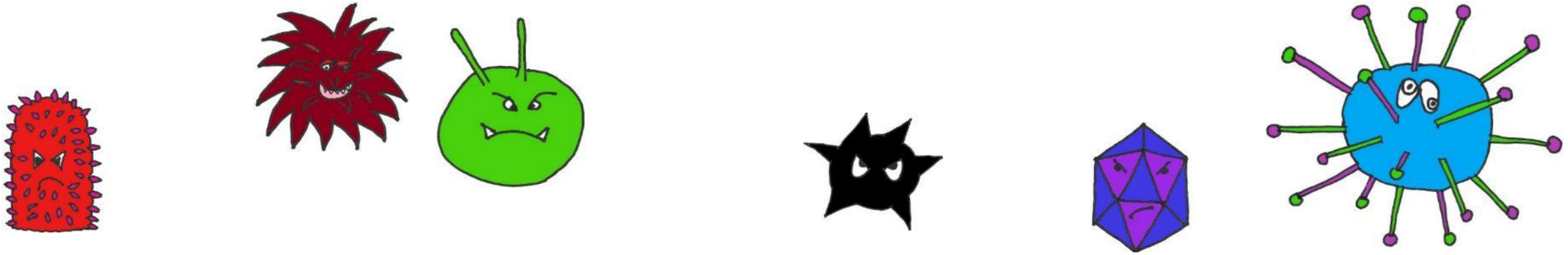


PRRS

Professor Lars Erik Larsen, Københavns Universitet
Chefforsker Charlotte Sonne Kristensen, SEGES Svineproduktion

UNIVERSITY OF COPENHAGEN

SEGES Svineproduktion

Hvad vil vi komme ind på

- PRRSV Horsens
- PRRSV positive ornestationer
- Diagnostiske undersøgelser
- Massevaccination
- PRRSV diversitet anno 2020 og vacciner
- PRRS i fremtiden

