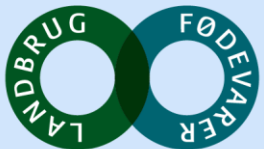


Denmark's battle against PRRS: The path to national eradication

06.02.2025

Hanne Bak
DVM, Ph.D., Dipl. ECPHM



Danish Agriculture & Food Council
Pig Research Centre

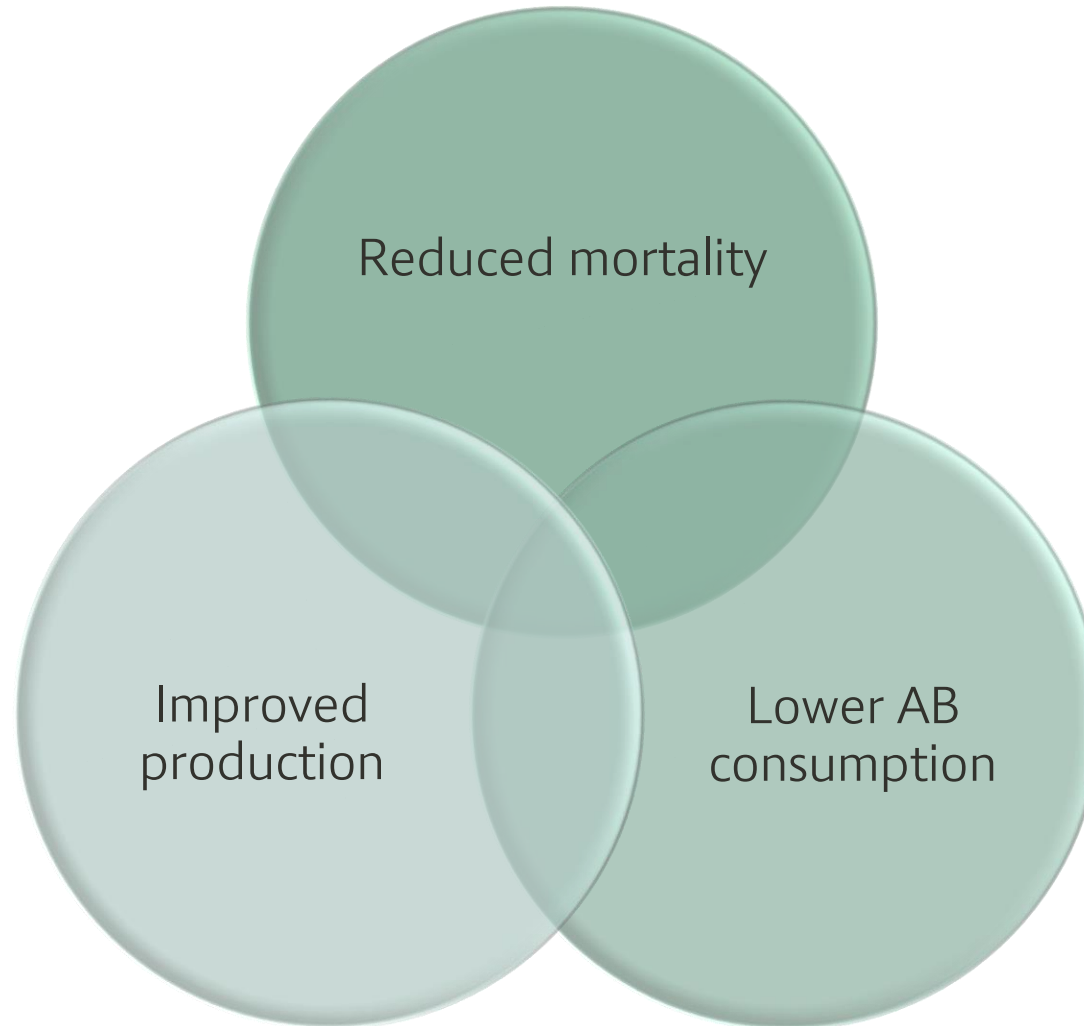




Outline

- Reason to start a National PRRS eradication
- Organisation and participants
- The strategy for eradication
- Indispensable digital tools
- Status on PRRS in Denmark

Why fight PRRS at the national level?



PRRS control = Safer pig production



Controlling and reducing the incidence of PRRSV in Denmark

- Fewer economic fluctuations for sow herds in particular
 - Lower the risk of PRRSV recombination into new more virulent variants
 - Reduced use of MLV vaccines
 - Reduced risk of recombination of vaccine strains - Danish case in 2019
-
- **Area control and eradication initiatives are necessary**



Excellent conditions for control programs

- No national import of live pigs
- A breeding nucleus free of PRRSV
- A field-tested health control system – the SPF system
- Good data systems (Health, Trade, Geographical position of herds)
- Geography with limited air borne transmission from neighbouring countries
- Extensive knowledge of PRRSV control and eradication among the pig veterinarians

We know
where the pigs are,
their health status,
and the trading
patterns

The Danish SPF system

Established in 1968 by the pig industry

Specific Pathogen Free

8 infectious swine diseases

Including PRRS type 1 and type 2

Serological surveillance and reporting of clinical signs

SPF herds must follow biosecurity rules incl. transport by SPF authorized vehicles

Full transparency





Participants and organisation

Participants

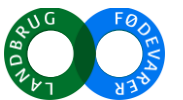
PRRS Plan developed as collaboration between

Pig farmers: The Danish Agriculture & Food Council

Veterinarians: The Danish Veterinary Association

Authorities: Danish Veterinary and Food Administration

Processors: Association of Swine slaughterhouses



Finances



Pig Levy Fund

Danish Agriculture & Food Council: Salaries, regional coordinators and administrators, IT and digitalisation

Partners at SEGES Innovation and University of Copenhagen



Public fees

Authorities/SPF Sund: PRRS-database, declarations

Authorities: Control



Danish Agriculture & Food Council
Pig Research Centre



3. May 2022

STRATEGY FOR THE REDUCTION OF PORCINE REPRODUCTIVE AND RESPIRATORY SYNDROME (PRRS) IN PIGS IN DENMARK



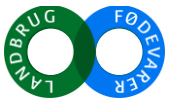
The Danish Veterinary Association



Minister for Food,
Agriculture and Fisheries

The legislation

Antibody declaration
Mandatory reporting
Clinical declaration
Price differentiation
Virus declaration



