



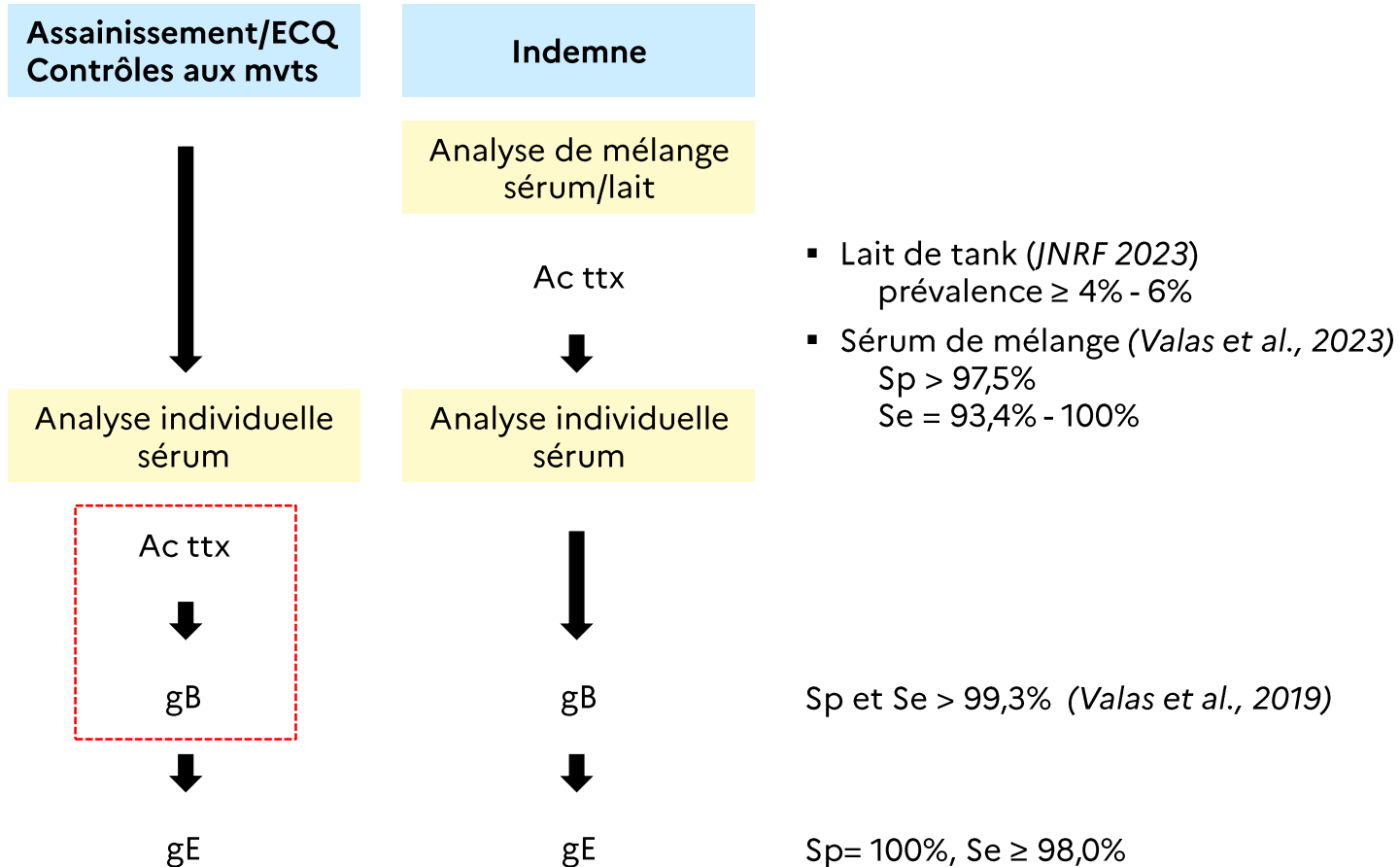
LNR-IBR

COMPARAISON DE PERFORMANCE ENTRE Ac ttx et gB SUR SÉRUMS INDIVIDUELS

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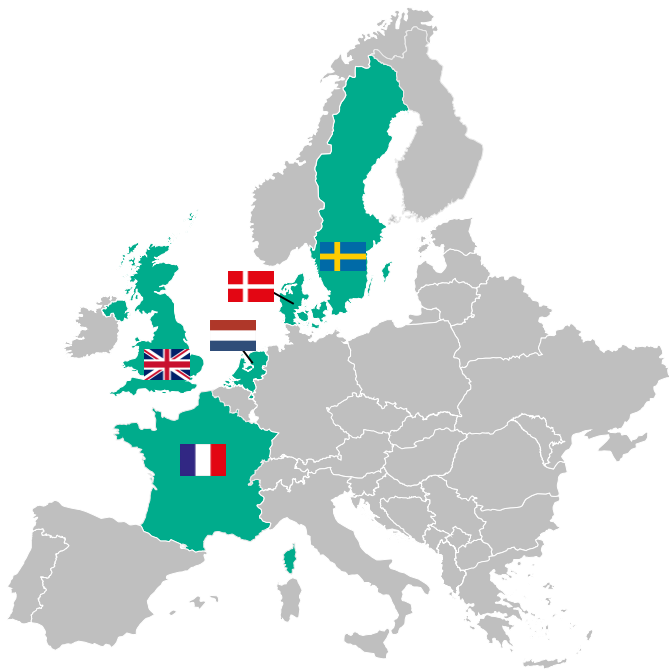
X^{ème} Journée nationale de la référence professionnelle

Procédure analytique bovins non vaccinés



Contexte de l'étude

Projet CoVetLab 2022-23 "Avancées méthodologiques dans l'évaluation inter-laboratoires de tests de diagnostic"



⇒ Sérums individuels

- Équipes de 5 agences sanitaires (analystes + épidémiologistes)
- Mise en commun de ≠ populations de sérums (pays indemnes vs non indemnes)