SEGES Svineproduktion

PRRSV Horsens

UNIVERSITY OF COPENHAGEN

SEGES Svineproduktion

Tidslinje

26. JULI

14.37: Laboratoriesvar:
1 positiv i Idexx og IPT

14.56: Orientering af Hatting om salgsstop

15.04: Salgsstop pr. mail

15.08: Betinget status

29. JULI

Svar: Afklarende blodprøver - 20/24 positive

Stationen er smittet med PRRS

TIDSLINJE

10. JULI

15 rutineblodprøver:
alle antistof negative
PCR: 2 positive

22. JULI

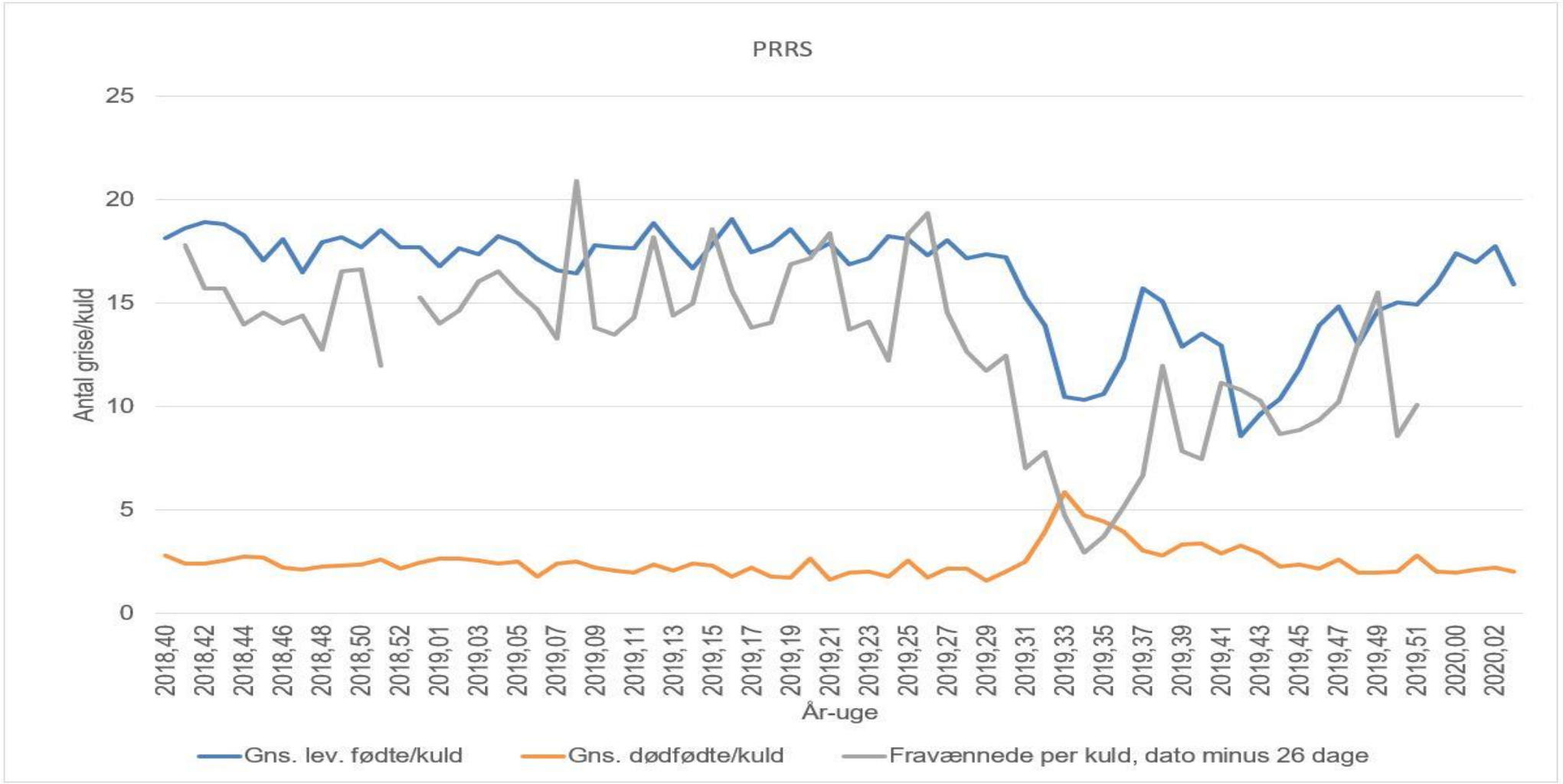
Rutineblodprøver

27. JULI

Afklarende blodprøver

SEGES Svineproduktion

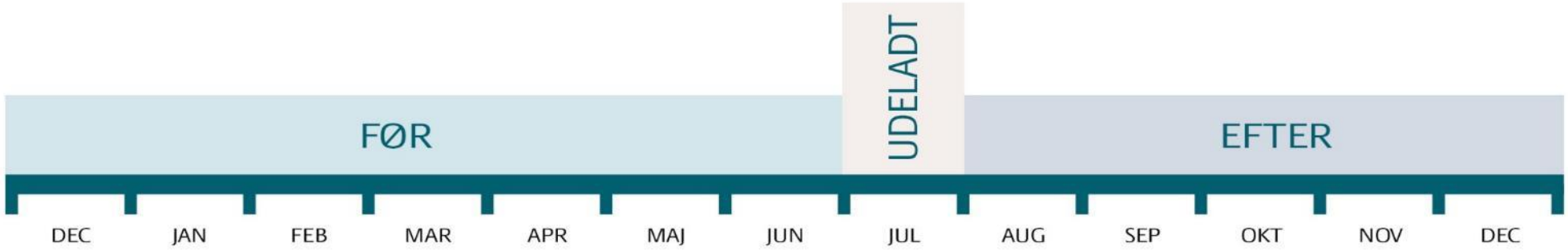
Besætning smittet fra Horsens



SEGES Svineproduktion

Metode

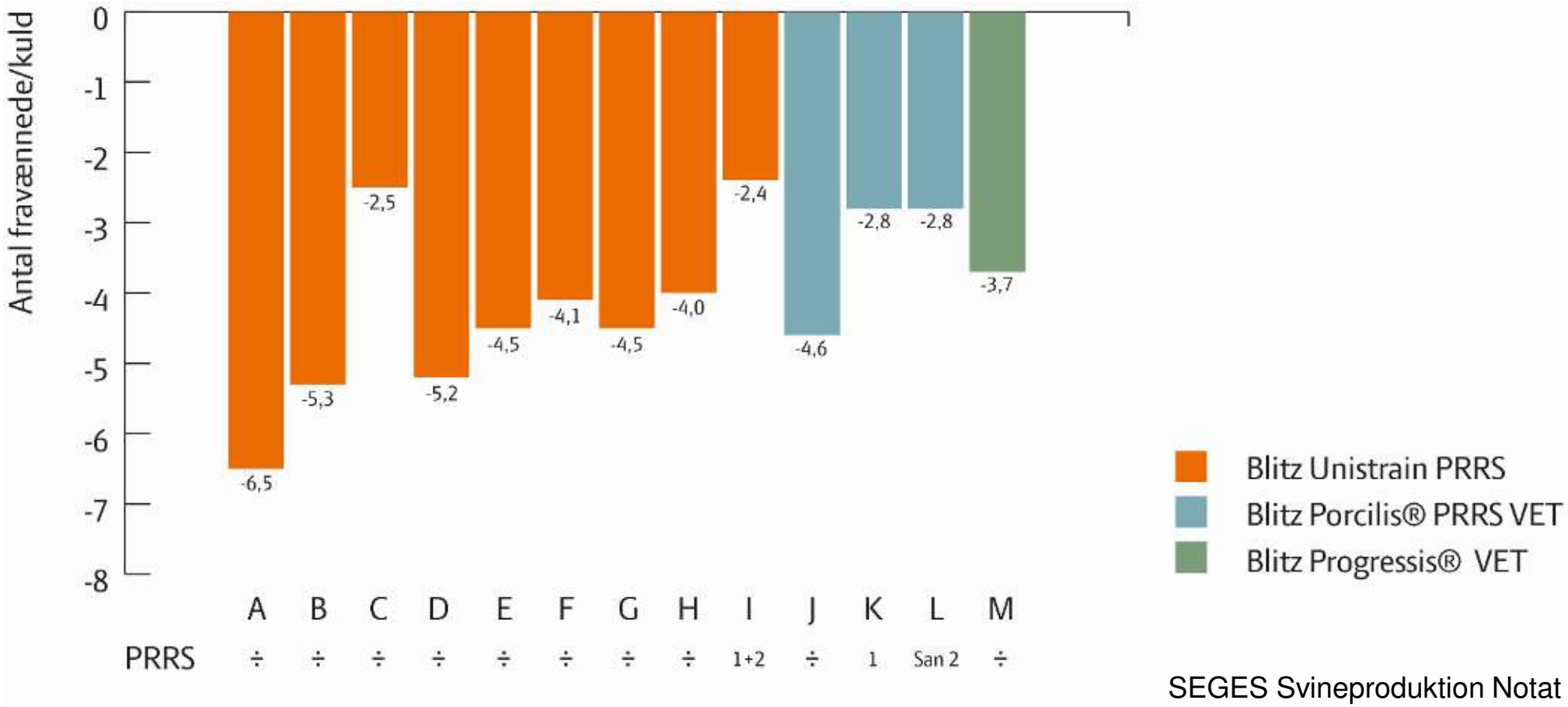
- Rådata fra produktivitetskontrollen



SEGES Svineproduktion Notat Nr. 2008

SEGES Svineproduktion

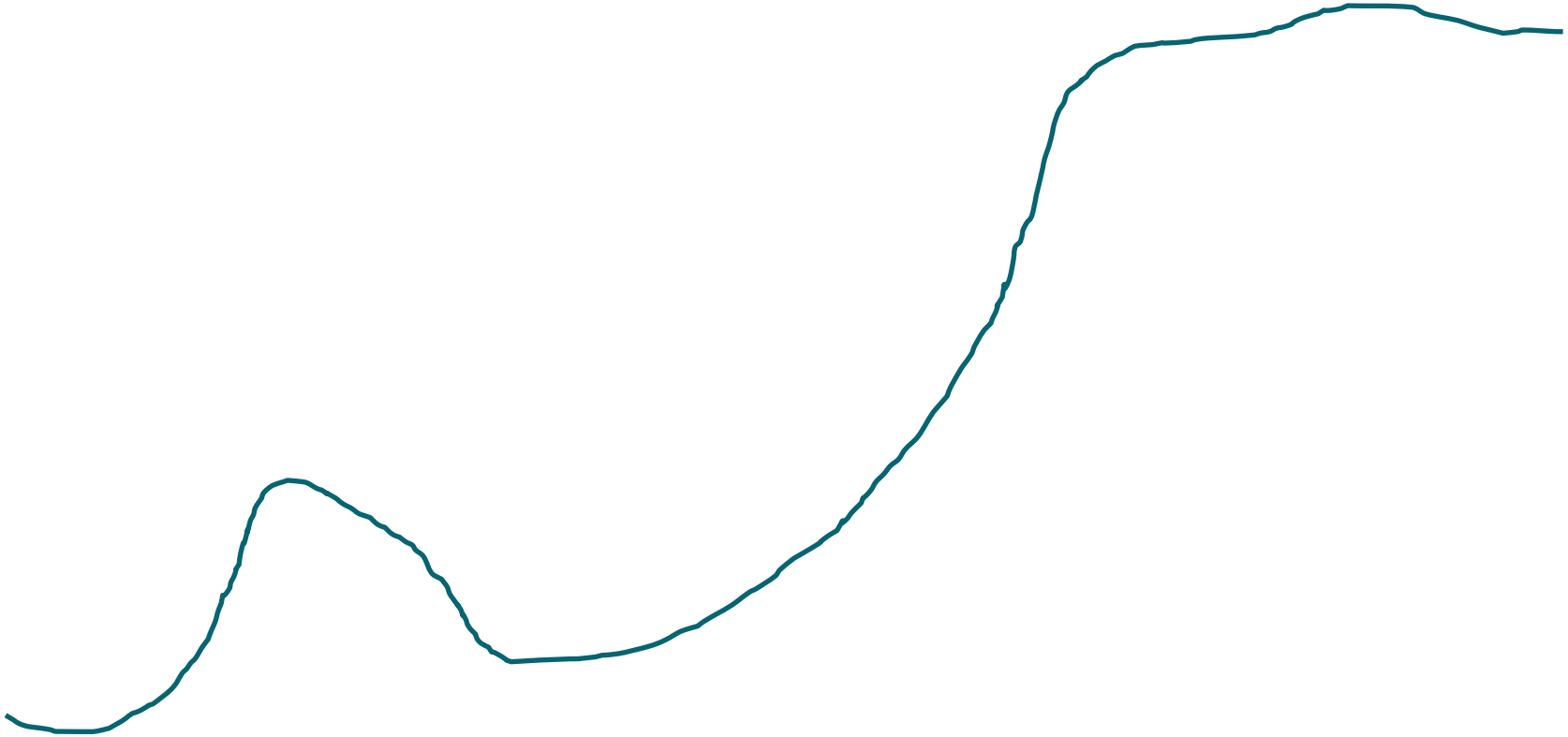
Fravænnede/kuld, marginal ændring



SEGES Svineproduktion Notat Nr. 2008

SEGES Svineproduktion

2. bølge?



SEGES
Svineproduktion

Genetisk karakterisering af "Horsens virus"

ORF 5 genet

DK Cluster 2

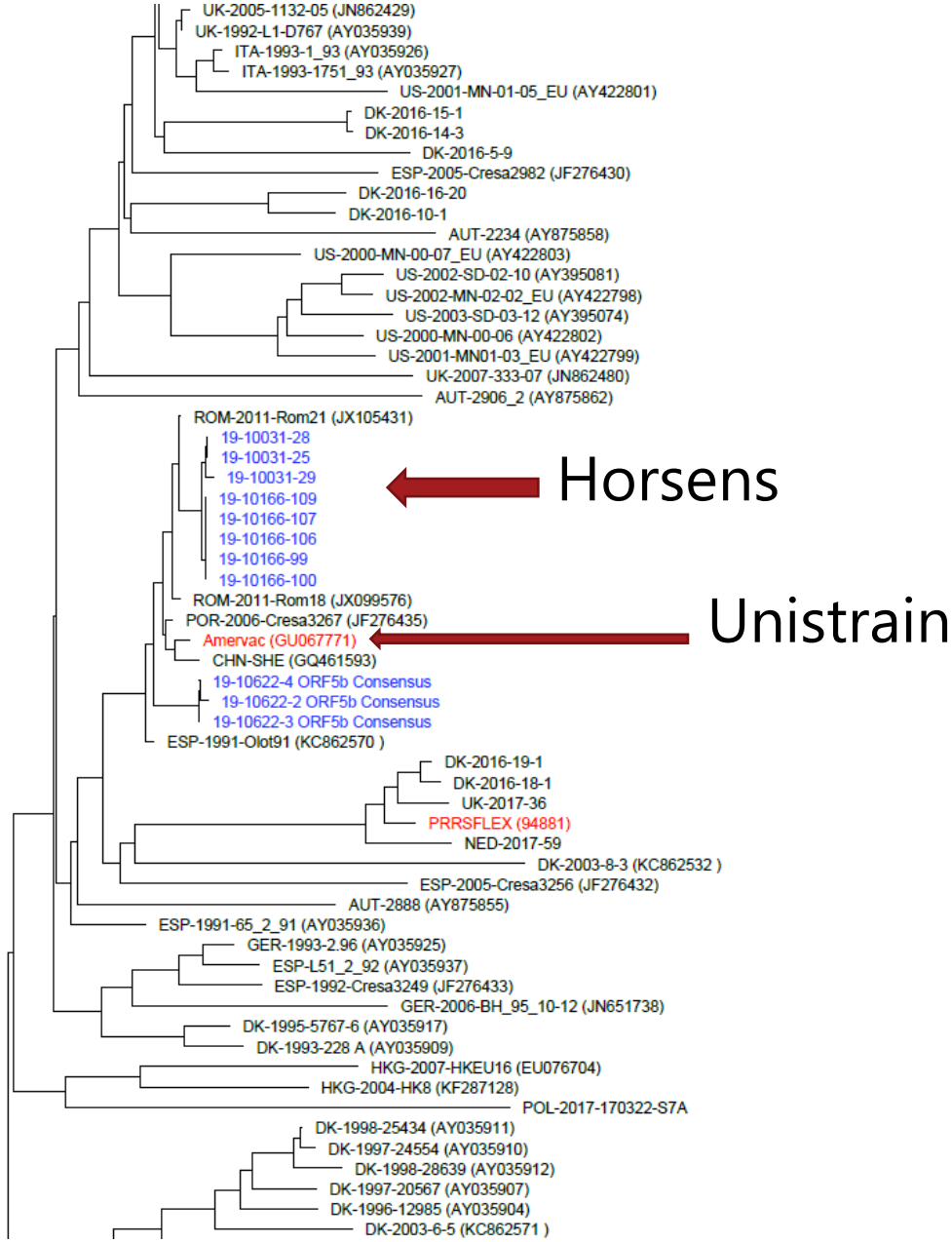
Horsens

DK Cluster 1

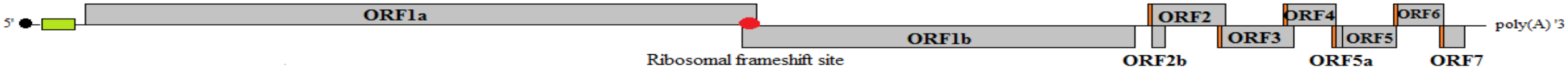
Zoom af ORF 5

Lighed mellem Unistrain - Horsens

		1	2	3	4	5
Amervac (GU067771)ORF2-7selection	1		6	6	6	6
19-10166-106 ORF5 Consensus	2	99.01		0	0	0
19-10166-107 ORF5 Consensus	3	99.01	100.00		0	0
19-10166-109 ORF5 Consensus	4	99.01	100.00	100.00		0
19-10166-100 ORF5 Consensus	5	99.01	100.00	100.00	100.00	



Karakterisering af det hele virus (NGS)



Horsens sammenlignet med Unistrain

ORF2:

	1	2	3	4	5
Amervac (GU067771)ORF2-7selection		55	54	54	54
19-10166-106 ORF2 Consensus	92.67		1	1	1
19-10166-107 ORF2 Consensus	92.80	99.87		0	0
19-10166-109 ORF2 Consensus	92.80	99.87	100.00		0
19-10166-100 ORF2 Consensus	92.80	99.87	100.00	100.00	

ORF3:

	1	2	3	4	5
Amervac (GU067771)ORF2-7selection		25	26	25	25
19-10166-106 ORF3 Consensus	96.87		1	0	0
19-10166-107 ORF3 Consensus	96.74	99.87		1	1
19-10166-109 ORF3 Consensus	96.87	100.00	99.87		0
19-10166-100 ORF3 Consensus	96.87	100.00	99.87	100.00	

ORF4:

	1	2	3	4	5
Amervac (GU067771)ORF2-7selection		5	5	6	5
19-10166-106 ORF4 Consensus	99.09		0	1	0
19-10166-107 ORF4 Consensus	99.09	100.00		1	0
19-10166-109 ORF4 Consensus	98.91	99.82	99.82		1
19-10166-100 ORF4 Consensus	99.09	100.00	100.00	99.82	

ORF5:

	1	2	3	4	5
Amervac (GU067771)ORF2-7selection		6	6	6	6
19-10166-106 ORF5 Consensus	99.01		0	0	0
19-10166-107 ORF5 Consensus	99.01	100.00		0	0
19-10166-109 ORF5 Consensus	99.01	100.00	100.00		0
19-10166-100 ORF5 Consensus	99.01	100.00	100.00	100.00	

ORF6:

	1	2	3	4	5
Amervac (GU067771)ORF2-7selection		3	3	3	3
19-10166-106 ORF6 Consensus	99.43		0	0	0
19-10166-107 ORF6 Consensus	99.43	100.00		0	0
19-10166-109 ORF6 Consensus	99.43	100.00	100.00		0
19-10166-100 ORF6 Consensus	99.43	100.00	100.00	100.00	

ORF7:

	1	2	3	4	5
Amervac (GU067771)ORF2-7selection		1	1	1	1
19-10166-106 ORF7 Consensus	99.74		0	0	0
19-10166-107 ORF7 Consensus	99.74	100.00		0	0
19-10166-109 ORF7 Consensus	99.74	100.00	100.00		0
19-10166-100 ORF7 Consensus	99.74	100.00	100.00	100.00	

ORF1-3 er for forskellig

- BLAST analyse

Descriptions | Graphic Summary | Alignments | Taxonomy

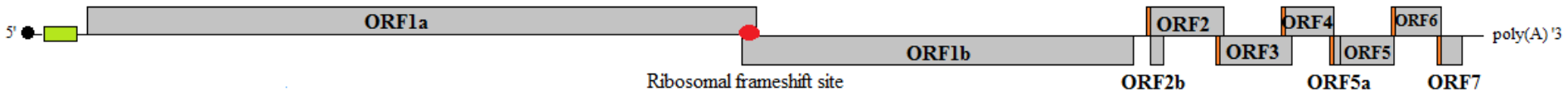
Sequences producing significant alignments Download Manage Columns Show 100

select all *100 sequences selected* GenBank Graphics Distance tree of results

Description	Max Score	Total Score	Query Cover	E value	Per. Ident	Accession
Porcine reproductive and respiratory syndrome virus isolate 94V360 envelope glycoprotein GP2, envelope protein E, envelope glycoprotein G	1066	1066	100%	0.0	93.34%	JF
Lelystad virus, complete genome	1050	1050	100%	0.0	92.96%	NC_043487.1
Lelystad virus, complete genome	1050	1050	100%	0.0	92.96%	M96262.2
Porcine reproductive and respiratory syndrome virus isolate NL/GD-3-5/2014, partial genome	1044	1044	100%	0.0	92.82%	MK404253.1
PRRSV LV4.2.1, complete genome	1044	1044	100%	0.0	92.82%	AY588319.1
Porcine reproductive and respiratory syndrome virus (PRRSV) RNA polymerase, 3' end; complete ORF3, ORF4, ORF5; glycoprotein gene, m	1044	1044	100%	0.0	92.82%	L04493.1
Porcine reproductive and respiratory syndrome virus isolate NL/GD-2-16/2014, partial genome	1038	1038	100%	0.0	92.68%	MK404249.1
Porcine reproductive and respiratory syndrome virus isolate NL/GD-1-15/2016, partial genome	1038	1038	100%	0.0	92.68%	MK404238.1
Porcine reproductive and respiratory syndrome virus isolate NL/GD-2-5/2014, partial genome	1037	1037	99%	0.0	92.68%	MK404241.1
Porcine reproductive and respiratory syndrome virus isolate NL/GD-1-9/2015, partial genome	1037	1037	99%	0.0	92.68%	MK404236.1
Porcine reproductive and respiratory syndrome virus isolate DK-2008-10-5-2, complete genome	1035	1035	99%	0.0	92.65%	KC862573.1
Porcine reproductive and respiratory syndrome virus isolate NL/GD-2-10/2014, partial genome	1033	1033	100%	0.0	92.54%	MK404245.1
Porcine reproductive and respiratory syndrome virus isolate NL/GD-1-18/2016, partial genome	1033	1033	100%	0.0	92.54%	MK404240.1
Porcine reproductive and respiratory syndrome virus isolate Olot/91, complete genome	1033	1033	100%	0.0	92.53%	KF203132.1
Porcine respiratory and reproductive syndrome virus strain 01CB1, complete genome	1033	1033	100%	0.0	92.54%	DQ864705.1
Porcine reproductive and respiratory syndrome virus isolate NL/GD-2-6/2014, partial genome	1031	1031	99%	0.0	92.54%	MK404242.1
Porcine reproductive and respiratory syndrome virus isolate NL/GD-7-2/2016, partial genome	1027	1027	100%	0.0	92.40%	MK404298.1
Porcine reproductive and respiratory syndrome virus isolate NL/GD-5-8/2015, partial genome	1027	1027	100%	0.0	92.40%	MK404279.1

Bestw match
– men ikke tæt nok!