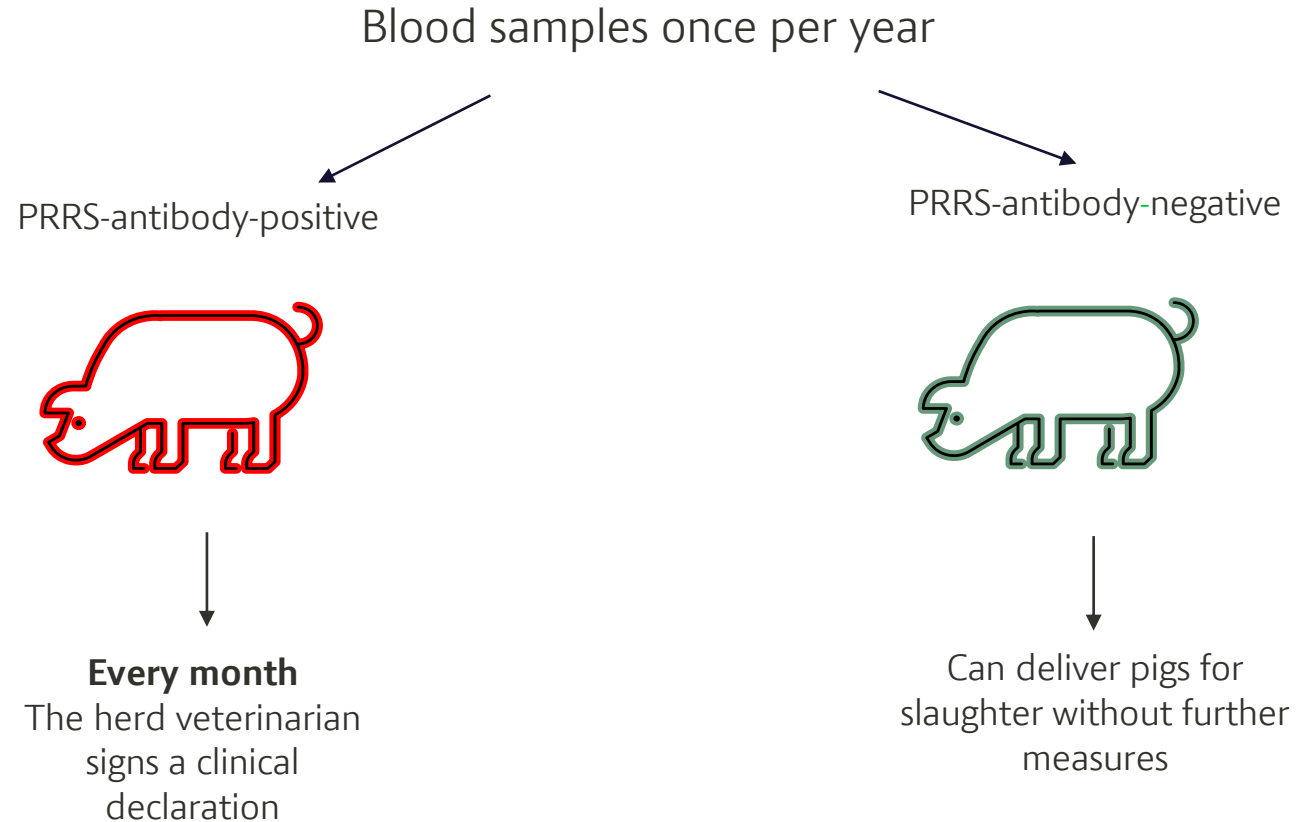
PRRS-declaration

Antibody declaration

Mandatory for herds with more than 10 sows or more than 100 pigs in total

Clinical declaration

Mandatory for finishing herds
NOT declared antibody-negative



PRRS-declaration from July 2025

Antibody declaration

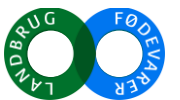
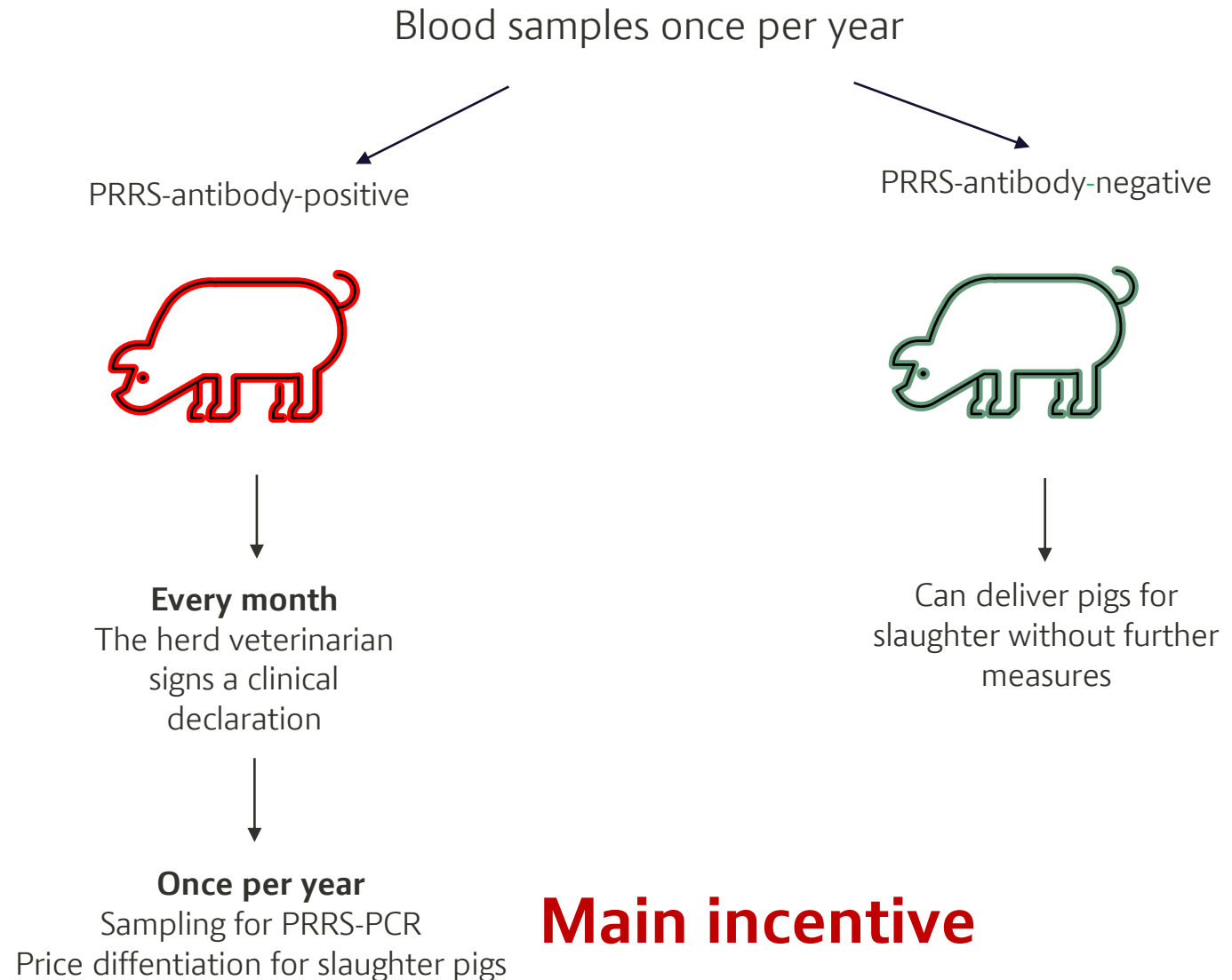
Mandatory for herds with more than 10 sows or more than 100 pigs in total

