effect was a substantial increase in the cost of the scheme because of the increased number of individual analyses.

It was also during this campaign that inconsistencies concerning specificity were found by the manufacturer of a kit used to analyse pooled samples, which could explain some of the findings mentioned. Based on field alerts, the NRL was able to investigate the problem, enabling managers (DGAL, Acersa and GDS France) to react accordingly by providing in particular regular information to laboratories and to scheme managers on the situation, and by issuing recommendations on the measures to adopt. The manufacturers were made aware of the problem and this episode fuelled the initiative already under way by the ANSES Niort Laboratory to work with the stakeholders on the ways of improving the current system for control of reagents and reagent vigilance.

More generally, and independently of this episode, which emphasised the need to consolidate the system for evaluation of reagents, the results obtained as part of follow-up of certification have led to many questions from managers, farmers, and other concerned parties since kits for the analysis of pooled sera were changed during the 2010-2011 campaign. The problem relates to the animals considered isolated positive cases, or "single reactors", that are found more and more often on certified farms. The epidemiological approach to these cases most often leads managers to suspect false-positive reactions. In addition to poor specificity sometimes found for reagent batches,

one of the hypotheses, made specifically by the NRL, is that there may be cross-reactions with other herpesviruses. Several initiatives have been launched by the NRL in collaboration with managers to better understand these cases and put forward more suitable analytical tools for confirmation and screening. This is why biological material has been collected from this category of animal, i.e. single reactors, from certified herds starting from January 2013. In the interim, until the findings of these initiatives are available, the management rules have been adjusted.

From a broader perspective, managers (DGAL, GDS France and Acersa) share the objective of improving and strengthening harmonisation of the analytical tools used to better meet their goals and enhance effectiveness. This requires a better assessment system. The first step is to build up a new sample bank of sera and milk that is more representative of real conditions, since the current serum bank is now outdated. In parallel, standard sera need to be renewed. This project was started in 2014 by GDS France within its network and will be continued in 2015-2016.

Lastly, notwithstanding these issues, and since the situation has been stable for many years with no particular progression, a decision to accelerate the eradication process was made in 2014. In view of the prevalence and incidence rates observed, a greater effort is required in certain zones, especially those with a focus on meat production. The initial situation and the history of local control strategies can explain this in part, but the differences are above all the result of specific practices. Summer grazing and particularly dense commercial networks, which concern more specifically meat production areas, are at-risk practices. Moreover, the layout of meat production areas is often far more fragmented than in dairy farming, which increases the risks of transmission by multiplying contacts between herds

with neighbouring grazing areas. The culling rate is lower in meat production than in dairy production, which slows elimination of possible positive animals. Therefore, exchanges between the various players are continuing to establish the necessary measures to reach this goal, shared by all stakeholders, as soon as possible. At the same time, this will help respond to trade issues by contributing to European recognition of the control programme.

Conclusion

Once the NRL has updated the sample bank, managers will need to work on redefining the performance objectives of screening kits based on the goals of management, concerning both management of certification (problem of single reactors) and in view of the aim of accelerating eradication of IBR. There is a clear need for diagnostic tools that are more reliable and for a confirmation tool that can be used to make simple decisions in the event of suspected cases of false-positive reactions.

Since certain neighbouring countries have achieved recognition of their control programmes, negotiations with European authorities have been reactivated to obtain recognition of the system used in France. The objective of reinforcing measures aimed at eradicating IBR is in line with the goal of achieving recognition.

As a result, the implementation of new measures to eradicate IBR as part of future campaigns will enable farmers to secure, or even improve trade, thus rewarding their efforts in this area.

References

National Statement of Requirements CC IBR 01, version N, approved by notice in the Official Journal of 20 June 2012.