Første udmeldte konklusion



Ukendt

Unistrain-lignende

Hvilken stamme har doneret resten?

- Zoetis Suvaxyn vaccine stammens navn er 96V198 - navnet ligner således navnet på det bedste hit i Blast - 96V260
- Søgning efter 96V198 i Genebank afslørede fem sekvenser, der ikke dukkede op i Blast
- Således - Blast inkluderer ikke stammer indsendt som patenterede stammer
- Zoetis forsynede os med FG-sekvens på deres vaccine stamme
- Patentstammen 96V198-5 fra GeneBank var identisk med Suvaxyn-stammen

Sammenligning af ORFs 2-3 af Horsens stammen med 96V198

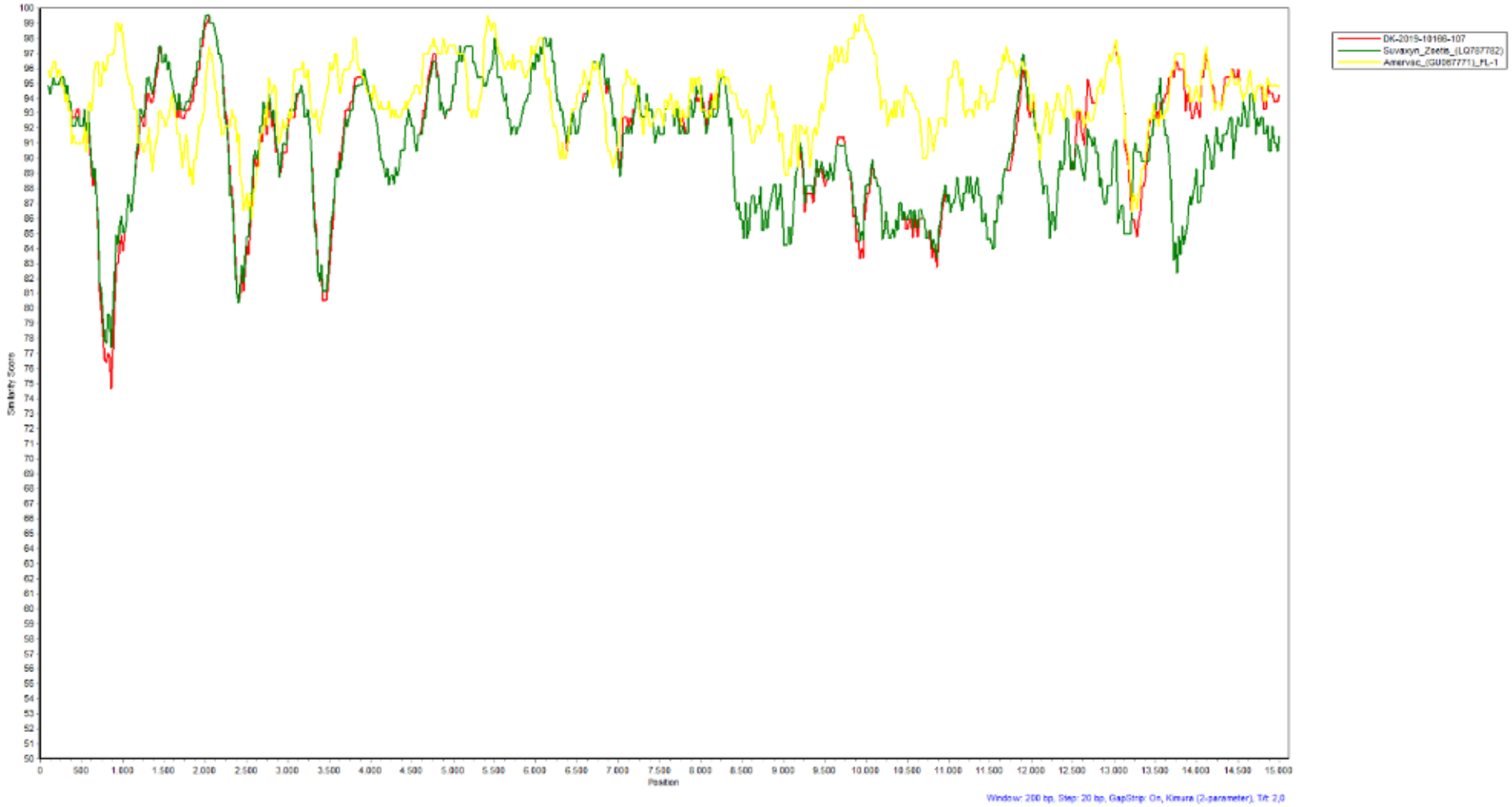
96V198 (Suvaxyn) →

↓ 96V198 (Suvaxyn)

		1	2	3	4	5	6	7	8	9	10	11
LQ787779 seq 2 patent WO2018112169	1		0	5	8	7	12	15	15	15	15	69
LQ787778 seq 1 patent WO2018112169	2	100.00		5	8	7	12	15	15	15	15	69
LQ787780 seq 3 patent WO2018112169	3	99.31	99.31		3	2	13	10	10	10	10	72
LQ787782 seq 5 patent WO2018112169	4	98.89	98.89	99.58		1	16	7	7	7	7	71
LQ787781 seq 4 patent WO2018112169	5	99.03	99.03	99.72	99.86		15	8	8	8	8	72
96V198 sekv VET	6	98.34	98.34	98.20	97.78	97.92		23	23	23	23	77
19-10166-106 ORF2-7 Consensus	7	97.92	97.92	98.61	99.03	98.89	96.81		0	0	0	66
19-10166-107 ORF2-7 Consensus	8	97.92	97.92	98.61	99.03	98.89	96.81	100.00		0	0	66
19-10166-100 ORF2-7 Consensus	9	97.92	97.92	98.61	99.03	98.89	96.81	100.00	100.00		0	66
19-10166-109 ORF2-7 Consensus	10	97.92	97.92	98.61	99.03	98.89	96.81	100.00	100.00	100.00		66
Amervac (GU067771)ORF2-7selection	11	90.43	90.43	90.01	90.15	90.01	89.32	90.85	90.85	90.85	90.85	

Bingo!!

Recombination analyses - SiMPLOT



Endelig konklusion

Received: 11 December 2019 | Revised: 8 March 2020 | Accepted: 18 March 2020
DOI: 10.1111/tbed.13555

RAPID COMMUNICATION

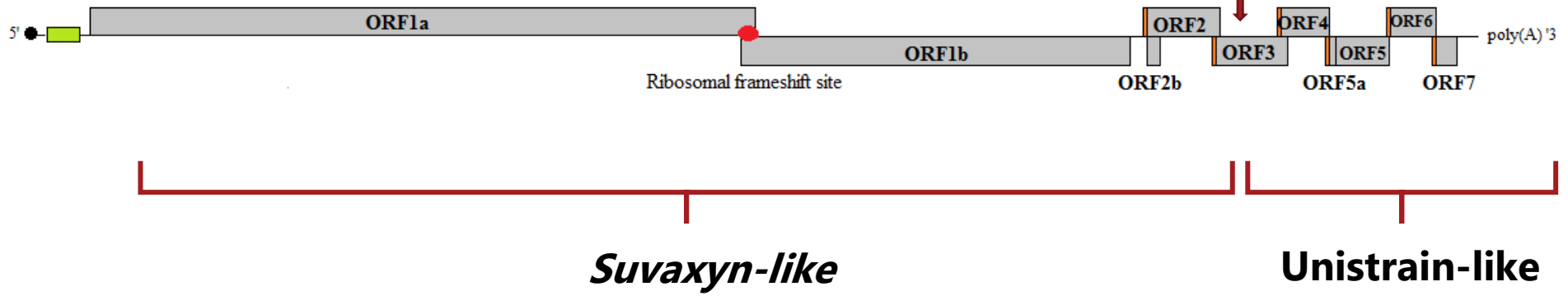
Transboundary and Emerging Diseases WILEY

A recombination between two Type 1 Porcine Reproductive and Respiratory Syndrome Virus (PRRSV-1) vaccine strains has caused severe outbreaks in Danish pigs

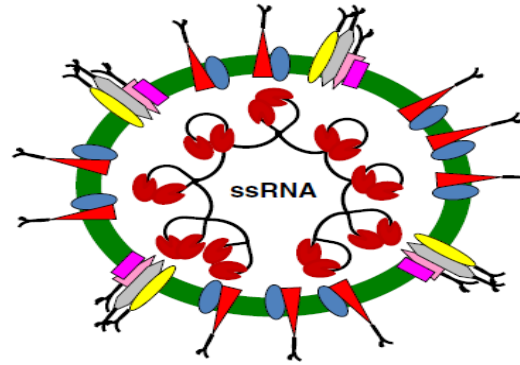
Lise Kirstine Kvisgaard[1] | Charlotte Sonne Kristensen[2] | Pia Ryt-Hansen[1] | Kasper Pedersen[2] | Tomasz Stadejek[3] | Ramona Trebbien[4] | Lars Ole Andresen[1] | Lars Erik Larsen[1,5]

SEGES Svineproduktion Notat Nr. 2005

Stedet hvor de to virus er sat sammen



Konklusion på Horsens virus



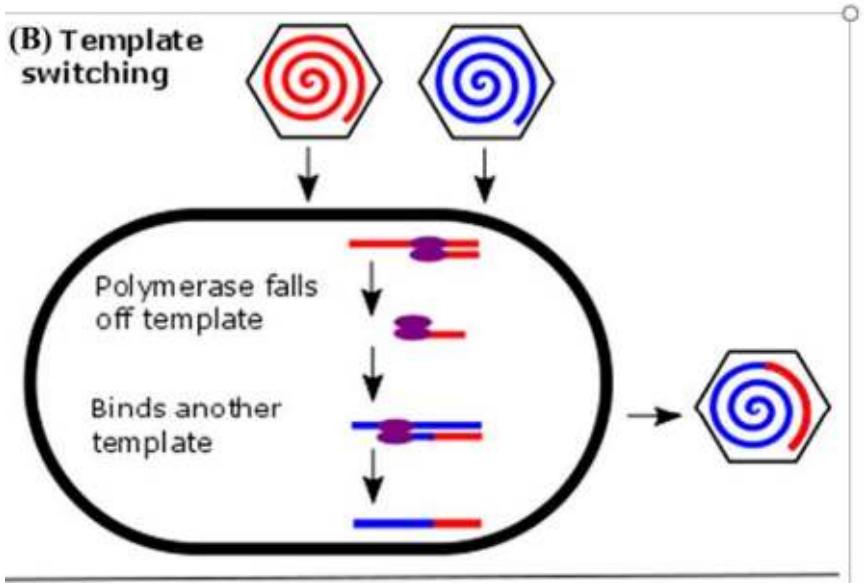
- Hoved forældren (mor☺) er Suvaxyn
- "Bi" forældren (far☺) er Amervac
- De to virus er altså blevet splejset sammen
- Da de ligner forældrene rigtig meget er det sket for nyligt
- På overfladen er virus "Unistrain" – det er den del der primært genkendes af antistoffer

Diskussion – er rekombination almindelig for PRRSV-1?