Clinical declaration

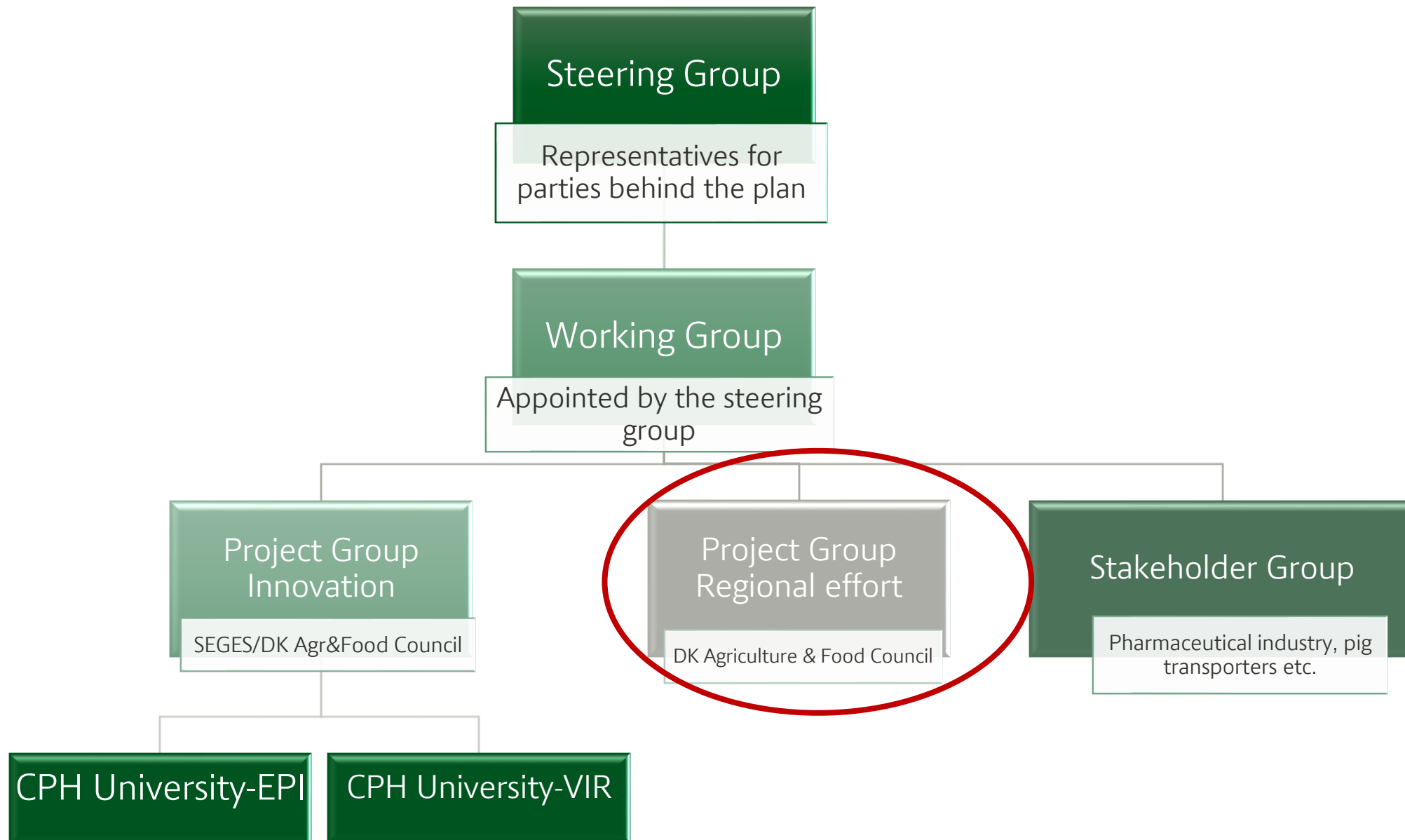
Mandatory for finishing herds
NOT declared antibody-negative