- Choix des tests utilisés dans chaque pays
- Comparaison basée sur l'absence de gold standard ou de méthode de référence (modèle bayésien à classes latentes)
- Prise en compte de l'expérience acquise

Tests sélectionnés

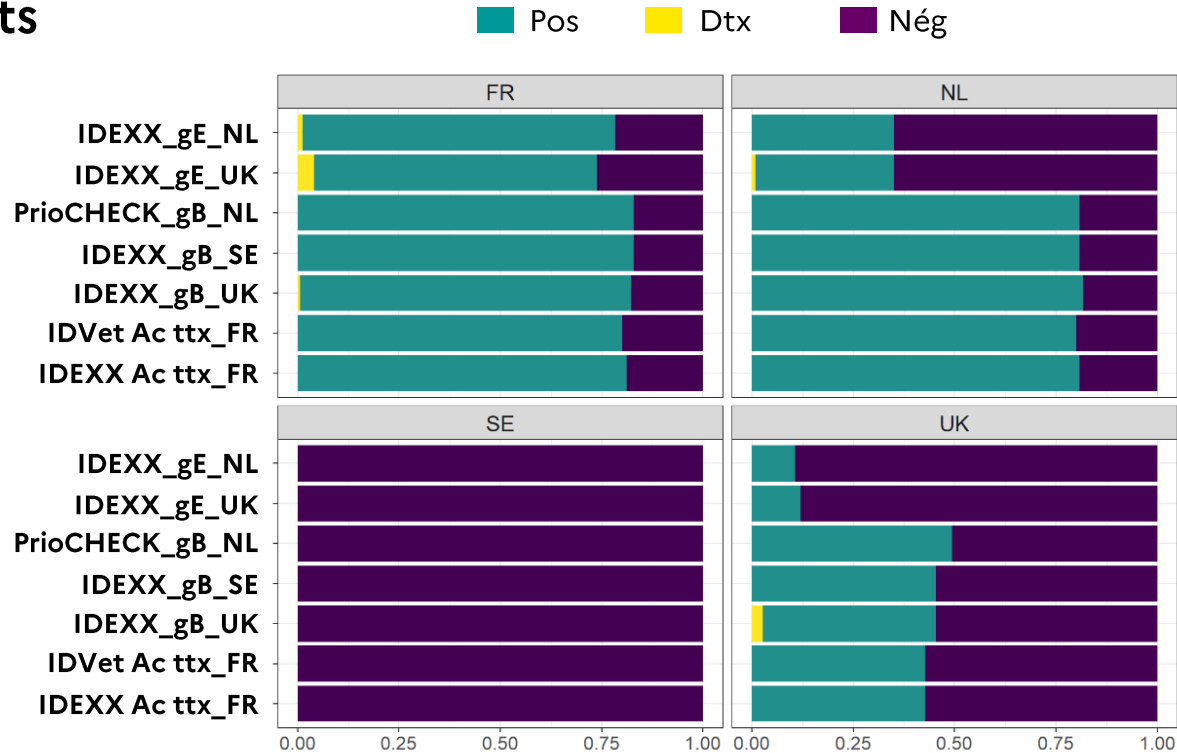
Partenaires	Tests (n=7)	Types	Seuil Dtx	Seuil Pos
ANSES, France	IDEXX IBR individual	Ac ttx		> 50
	ID Screen IBR Mixte Indirect	Ac ttx		> 100
SVA, Suède	IDEXX IBR gB X3 Ab	gB	≥ 45	≥ 55
APHA, UK	IDEXX IBR gB X3 Ab	gB	≥ 45	≥ 55
	IDEXX IBR gE Ab	gE	≥ 30	≥ 40
WBVR, Pays-Bas	PrioCHECK BHV-1 gB	gB		≥ 40
	IDEXX IBR gE Ab	gE	≤ 60	≤ 70