- Rekombination mellem felt-stammer er rapporteret med stigende forekomst i flere lande
- Rekombination mellem vaccinstammer og feltstammer er rapporteret fra Storbritannien, Kina, Spanien, Ungarn, Danmark, Polen osv.
- Rekombination mellem to vaccinstammer er rapporteret fra Frankrig (Unistrain og Porcilis)
- Er forekomsten stigende, eller laver vi bare mere FG-sekventering?

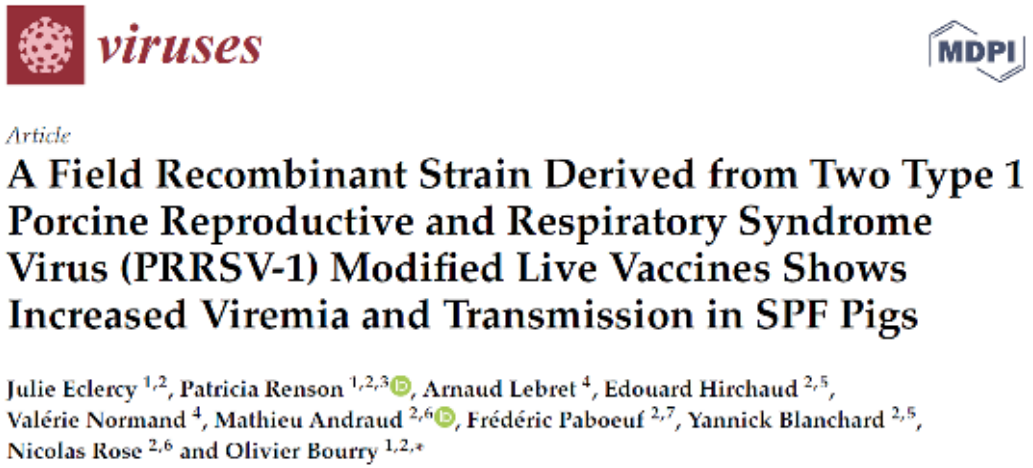
Diskussion – hvordan opstår rekombinationer?

- Kræver at den samme celle er inficeret med to forskellige vira på samme tid



- Kan den stigende brug af massevaccination forklare det øgede antal rekombinationer?

Diskussion – er rekombinante virus mere virulente?



viruses

MDPI

Article

A Field Recombinant Strain Derived from Two Type 1 Porcine Reproductive and Respiratory Syndrome Virus (PRRSV-1) Modified Live Vaccines Shows Increased Viremia and Transmission in SPF Pigs

Julie Eclercy [1,2], Patricia Renson [1,2,3], Arnaud Lebret [4], Edouard Hirchaud [2,5], Valérie Normand [4], Mathieu Andraud [2,6], Frédéric Paboeuf [2,7], Yannick Blanchard [2,5], Nicolas Rose [2,6] and Olivier Bourry [1,2,*]

- Meget lidt data – nogle studier påstår at rekombinationer er mere virulente – andre ikke

- Helt ærligt så ved vi det ikke, men vi har en hypotese!

Infektion af søer

pathogens

MDPI

Article

Assessment of the Impact of the Recombinant Porcine Reproductive and Respiratory Syndrome Virus Horsens Strain on the Reproductive Performance in Pregnant Sows

Sandra Genís [1], Lise K. Kvisgaard [2], Lars E. Larsen [2,3], Lucas P. Taylor [4], Jay G. Calvert [4] and Mònica Balasch [1,*]

- Konklusionen på studiet var at Horsens virusset gav reproduktionsproblemer i samme grad som en PRRSV-1 reference stamme (Olot)

Smitteforsøg
”Er PRRSV-varianten fra Horsens værre og virker vacciner?”

Antal grise	Vaccination	Inokulering (næse) 4 uger efter vaccination
6	Suvaxyn PRRS MLV	PRRSV-variant fra Horsens
6	Unistrain®PRRS	PRRSV-variant fra Horsens
6	Porcilis®PRRS	PRRSV-variant fra Horsens
6	Ingen vaccination	PRRSV-variant fra Horsens
6	Ingen vaccination	PRRSV-variant fra Frankrig
6	Ingen vaccination	Ingen Inokulering

SEGES Svineproduktion Meddelelse Nr. 2011

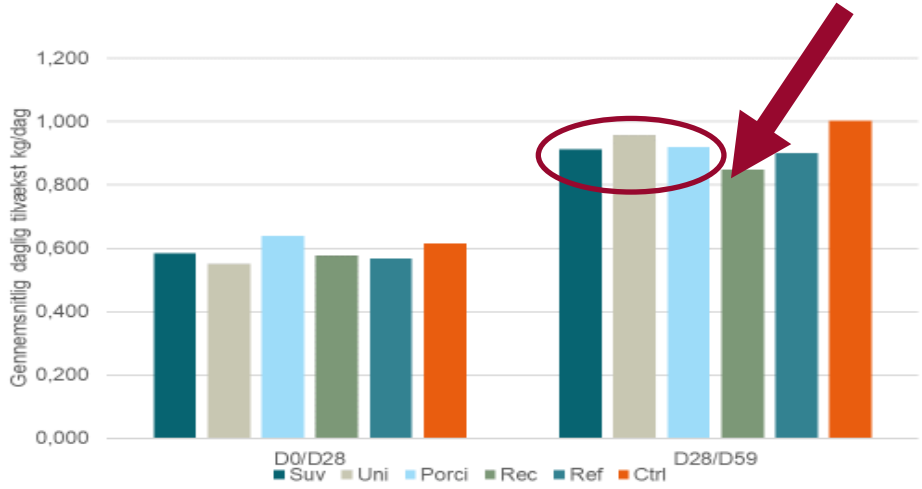
anses
agence nationale de sécurité sanitaire alimentation, environnement, travail
Connaître, évaluer, protéger

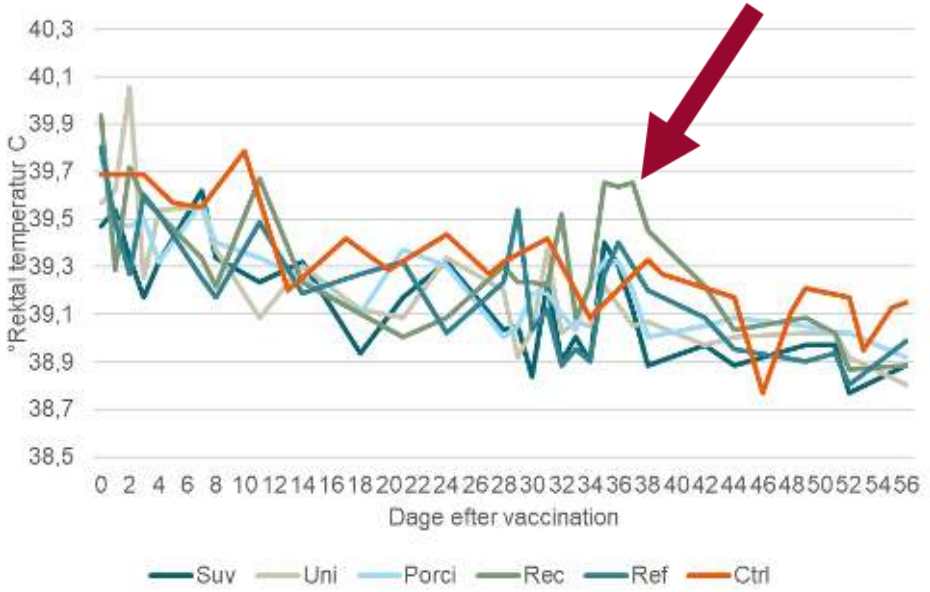
UNIVERSITY OF COPENHAGEN

SEGES Svineproduktion

Smitteforsøg

”Er PRRSV-varianten fra Horsens værre og virker vacciner?”





- PRRSV-varianten fra Horsens så ud til at give
  - lavere tilvækst
  - højere temperatur
  - mere PRRSV
- PRRS-vaccination så ud til at modvirkede dette

SEGES Svineproduktion Meddelelse Nr. 2011

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SEGES Svineproduktion

PRRSV positive ornestationer

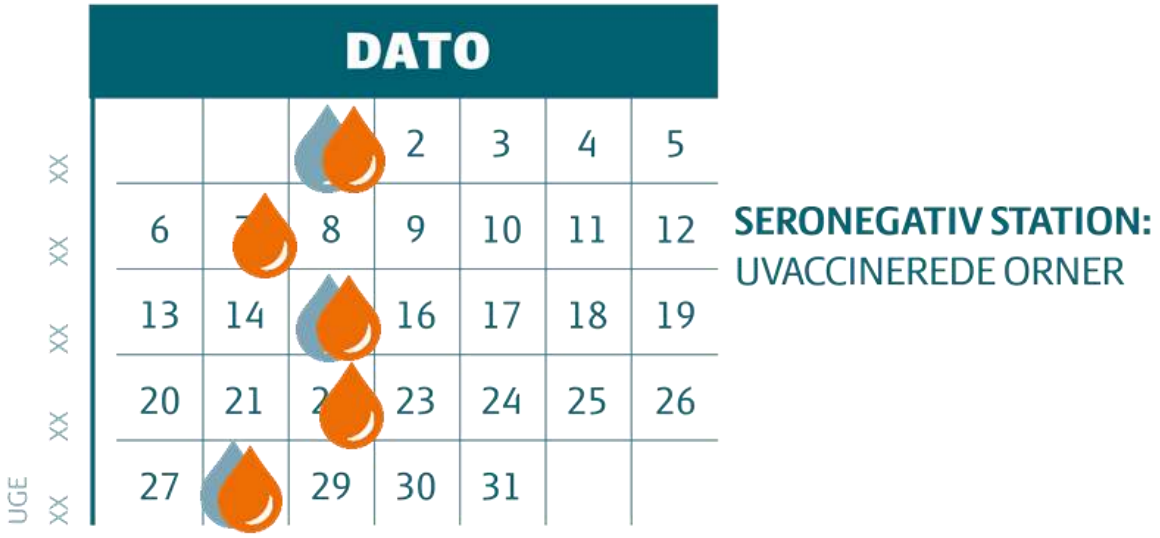
UNIVERSITY OF COPENHAGEN

SEGES Svineproduktion

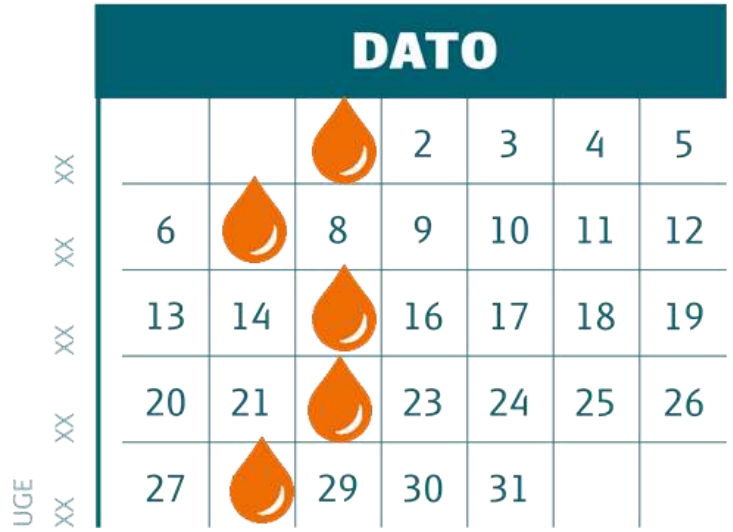
Overvågning af DANBRED ornestationer for PRRS

antistoffer

virus



SERONEGATIV STATION:
UVACCINEREDE ORNER



SEROPOSITIV STATION:
VACCINEREDE ORNER

Startet uge 5-7, 2020

SEGES Svineproduktion

PRRSV påvist på ornestationer

Ca. 40 smittede besætninger

Ingen påviste smittede besætninger

Horsens

PRRS-seronegativ

AUGUST 2019

Mors2

PRRS-seropositiv

MARTS 2020

Aalborg

PRRS-seropositiv

JUNI 2020

Odense

PRRS-seropositiv

JULI 2020

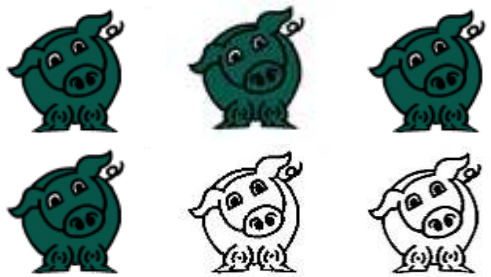
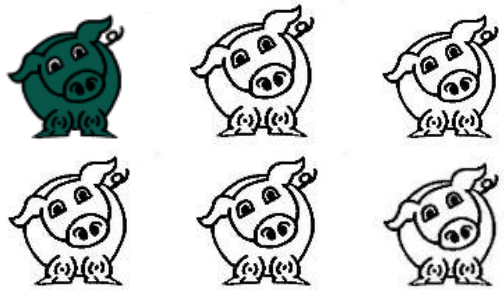
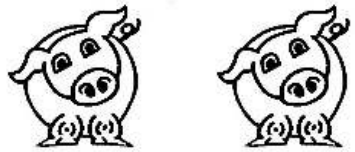
SEGES Svineproduktion

Mors2 forløb

- I alt blev otte orner testet positive i blod, alle negative i sæd
- To besætninger mistænkt, afkræftet ved genetisk undersøgelse
- Smitteforsøg
  - ”Er sæd, som er testet PRRSV-negativ ved PCR, infektiøst?”