Virus declaration

Mandatory for finishing herds if
declared antibody-positive



Project organisation

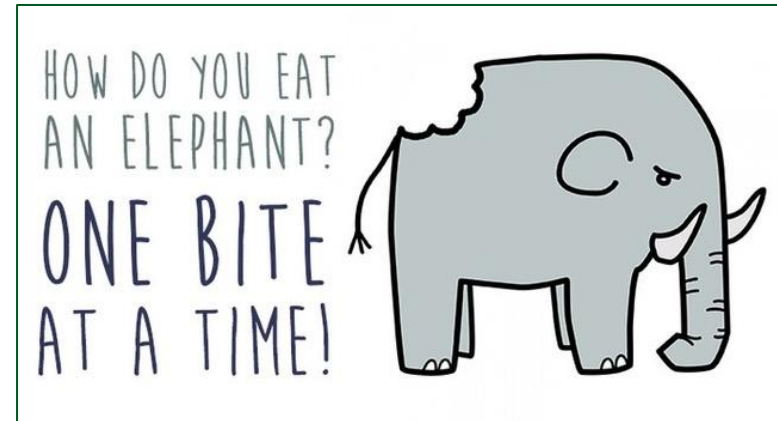
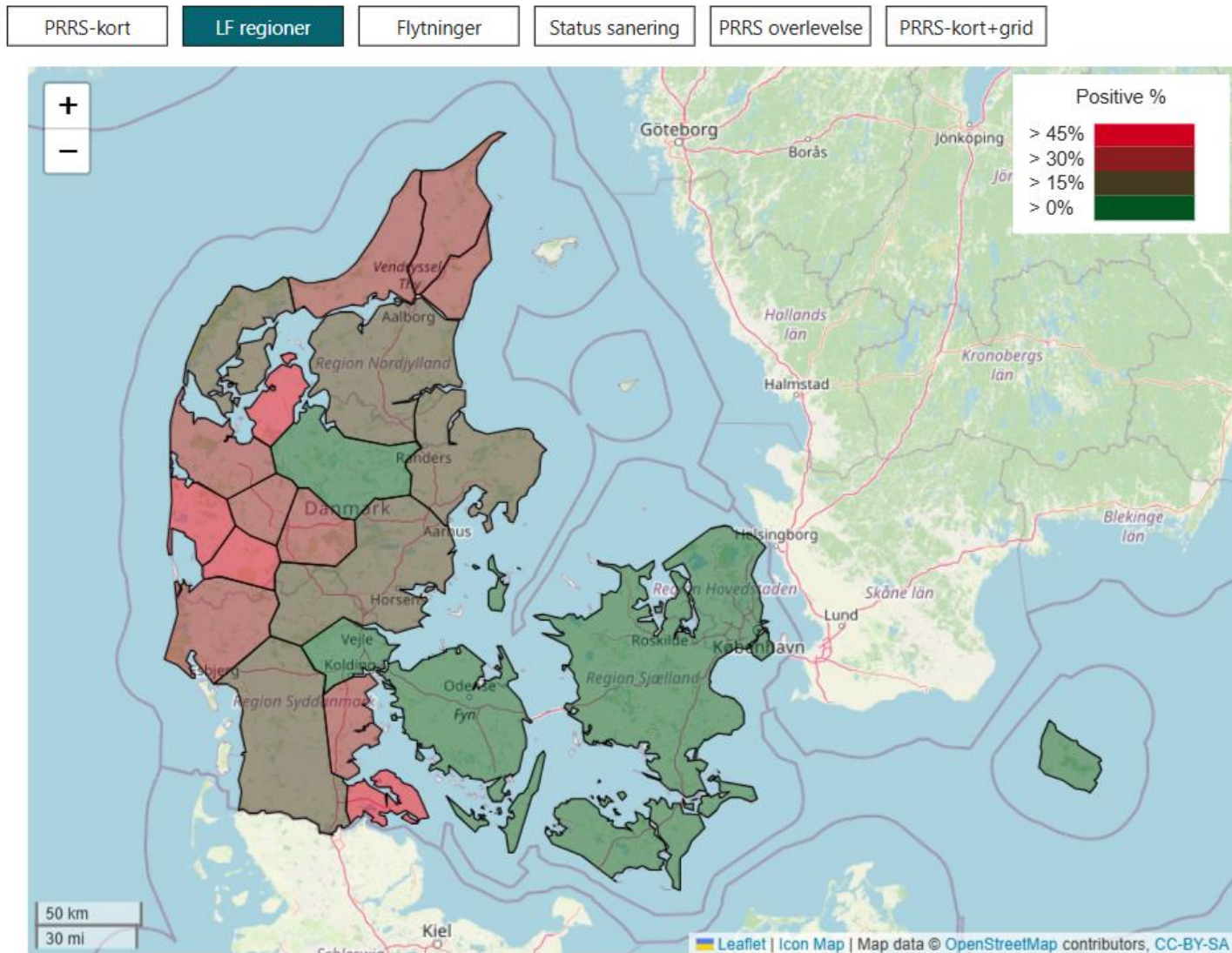


A photograph of several pink pigs in a farm setting, likely a nursery or grower pen. The pigs are standing on a metal grate floor. A semi-transparent green rectangular overlay covers the middle portion of the image, containing the title text. A red circular object, possibly a water dispenser, is visible in the lower center.