Panel de 515 sérums

Pays	Statut IBR	Prog. IBR	Sérums pris au hasard	Nb. de sérums
France	Non indemne	Oui	Trpx incidents (prophylaxie)	175 (pos + nég)
Suède	Indemne	Oui	Abattoir (surveillance)	145 (nég)
Pays-Bas	Non indemne	Oui	Abattoir (surveillance)	120 (pos + nég + vac Δ gE)
UK	Non indemne	Non	Dépistage toutes maladies	75 (pos + nég + vac Δ gE)
Danemark	Indemne	Oui	-	-

Aliquots des échantillons envoyés à chaque partenaire

Résultats bruts



- 234 (45,4%) négatifs tous tests
 - 177 (34,4%) positifs tous tests
 - 104 (20,2%) discordants
- 79,8% concordants

Modèle BLCA (1): tests gE exclus

Paramètre	Test	Valeur	IC95%
Se	IDEXX Ac ttx	0,985	0,967 – 0,999
	IDVet Ac ttx	0,978	0,957 – 0,994
	IDEXX gB	0,997	0,989 – 1,000
	PrioCheck gB	0,998	0,989 – 1,000
Sp	IDEXX Ac ttx	0,993	0,981 – 1,000
	IDVet Ac ttx	0,997	0,988 – 1,000
	IDEXX gB	0,987	0,967 – 0,999
	PrioCheck gB	0,974	0,950 – 0,993

Se > 97,7%
gB > Ac ttx

Sp > 98,6%
Ac ttx > gB

Modèle BLCA (2): exclusion des populations "vaccinées" (UK, NL) pour les tests gE

Paramètre	Test	Valeur	IC95%
Se	IDEXX Ac ttx	0,989	0,975 – 0,999
	IDVet Ac ttx	0,984	0,966 – 0,996
	IDEXX gB	0,994	0,983 – 1,000
	PrioCheck gB	0,994	0,983 – 1,000
	IDEXX gE_UK	0,903	0,852 – 0,948
	IDEXX gE_NL	0,959	0,923 – 0,987
Sp	IDEXX Ac ttx	0,992	0,979 – 0,999
	IDVet Ac ttx	0,994	0,984 – 1,000
	IDEXX gB	0,975	0,953 – 0,993
	PrioCheck gB	0,963	0,937 – 0,985
	IDEXX gE_UK	0,996	0,983 – 1,000
	IDEXX gE_NL	0,996	0,983 – 1,000

Se > 98,3%

gB > Ac ttx

Sp > 97,4%

Ac ttx > gB

Prise en compte de l'expérience

Seuils gB

IDEXX IBR gB X3 Ab

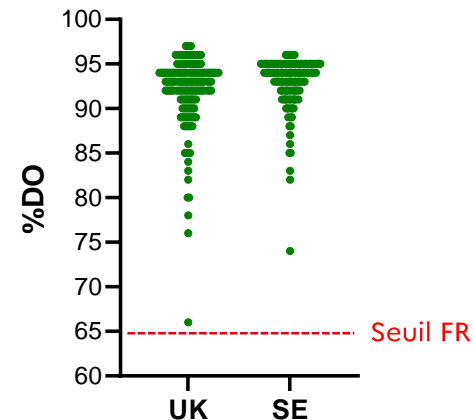
Partenaires	Seuil Dtx	Seuil Pos
ANSES, France	≥ 65	≥ 75
SVA, Suède	≥ 45	≥ 55
APHA, UK	≥ 45	≥ 55

%DO des 177 vrais positifs (positifs à tous les tests) ⇒
(même constat avec les 77 sérums "vaccinés")

Valas et al., *Prev. Vet. Med.* 2019

ABSTRACT

Within the framework of the national voluntary eradication program for Bovine alphaherpesvirus 1 (BoHV1) in France, the proportion of certified-free herds which experienced no more than two positive animals (termed singleton reactors) steadily increased to reach up to 95% in 2015. The aim of this study was to collate and evaluate serological data to gain insight into these epidemiological questionable BoHV1 seropositive animals. Preliminary evaluation of the performances of BoHV1 ELISA kits using a collection of 997 field sera with well-defined status revealed a relatively low specificity of the two gB blocking ELISAs most used in France for confirmatory testing (93.2% and 97.5% for gB-IDVet and gB-Idexx, respectively). In both ELISAs, the suboptimal specificity was associated with the presence of antibodies against BoHV2. Reassessment of the cut-offs led to a specificity and a sensitivity higher than 99.3%. Consequently, a comprehensive analysis of gB-positive sera from 2551 singleton reactors was performed by using gB ELISAs with optimized cut-offs, combined with viral neutralization test (campaign 2014–2015) or gE ELISA (campaign 2015–2016). Fifty percent of the 728 sera col-