Smitteforsøg

”Er sæd, som er testet PRRSV-negativ ved PCR, infektiøst?”

	Grise inokuleret	Grise kontakt
Inokulering med blod		
Inokulering med sæd		
Inokulering med PRRSV1 positiv kontrol		

SEGES Svineproduktion Meddelelse Nr. 2010

SEGES Svineproduktion

Mors2 opsamling

- Overvågningen fungerede, og ingen besætninger blev smittet
- Undersøgelse af blod fra orner ved PCR giver en mere følsom evaluering af PRRSV-smittepotentiale via sæd
- At grise kunne inficeres med sæd, der er testet PRRSV-negativ ved PCR, er ikke bevis for, at søer kan smittes under praktiske forhold
- Det ikke er muligt at fri-teste sæd for PRRSV med PCR ved direkte test af sæden

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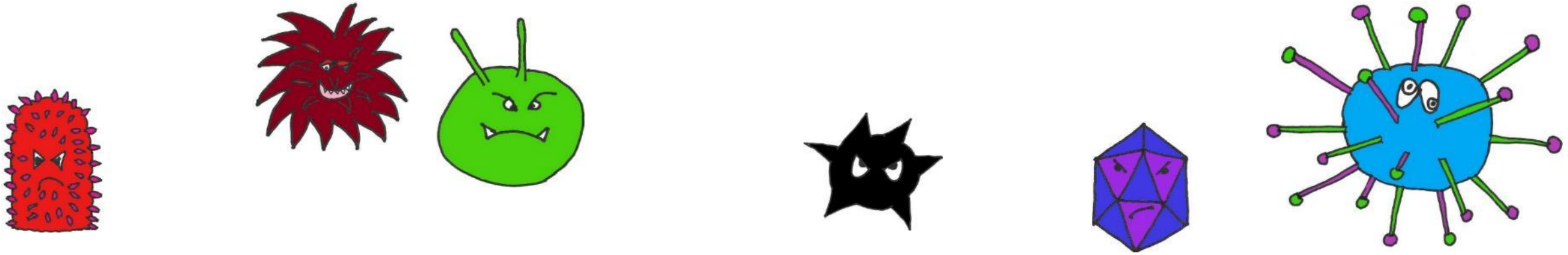
SEGES Svineproduktion



Diagnostiske undersøgelser

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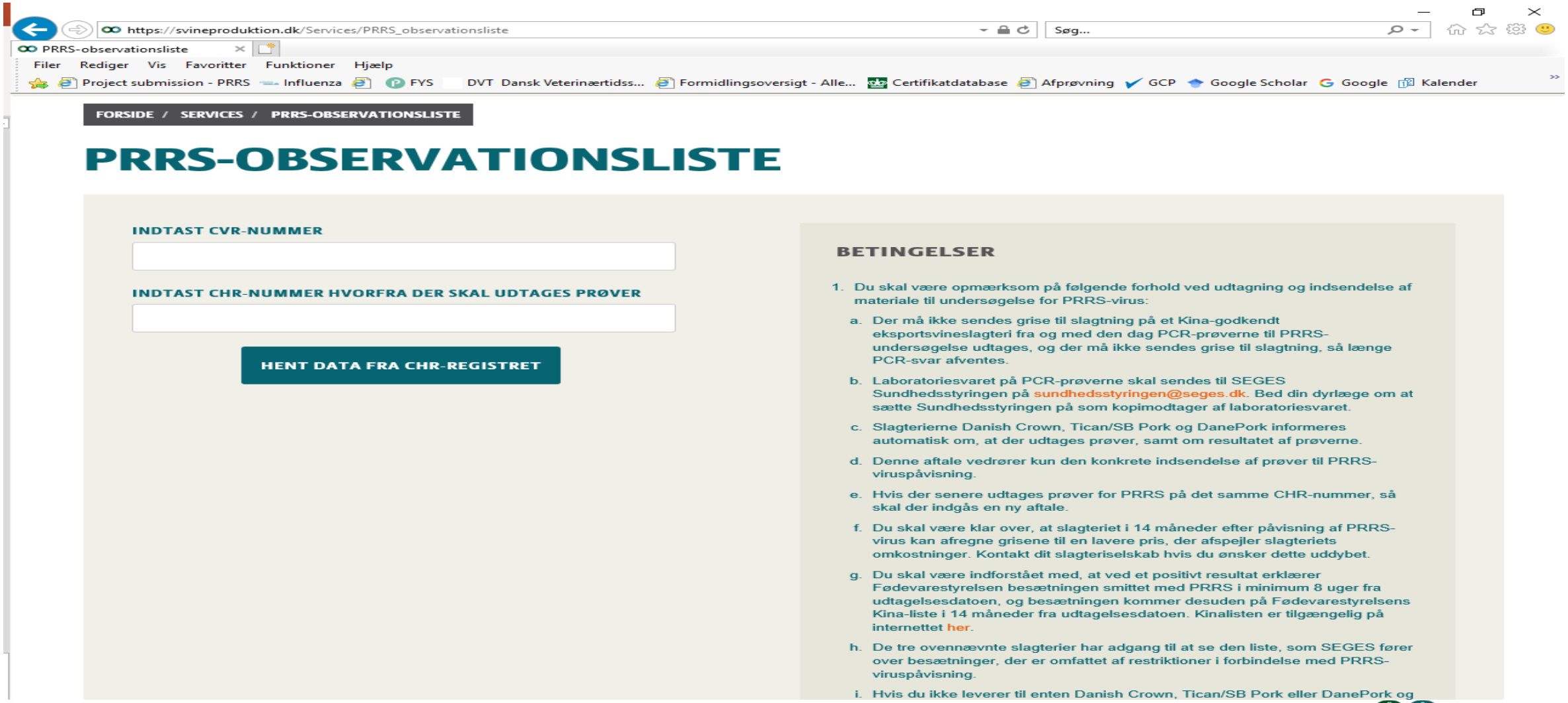
SEGES Svineproduktion

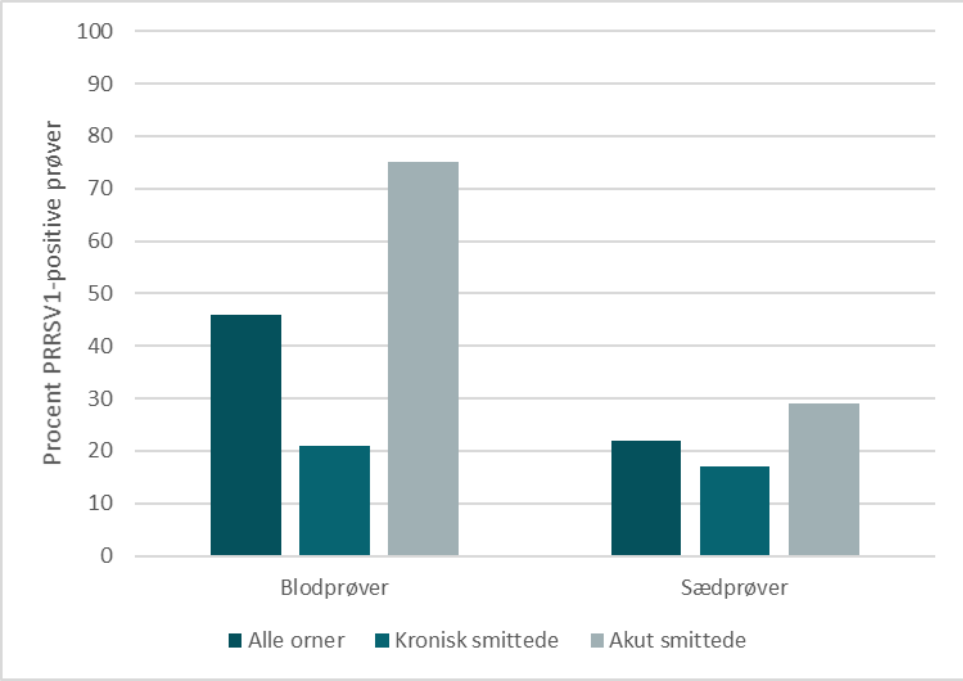
HUSK hvis I laver PCR



SEGES Svineproduktion

Orner fra Horsens

- 19 ”konisk” smittede orner
- 16 ”akut” smittede orner



- Blod er bedre end sæd til påvisning af PRRSV
- En PRRSV-negativ test af blod er ikke en 100 % garanti for, at der ikke kan være PRRSV i sæd, når ornen har været smittet med PRRSV længe.

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Massevaccination

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Massevaccination med en levende svækket PRRSV1-vaccine i to sohold – virus, antistoffer og lidt produktivitet

Kasper Pedersen

Veterinærmedicinstuderende på KU og studenterhjælper ved SEGES Svineproduktion

DVHS 2020

Introduktion

Mange besætninger vælger at etablere et ”*stabilt sohold”, så de er godt beskyttede imod reinfektioner og der kan fravænnes grise uden PRRSV1*.

Basisvaccinerede avlsdyr

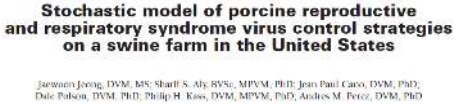
eller

Gentagne massevaccinationer

PLOS ONE

Economic Analysis of Vaccination Strategies for PRRS Control

Abstract



Stochastic model of porcine reproductive and respiratory syndrome virus control strategies on a swine farm in the United States

Jaewoon Jeong, DVM, MS; Sharifi S. Aly, BVSc, MPVM, PhD; Jean Paul Cano, DVM, PhD; Dale Polson, DVM, PhD; Phillip H. Kass, DVM, MPVM, PhD; Andres M. Perez, DVM, PhD

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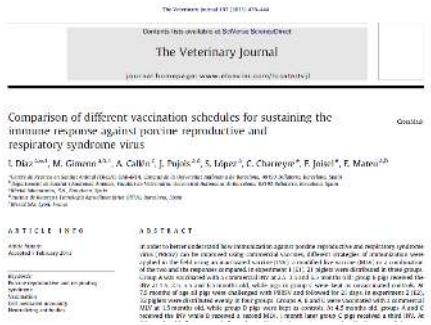
Gentagne massevaccinationer


The Veterinary Journal

Comparison of different vaccination schedules for sustaining the immune response against porcine reproductive and respiratory syndrome virus

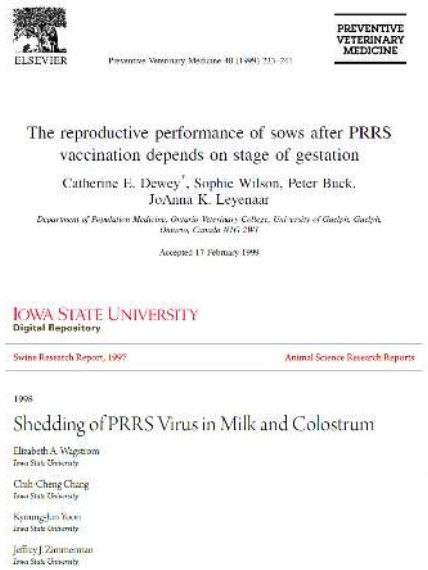

ScienceDirect

veterinary microbiology

Assessment of the efficacy of commercial porcine reproductive and respiratory syndrome virus (PRRSV) vaccines based on measurement of serologic response, frequency of gamma-IFN-producing cells and virological parameters of protection upon challenge