The eradication plan

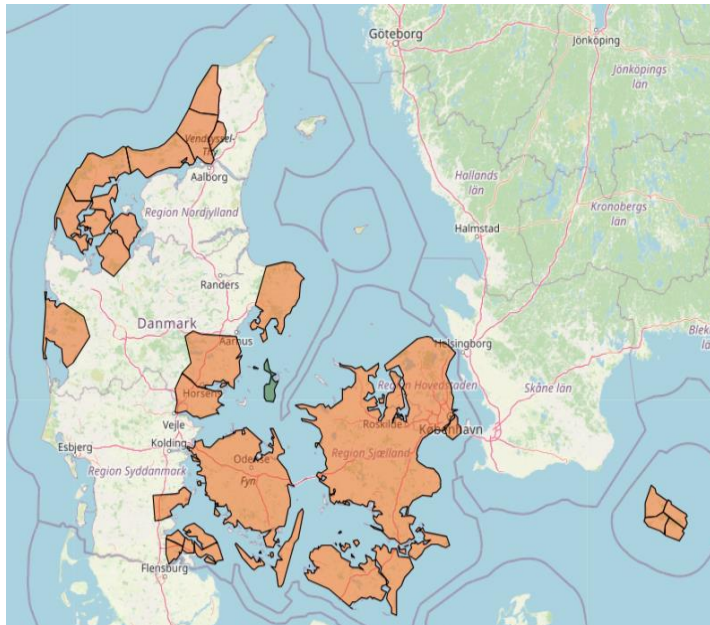
Danish Agriculture & Food Council

PRRS-regions

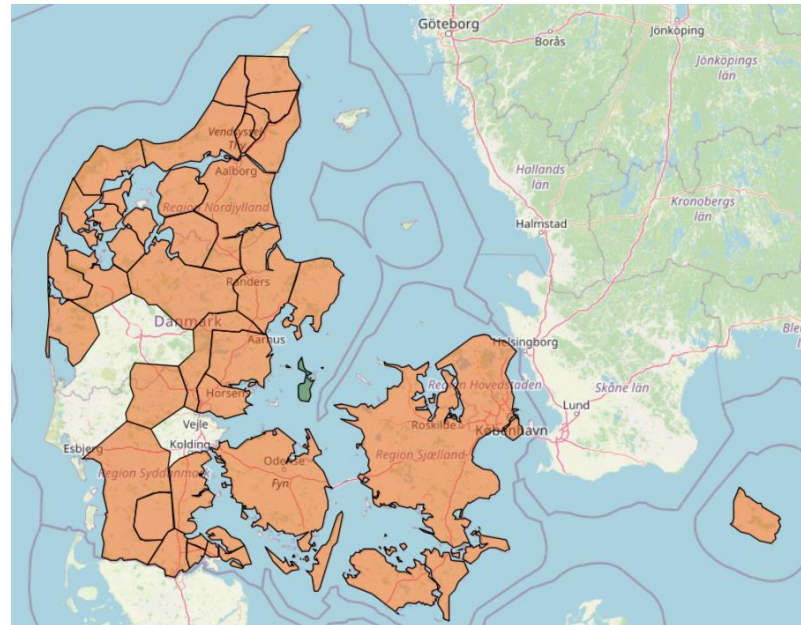


Regional eradication programs

January 2024



January 2025



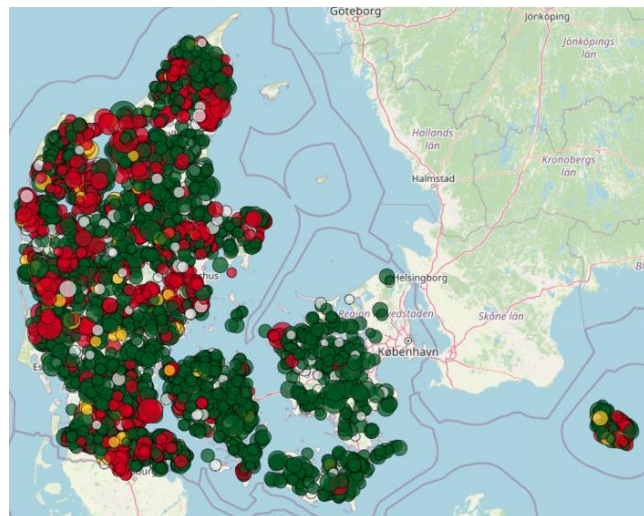
The selection of regions has been driven by local initiative

Includes 90% of the Danish pig production

Local leadership
Partnership - Consultant & Vet

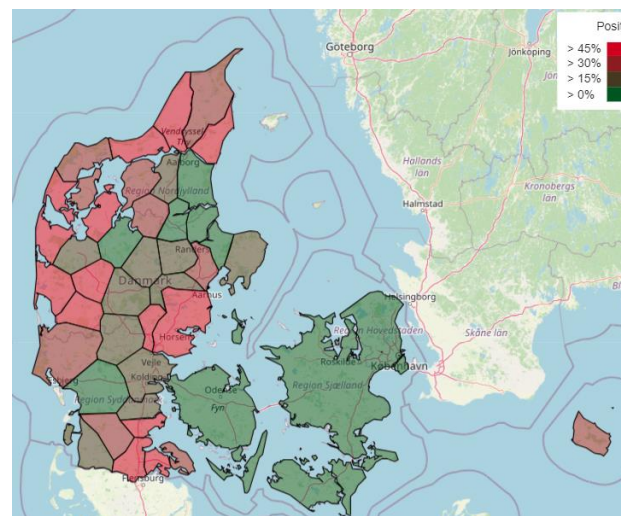
Organisation

National level



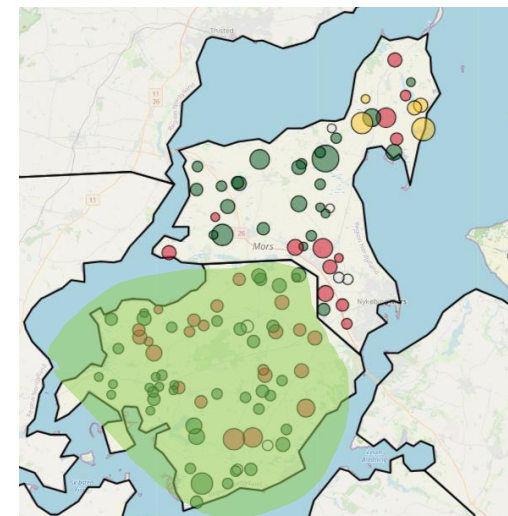
The Danish Agriculture &
Food Council

Regional level



Pig advisory consultants

District level



Veterinary
practitioners



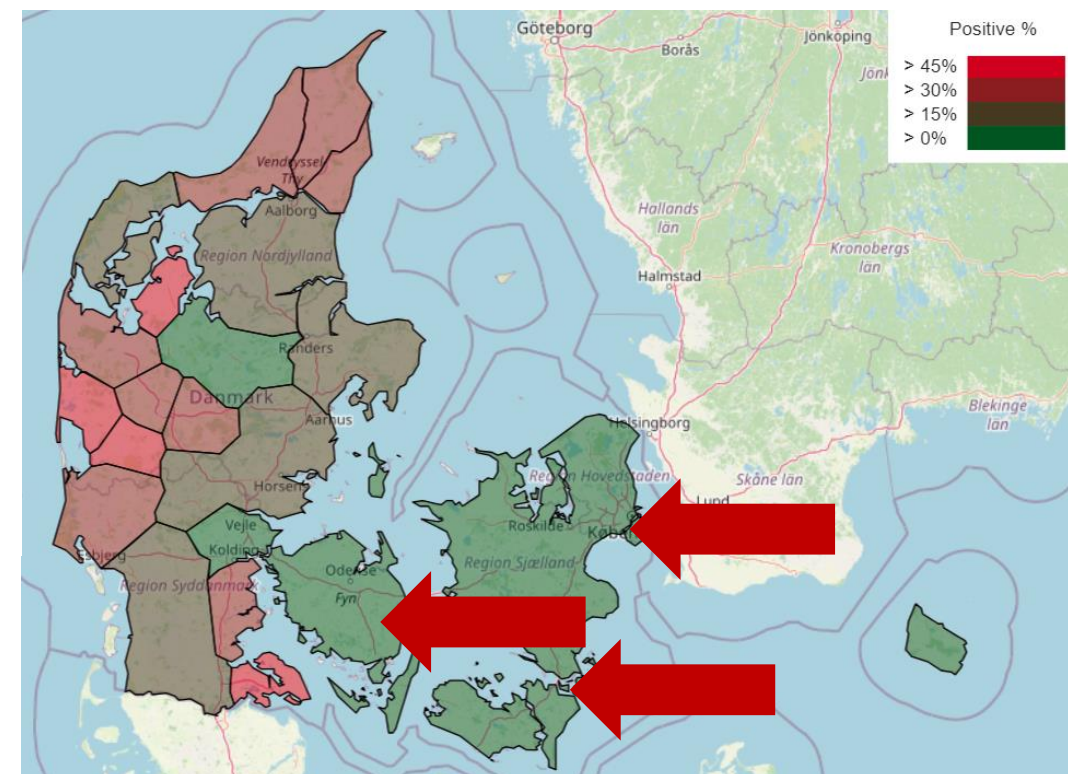
Strategy for the National PRRS reduction