Böttcher et al., *Vet. Microbiol.* 2012

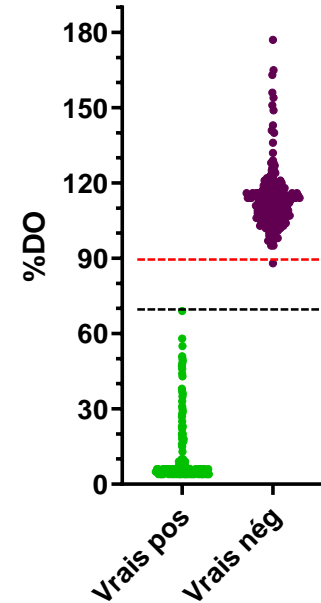
ABSTRACT

A voluntary marker-independent Bovine Herpesvirus 1 (BoHV1) eradication program started in 1986; in 1998 it changed to a compulsory one. Certification of free regions in European member states is based on Article 10 of directive 64/432/EEC. According to this rule Bavaria is listed as free of BoHV1 since October 2011. Surveillance of BoHV1-free dairy cattle farms is currently performed with quarterly bulk-milk testing. Non-negative bulk-milk results must be confirmed by blood tests in cattle older than nine months. An increased regional rate of non-negative bulk-milk samples and the subsequent detection of epidemiologically non-feasible singleton BoHV1-reactors by analysis of blood were observed at the final stage of eradication in southwest Bavaria.

Nineteen case farms (734 animals) defined by singleton reactors born at least two years after certification of the farms as BoHV1-free, 23 negative control (NC) farms (NC I: 321 animals) from the same region, 11 NC-farms (NC II: 423 animals) from an already-certified Article 10 region in northeast Bavaria and two BoHV1-infected farms (264 animals) were analysed using BoHV1-, BoHV2- and Feline Herpesvirus 1 (FeHV1)-neutralisation tests (NTs), and three commercially available ELISAs supplied by Idexx Laboratories, B.V., The Netherlands: the CHEKIT™ Trachitest 2nd Gen. test for milk or serum (Trachitest), Herdchek™ gB- (gB-ELISA) and Herdchek™ gE-ELISA (gE-ELISA). Significantly increased levels of BoHV2 antibodies were observed on case farms compared to NC I or II farms. Additionally, reactivity by gB-ELISA and the Trachitest was significantly increased for animals with BoHV2 neutralising antibodies. Singleton BoHV1-reactors tested negative by gE-ELISA even if an elevated cut-off of 0.95 ± 0.05 was applied. **At this cut-off, the gE-ELISA was as sensitive and specific as the gB-ELISA.**

Comparative titration of milk samples from seropositive animals from a BoHV1-infected dairy cattle farm and from singleton BoHV1-reactors performed in CHEKIT™ Trachitest 2nd Gen. Milk revealed that the slopes of both groups were distinct; therefore, optimised cut-offs for bulk-milk testing to exclude singleton BoHV1-reactors are proposed.

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Critères pour la comparaison entre Ac ttx et gB

- Seuils gB appliqués en France
- Kit Priocheck gB exclu
- Seuil gE optimisé
- Sérum déclaré pos si au moins 1 gE+
- Exclusion des sérums discordants UK et NL (n=8)

⇒ **507 sérums sur un total de 515**

		Pos	Nég
IDEXX Ac ttx	Pos	267	1
	Nég	1	238

		Pos	Nég
IDVet Ac ttx	Pos	266	0
	Nég	2	239

		Pos	Nég
IDEXX gB	Pos	267	2
	Nég	1	237

Performance des tests Ac ttx et gB utilisés en France

Paramètre	Test	Valeur	IC95%
Se	IDEXX Ac ttx	0,996	0,979 – 1,000
	IDVet Ac ttx	0,993	0,973 – 0,999
	IDEXX gB	0,996	0,979 – 1,000
Sp	IDEXX Ac ttx	0,996	0,977 – 1,000
	IDVet Ac ttx	1,000	0,984 – 1,000
	IDEXX gB	0,992	0,970 – 0,998

Se > 99,2%
Ac ttx = gB

Sp > 99,1%
Ac ttx = gB

Merci pour votre attention