Risikogrupper

> 2/3 drægtig


PREVENTIVE VETERINARY MEDICINE

The reproductive performance of sows after PRRS vaccination depends on stage of gestation

Catherine E. Dewey, Sophie Wilson, Peter Buck, JoAnna K. Leyenaar

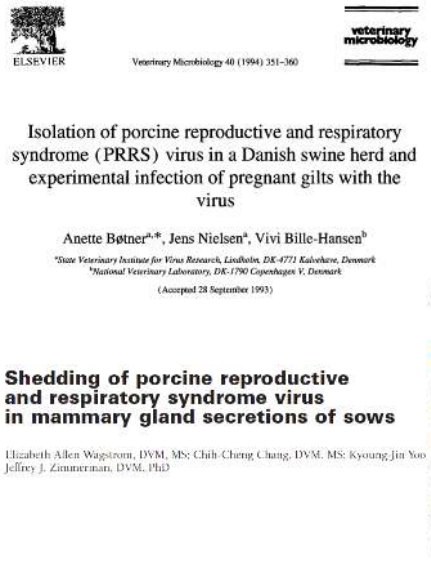
IOWA STATE UNIVERSITY Digital Repository

Swine Research Report, 1997 — Animal Science Research Reports

1998

Shedding of PRRS Virus in Milk and Colostrum

Elizabeth A. Wagstrom, Chih-Cheng Chang, Kyoung-Jin Yoon, Jeffrey J. Zimmerman

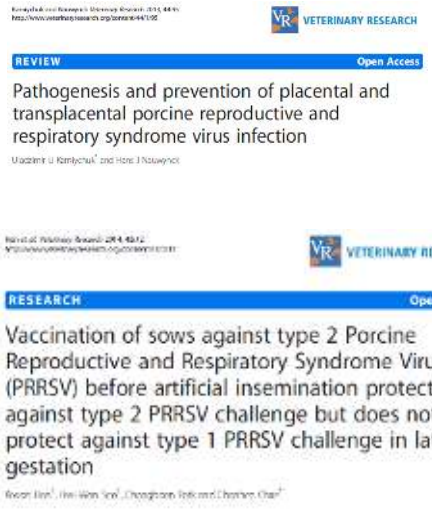

veterinary microbiology

Isolation of porcine reproductive and respiratory syndrome (PRRS) virus in a Danish swine herd and experimental infection of pregnant gilts with the virus

Anette Bøtner, Jens Nielsen, Vivi Bille-Hansen

Shedding of porcine reproductive and respiratory syndrome virus in mammary gland secretions of sows

Elizabeth Allen Wagstrom, DVM, MS; Chih-Cheng Chang, DVM, MS; Kyoung Jin Yoo; Jeffrey J. Zimmerman, DVM, PhD


VETERINARY RESEARCH

REVIEW — Open Access

Pathogenesis and prevention of placental and transplacental porcine reproductive and respiratory syndrome virus infection

VETERINARY RESEARCH

RESEARCH — Open Access

Vaccination of sows against type 2 Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) before artificial insemination protects against type 2 PRRSV challenge but does not protect against type 1 PRRSV challenge in late gestation

Diegivende

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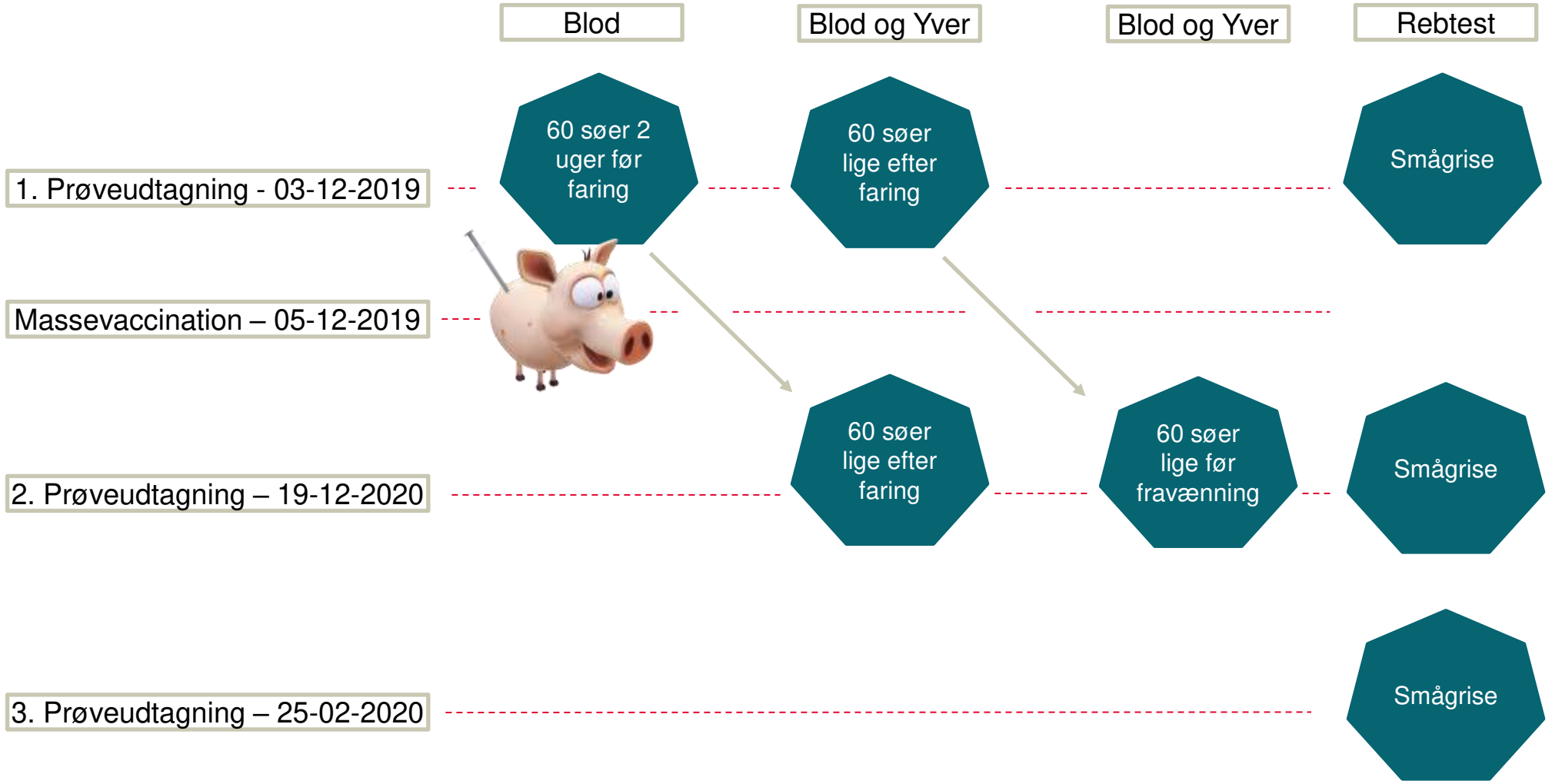
Formål

- Større/mindre andel PRRSV1-positive smågrise efter massevaccination?
- At karakterisere søernes PRRSV-immunitet før og efter massevaccinationen.
- Afklare konsekvenserne for produktiviteten ifm. massevaccination.

SEGES Svineproduktion

Metode – setup 120 søer fordelt på 2 grupper (> 2/3 drægtig og diegivende)



Metode - analyse af prøvemateriale

Blodprøver: Idexx 3X ELISA og Multiplex ELISA

Yveraftørringsprøver: RT-qPCR

Rebtest: RT-qPCR

Positive virus-prøver: Sekvensanalyse, ORF5

Produktionsresultater: Pct.-pattegrisedødelighed og pct.-dødfødte sammenlignet i gns. 5 uger før og efter massevaccination.

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Metode - besætninger

- 2 x 2000 søer i ”stabile sohold”
- Massevaccinerer hver 17. uge med Porcillis PRRS MLV.
- Samme opstaldning, foder, management, status (Blå SPF+Myc+AP12+**PRRS1+PRRS2**) og vaccinationsstrategi.
- 8 ugers karantæne inden løbning på ekstern site.
- Fravænner til de to samme sites med smågrise på skift.

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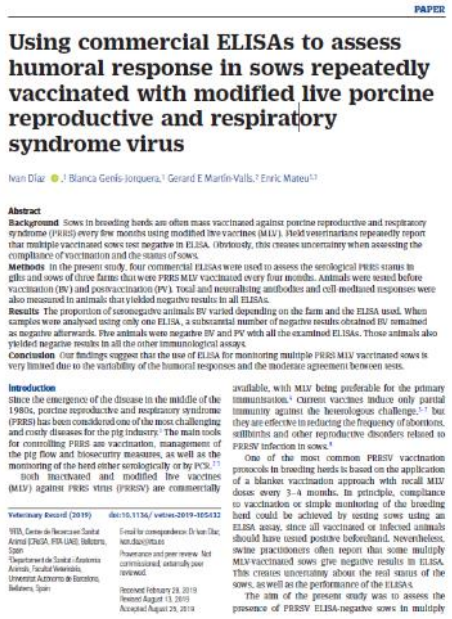
Resultater - søer

Ingen virus fundet i hverken blod- eller yveraftørringsprøver.

	A-Før vac.	A-Efter vac.	B-Før vac.	B-Efter vac.
Antal Søer	**120**	**120**	**120**	**120**
Ab positive (%)	**102 (85)**	**116 (97)**	**111 (93)**	**118 (98)**
Ab negative (%)	**18 (15)**	**4 (3)**	**9 (7)**	**2 (2)**
Fra negativ ab til positiv ab (%)	**14 (78)**		**8 (89)**	
Negativ før og efter (%)	**4 (3)**		**2 (2)**	
Fra positiv ab til negativ ab (%)	**0 (0)**		**1 (1)**	
Stigende ab S/P (%)	**101 (84)**		**108 (90)**	
Faldende ab S/P (%)	**19 (16)**		**12 (10)**	

Multiplex ELISA PRRSV2 (235/240)	**4**	**1**

- Ej vaccineret / dosis
- Ej responderer
- ELISA
- Modtagelighed?
- Beskyttet via alt. mekanismer?



PAPER

Using commercial ELISAs to assess humoral response in sows repeatedly vaccinated with modified live porcine reproductive and respiratory syndrome virus

Iván Díaz, J. Blanca Genís-Jorquera, Gerard E Martín-Valls, Enric Mateu

Abstract

Background Sows in breeding herds are often mass vaccinated against porcine reproductive and respiratory syndrome (PRRS) every few months using modified live vaccines (MLV). Field veterinarians repeatedly report that multiple vaccinated sows test negative in ELISA. Obviously, this creates uncertainty when assessing the compliance of vaccination and the status of sows.

Methods In the present study, four commercial ELISAs were used to assess the serological PRRS status in gilts and sows of three farms that were PRRS MLV vaccinated every four months. Animals were tested before vaccination (BV) and postvaccination (PV). Total and neutralising antibodies and cell-mediated responses were also measured in animals that yielded negative results in all ELISAs.

Results The proportion of seronegative animals BV varied depending on the farm and the ELISA used. When samples were analysed using only one ELISA, a substantial number of negative results obtained BV remained as negative afterwards. Five animals were negative BV and PV with all the examined ELISAs. Those animals also yielded negative results in all the other immunological assays.

Conclusion Our findings suggest that the use of ELISA for monitoring multiple PRRS MLV vaccinated sows is very limited due to the variability of the humoral responses and the moderate agreement between tests.

Introduction

Since the emergence of the disease in the middle of the 1980s, porcine reproductive and respiratory syndrome (PRRS) has been considered one of the most challenging and costly diseases for the pig industry.[1] The main tools for controlling PRRS are vaccination, management of the pig flow and biosecurity measures, as well as the monitoring of the herd either serologically or by PCR.[2,3]

Both inactivated and modified live vaccines (MLV) against PRRS virus (PRRSV) are commercially available, with MLV being preferable for the primary immunisation.[4] Current vaccines induce only partial immunity against the heterologous challenge,[5–7] but they are effective in reducing the frequency of abortions, stillbirths and other reproductive disorders related to PRRSV infection in sows.[8]

One of the most common PRRSV vaccination protocols in breeding herds is based on the application of a blanket vaccination approach with recall MLV doses every 3–4 months. In principle, compliance to vaccination or simple monitoring of the breeding herd could be achieved by testing sows using an ELISA assay, since all vaccinated or infected animals should have tested positive beforehand. Nevertheless, swine practitioners often report that some multiply MLV-vaccinated sows give negative results in ELISA. This creates uncertainty about the real status of the sows, as well as the performance of the ELISAs.