1. Push PRRS out of low prevalent regions

- Eastern part of Denmark

2. Establish PRRS eradication programs in high prevalent regions

- Appointments with local PRRS leaders
- Financial model supported by the Pig Levy Fund



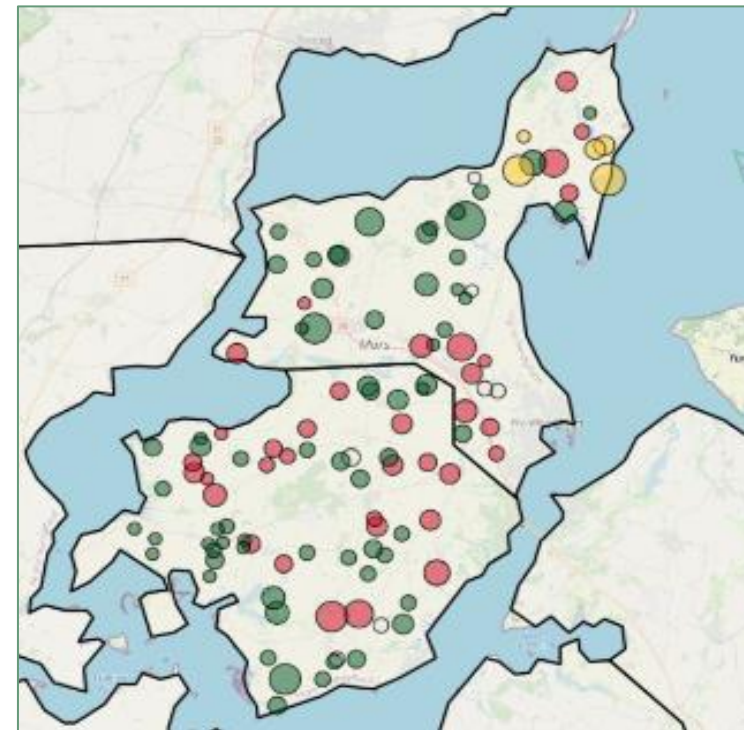
Recommendations for PRRS control

SPF Status
Unknown
Positive
Under eradication
Negative

Phases in regional eradication programs

Phases

1. Gain overview of the PRRS situation
2. Reduce PRRSV in the region
3. Stabilization of sow herds (Categori II)
4. Negative weaner flows
5. Emptying of seropositive finisher barns
6. Negative sow herds (Categori IV)
7. Region declared free of PRRSV





Common professional approach



Landbrug & Fødevarer
Sektor for Gris

Version 1.0

Udgivet 24. marts 2023

ANBEFALINGER FOR OVERVÅGNING, KONTROL OG SANERING FOR PRRS I DANMARK

Nicolai Rosager Weber^a, Elisabeth Okholm Nielsen^b, Hanne Bak^b, Bjørn Lorenzen^a

^a Landbrug & Fødevarer Gris, ^b SEGES Innovation P/S

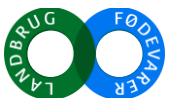
SEGES MANUAL

NOTAT

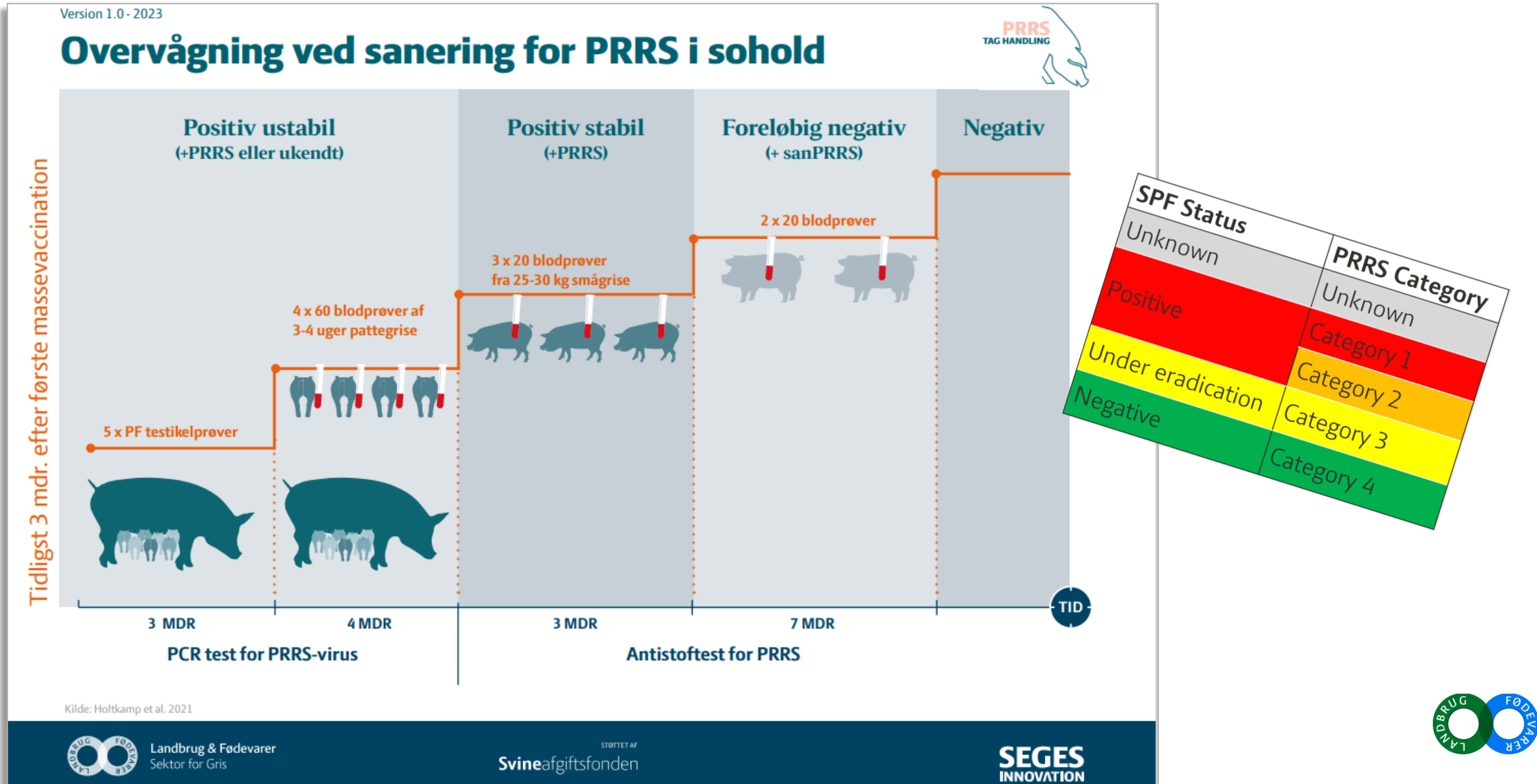
Udgivet 12. december 2022 /
OPDATERET 31. MARTS 2023