The aim of the present study was to assess the presence of PRRSV ELISA-negative sows in multiply

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IRTA, Centre de Recerca en Sanitat Animal (CReSA, IRTA-UAB), Bellaterra, Spain
Departament de Sanitat i Anatomia Animals, Facultat Veterinària, Universitat Autònoma de Barcelona, Bellaterra, Spain
E-mail for correspondence: ivan.diaz@irta.es

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Accepted August 29, 2019

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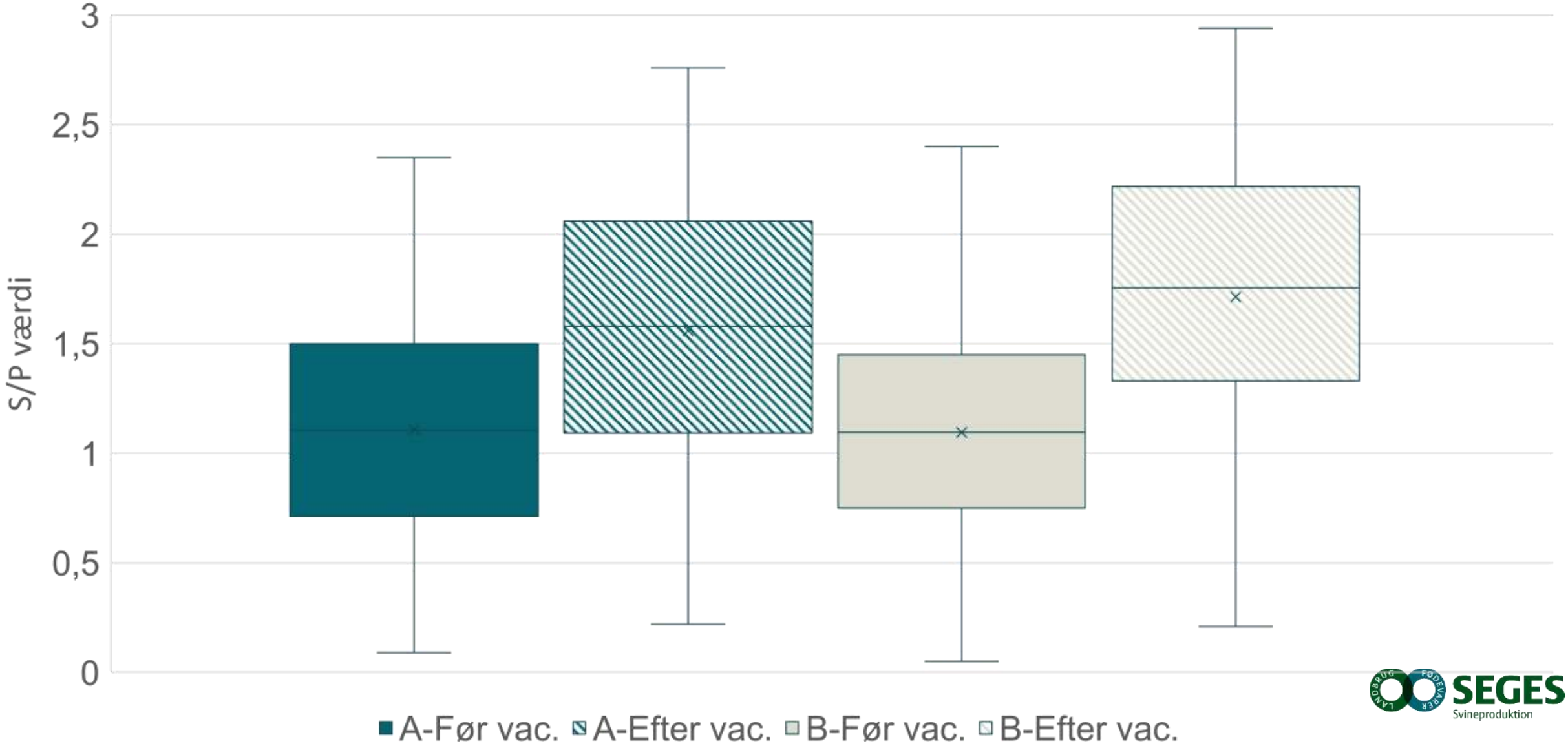
Resultater – søer, IDEXX 3X ELISA



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Resultater - smågrise

	Smågriseejendom 1			Smågriseejendom 2		
	# sektioner for spyttest	# positive PRRSV1	# positive PRRSV 2	# sektioner for spyttest	# positive PRRSV 1	# positive PRRSV 2
Før vac.	10	1	2	10	0	1
2 uger efter vac.	13	0	0	8	0	1
12 uger efter vac.	13	0	4	5	2	0

Sekvensanalyse:

PRRSV1 var mere end 99,6 % identisk med Porcilis-vaccine-stammen.

PRRSV2 var mere end 99,0 % identisk med Ingelvac-PRRSV-stammen.

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Produktionsresultater

	Gennemsnit 5 uger før vaccination	Variation i procentpoint i forhold til gennemsnit før vaccination				
		1. uge	2. uge	3. uge	4. uge	5. uge
SoA-Dødelighed, %	12,42%	0,48%	1,18%	-1,32%	0,18%	-0,02%
SoA-Dødfødte, %	8,30%	1,50%	0,90%	0,50%	1,00%	0,50%
SoB-Dødelighed, %	12,16%	-0,26%	-0,56%	-2,46%	-1,16%	-0,76%
SoB-Dødfødte, %	11,64%	0,46%	-1,94%	-3,44%	0,86%	-0,24%

Ingen tendenser…

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Konklusion og diskussion

- Vi fandt ingen PRRSV1 i soholdene
- En mindre andel søer er ”sero-negative”
- Ingen konsekvenser for produktivitet

MEN …

- Vi fandt PRRSV1 og PRRSV2 hos smågrisene
- Besætningerne har en kontinuerligt drevet farestald
- Besætningerne har ”babystalde” på soejendommene

SÅ …

- Er soholdene ”stabile”?

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PRRSV diversitet anno 2020 og vacciner

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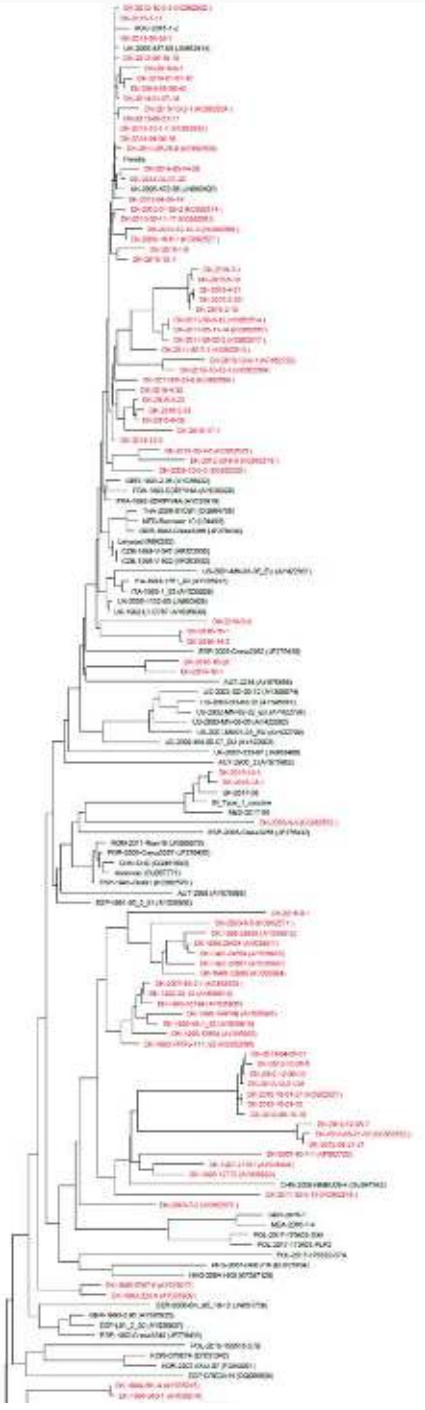
PRRSV-1 stammer i Denmark 1992-2019

- Overordnet er de 81 – 100 % identisk
- Sekvenserne fortæller en historie☺

Cluster 2

Cluster 1

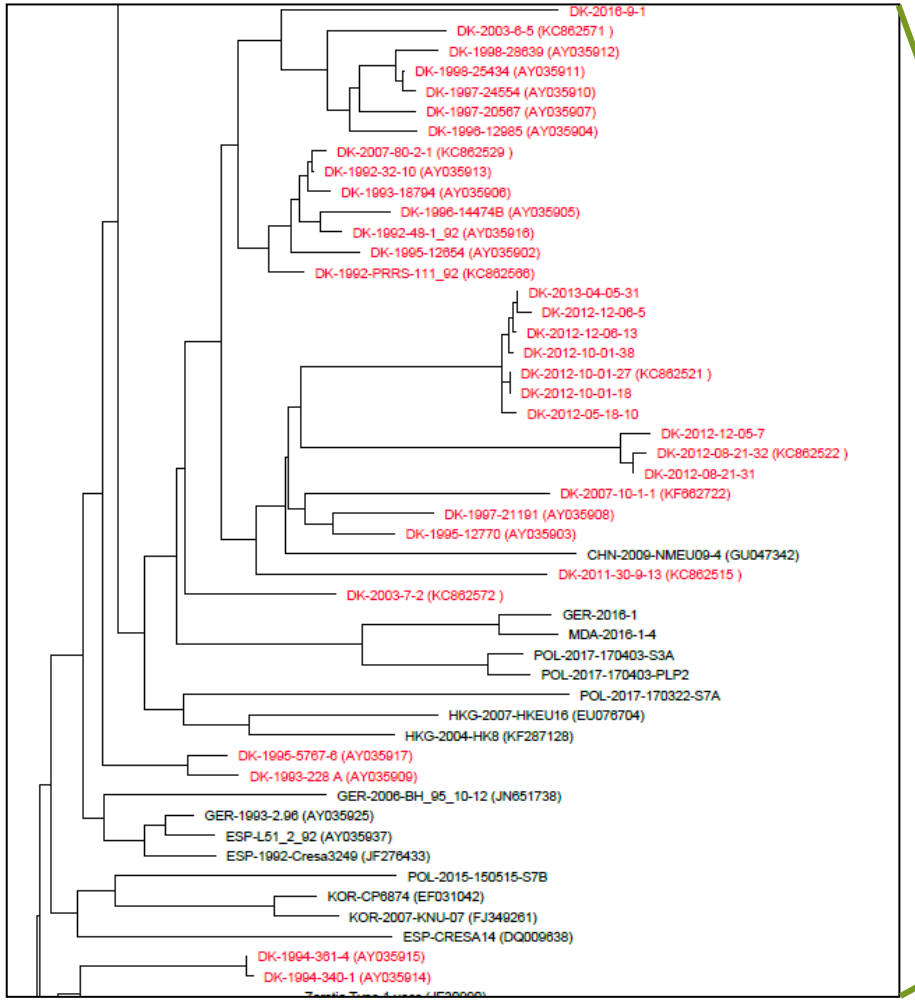


PRRSV-1 stammer i Denmark 1992-2019

Porcilis vaccine virus ➡

Cluster 1 (Det ”danske” cluster): 1992-2019

- Inkludere den første stamme fra 1992
- 84 – 93 % lighed med Porcilis vaccine stammen
- Ligheden har været den samme de sidste 5-10 år

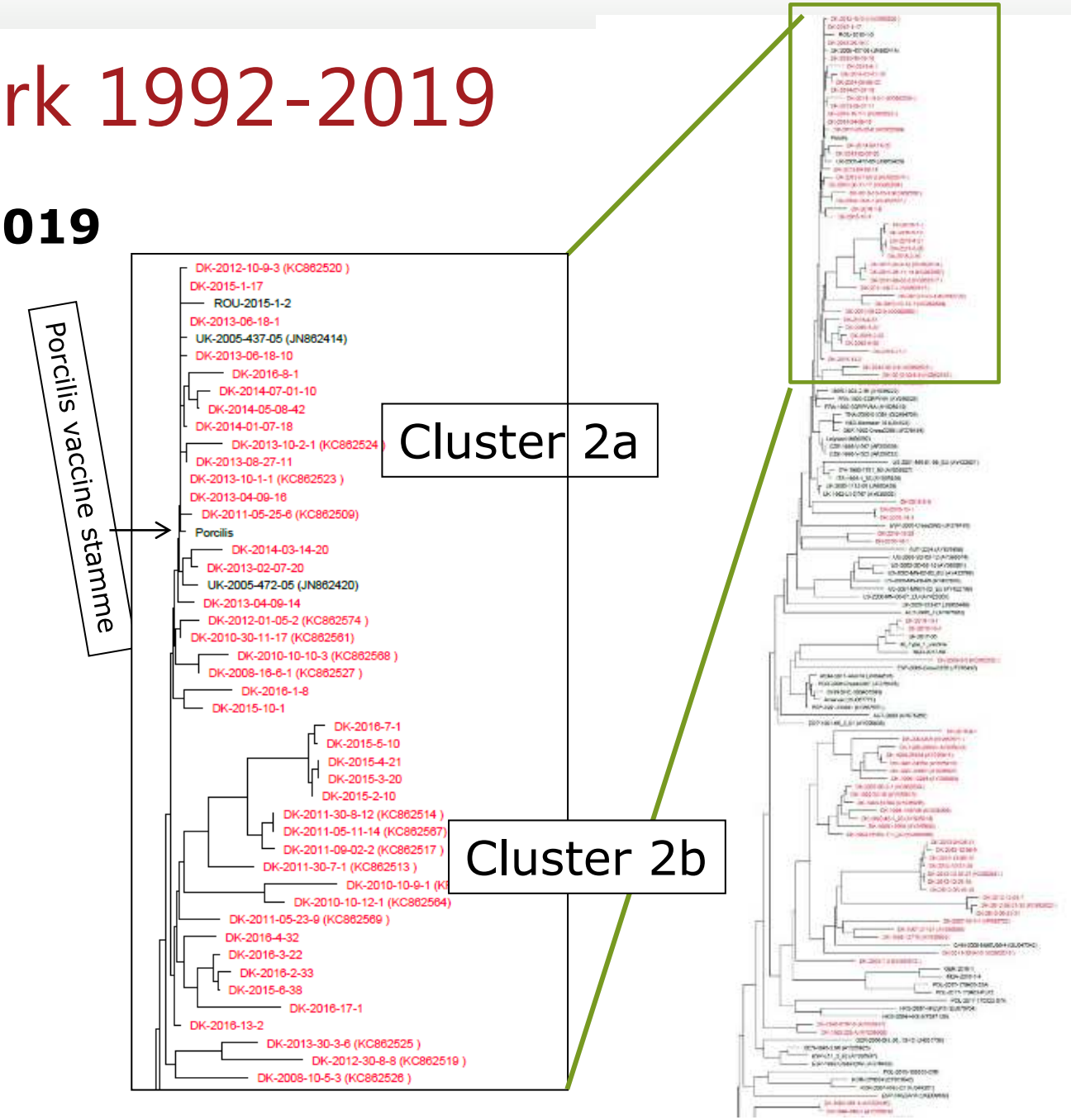


PRRSV-1 stammer i Denmark 1992-2019

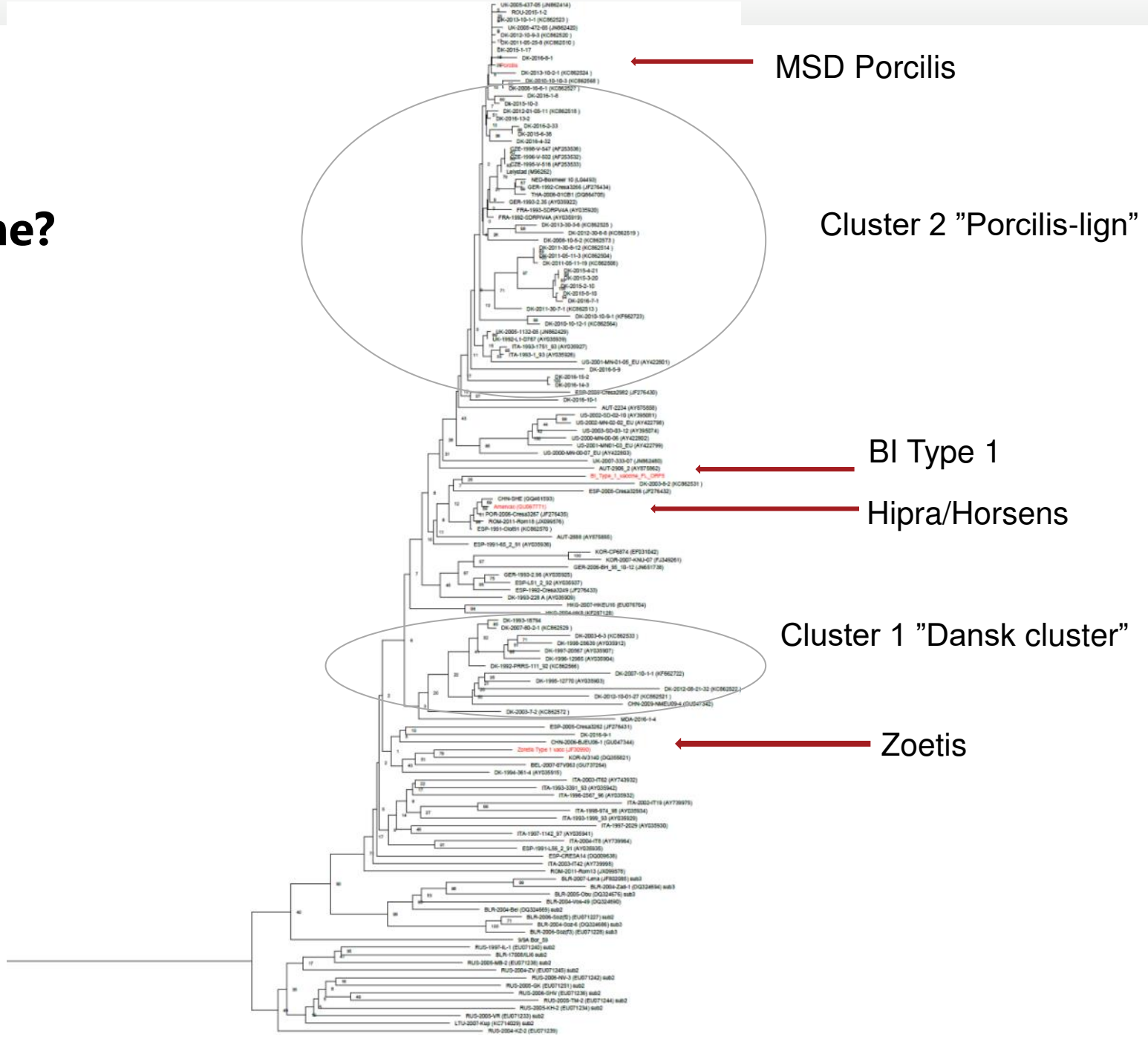
Cluster 2 (Porcilis cluster): 2008-2019

- **Cluster 2a**
  - 98-99.8 % lighed med Porcilis
  - **Er formodentligt vaccinestammer eller stammer der lige har spredt sig fra vaccinerede besætninger**

- **Cluster 2b**
  - 95-99.3% lighed med Porcilis
  - **Er formodentligt ældre Porcilis-lignende viruses der har ændret sig ved smitte fra besætning til besætning**



Hvor ligger vaccine stammerne?



PRRS i fremtiden

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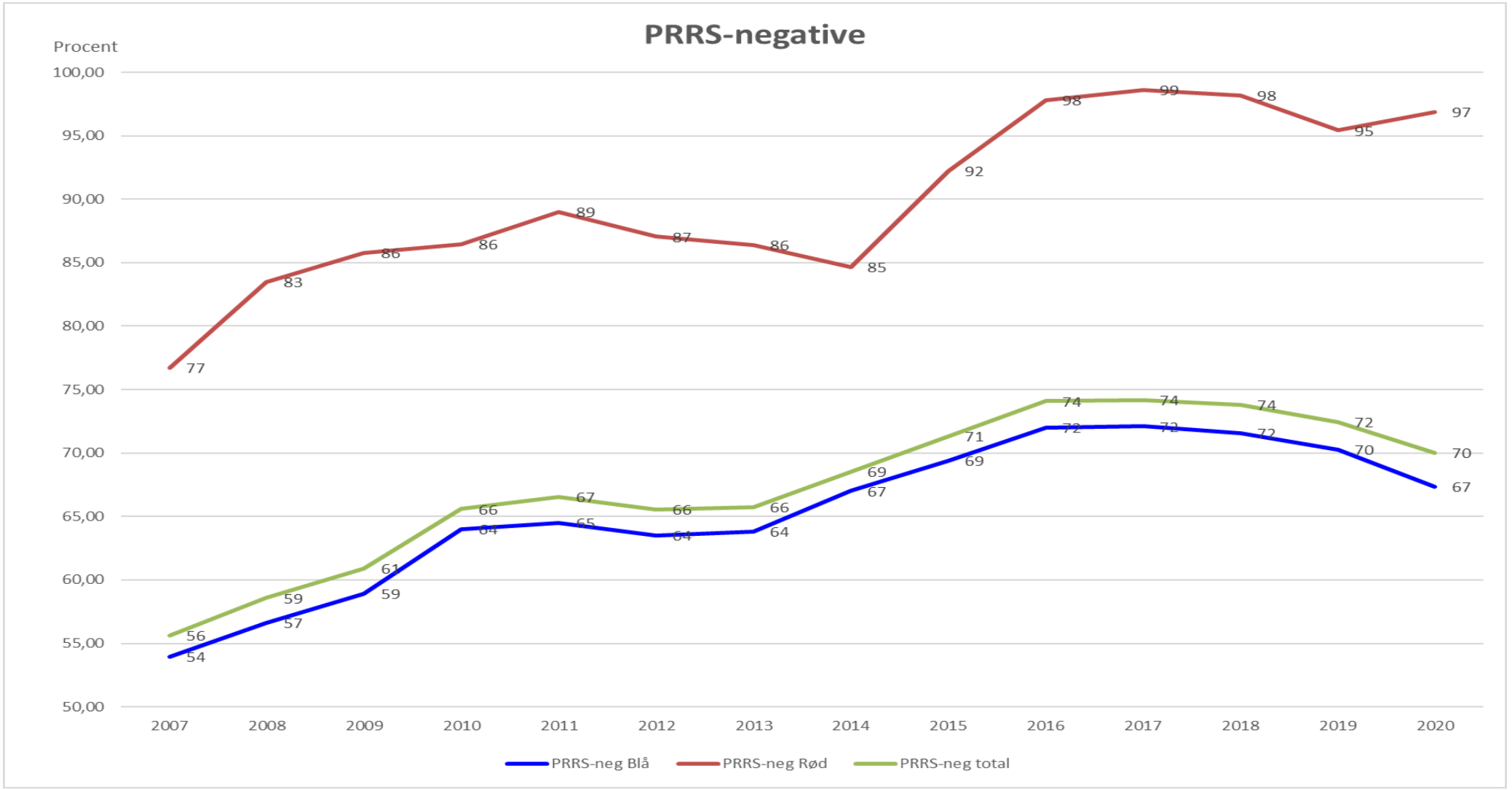
Udvikling i % PRRS-negative besætninger



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Miljø- og
Fødevareministeriet
Fødevarestyrelsen

Dyresundhed
J.nr. 2020-14-81-02180
Ref. SBAL
Den 1. september 2020

Vejledning om håndtering af PRRS

Indledning

Denne vejledning omfatter forpligtelser i forhold til PRRS som en anmeldepligtig sygdom

Skal vi ikke stå sammen som branche og komme PRRS til livs?

Sektordirektør Christian Fink, årsmøde svineproducenter 2020

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Tak til

- KU
  - Pia Ryt-Hansen
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  - Jesper S. Krog
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  - Sundhedsstyringen
  - Sundhedskontrollen
- MSD

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