R UDTAGNING, ORSENDELSE AF R TIL OR PRRSV VED PCR

sen^b, Lise Kvisgaard^b, Pia Ryt-Hansen^b,
Charlotte K. Hjulsager^d



Advisors must speak the same language



Instructions for farmers

National
PRRS
REDUKTION

svineproduktion.dk



Processing Fluid (PF) fra testikler og haler
Vejledning til udtagning, opbevaring og forsendelse af PF-prøver til PCR for PRRS
Version 1.0 – 2023

Ved kastration og halekupering opsamlers testikler og haler i en plasticpose

Maksimalt testikler og haler fra 20 kuld i en pose

Max 20 kuld

Det er vigtigt at lægge posen på frost så hurtigt som muligt efter udtagelsen

Grader -20*

* Pose med testikler og haler kan sendes frosne til L&F Veterinært laboratorium

Husk at posen skal tø op i køleskab
Klip et lille hul i posen
PF-prøven opsamlers i en beholder med skruelåg

Sørg for, at der minimum er 2 ml PF-prøve i røret
PF-prøven skal på køl (4-8 grader)

Min 2 ml

Grader 4-8*

PF-prøven tages direkte fra køleskab

Emballeres godt sammen med køleelementer

Husk at skrive PF-prøve på indsendelsesblanketten

Grader 4-8*

*L&F Veterinært laboratorium, Kjellerup kan modtage frosne testikler/haler til aftagning af væske. SSI modtager ikke hele testikler/haler, men kun den aftappede væske (processing fluid).

Spytprøver (OF oral fluid)
Vejledning til udtagning, opbevaring og forsendelse af spytp prøver til PCR for PRRS
Version 1.0 – 2023

Udtagning af spytp prøve med bomuldsreb

Farestald: Prøv at få soen til at bide i rebet, inden det hænges op. Hænges, så både soen og pattegrisene kan nå det. Rebet må ikke røre stibunden
Lad rebet hænge i 30-40 min

Min 30 min

Udtagning af spytp prøve med bomuldsreb

Smågrise/slagtesvin: Hæng et reb per 30 grise, rebet må ikke røre staldbunden
Lad rebet hænge i 30-40 min

Placer rebet i en ren plasticpose og vrid så meget væske ud af rebet som muligt. Klip et lille hul i posen.
Spytp prøve opsamlers i en beholder med skruelåg
Sørg for, at der minimum er 2 ml spytp prøve i røret

Min 2 ml

Spytp prøven skal på køl (4-8 grader) så hurtigt som muligt efter udtagelsen

Grader 4-8*

Hvis spytp prøven skal opbevares længere end 5 dage inden forsendelse skal prøven fryses ved -20 grader

Grader -20*

Prøven tages direkte fra køleskab eller fryser
Emballeres godt sammen med køleelementer

Husk at skrive spytp prøve (OF oral fluid) på indsendelsesblanketten

Grader 4-8*

Tungeprøver (TTF tunge fluid)
Vejledning til udtagning, opbevaring og forsendelse af tungeprøver/TTF til PCR for PRRS
Version 1.0 – 2023

UDKAST

Tungevæv udtages fra døde grise

- Dødfødte grise
- Døde pattegrise
- Døde smågrise

Hold fast i tungen med en tang eller en pincet med modhager
Skær eller klip, så du får et stykke på ca 2 cm

20 stk.

Saml mindst 20 tungestykker til en analyse
Tørre tunger kan ikke undersøges

Læg tungestykkerne i en frysepose, luk posen med en stram knude og læg den på frost

Grader -20*

Hvis prøven skal analyseres på SSI skal posen med tungestykker tages op i køleskab.
Mindst 1 ml TTF-væske opsamlers i en beholder med skruelåg og sendes til analyse vedlagt køleelement

1 ml

De frosne tungestykker lægges i en ekstra pose, der lukkes med en stram knude.

Husk at skrive TTF-prøve på indsendelsesblanketten, og skriv hvilken gruppe grise, der er prøver af

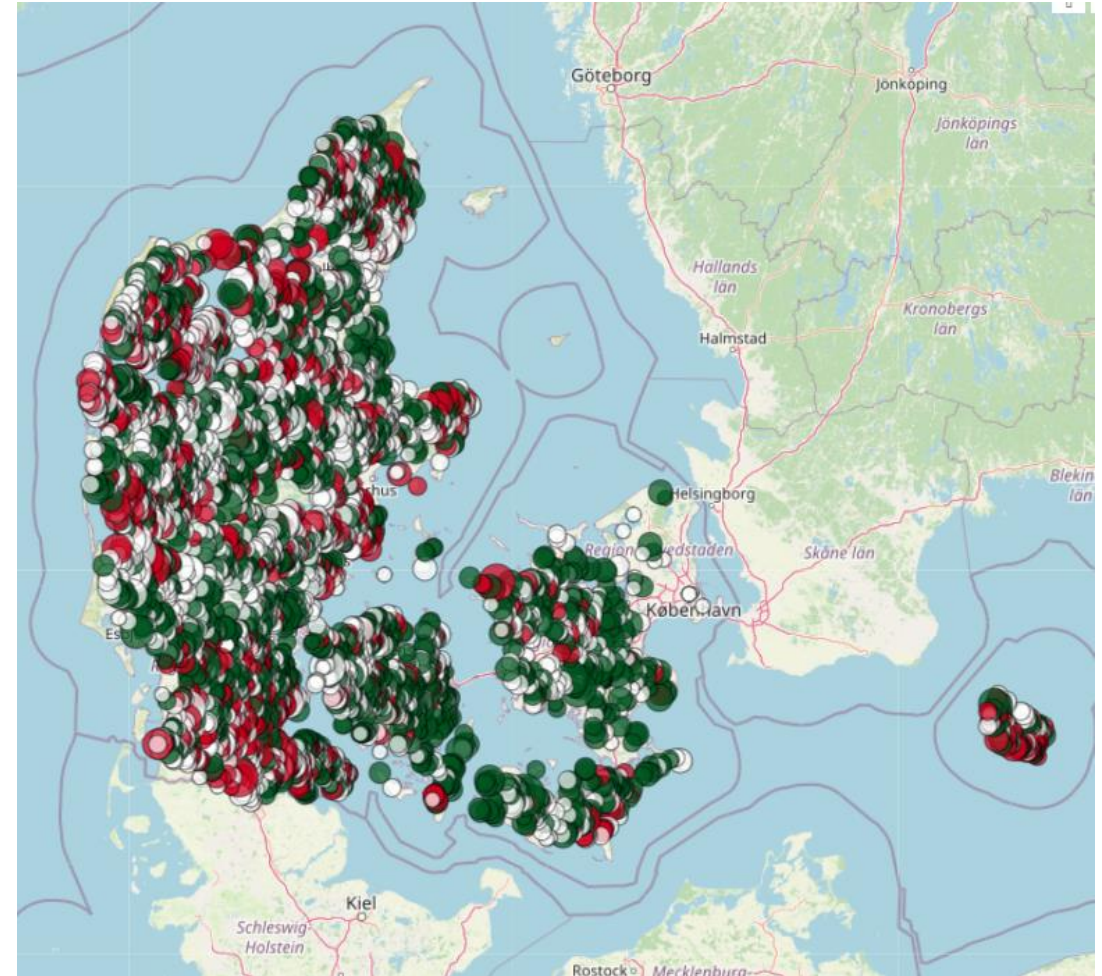
Grader 4-8*



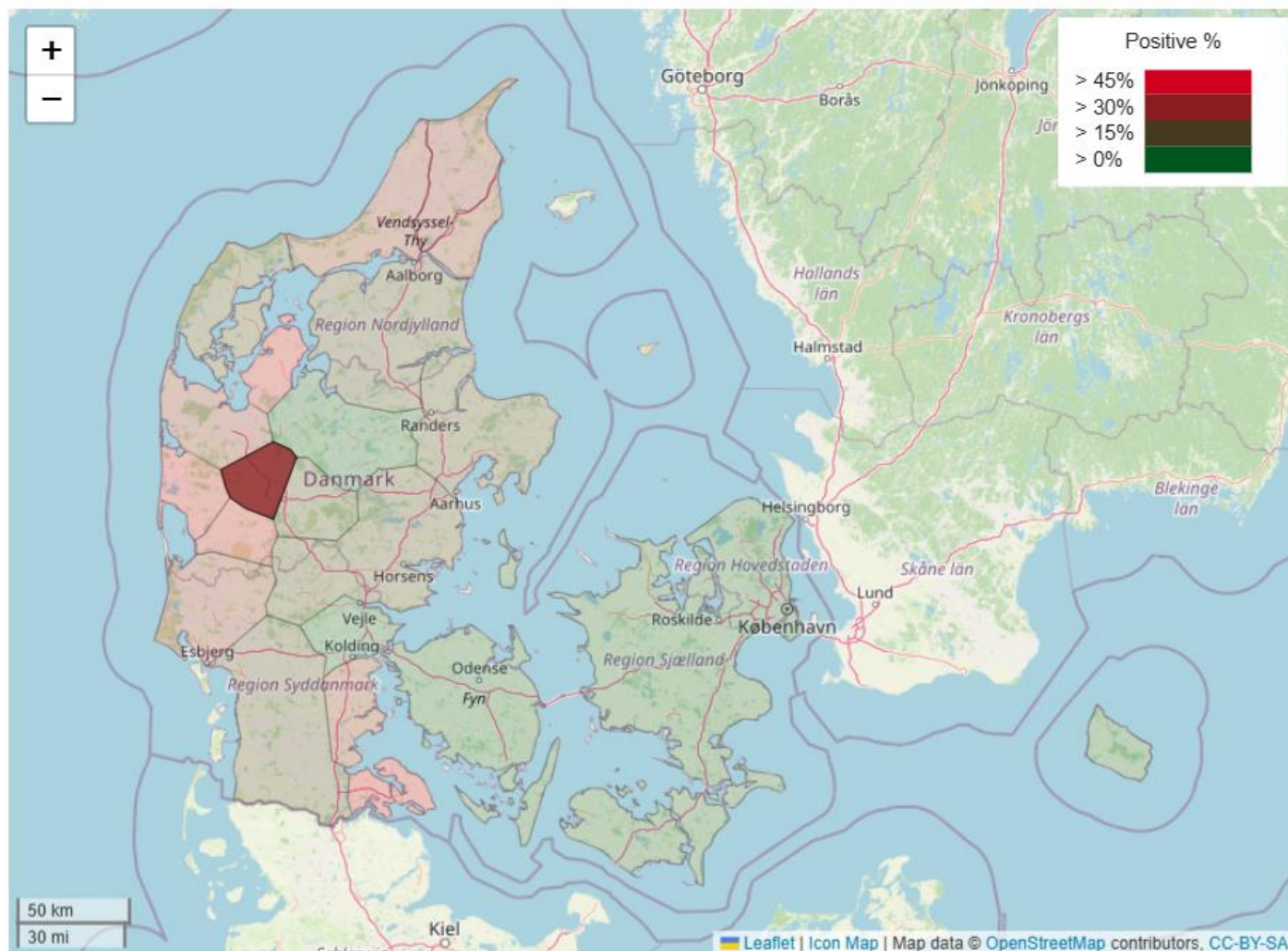
Digital tools

Dynamic PRRS map

- Daily update
- Actual CHR data + health status
- Accessible with AgrolD for people working with pigs
- Access for vets and consultants via AgrolD from July 2022
- Important tool for overview in area eliminations
- Continuous development of new features



Informations about regions



Se detaljer om valgte region

☐ # Positive / 100 km2

Alle

☒ Positive %



Vis besætningsliste

Region

ID	Regionsadministrator	E-mail
R43	Pernille Elkjær	pe@sraad.dk

Antal CHR

96

Positive %

36 %

Antal slagtegrise

118.471

Antal VPE

39.357

Antal søer

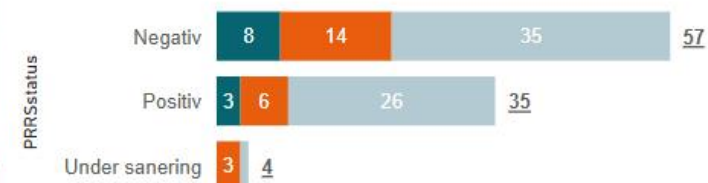
18.947

Antal smågrise

111.670

Aktuel status

☒ Integreret ☒ Sohold ☒ Vækstgrise

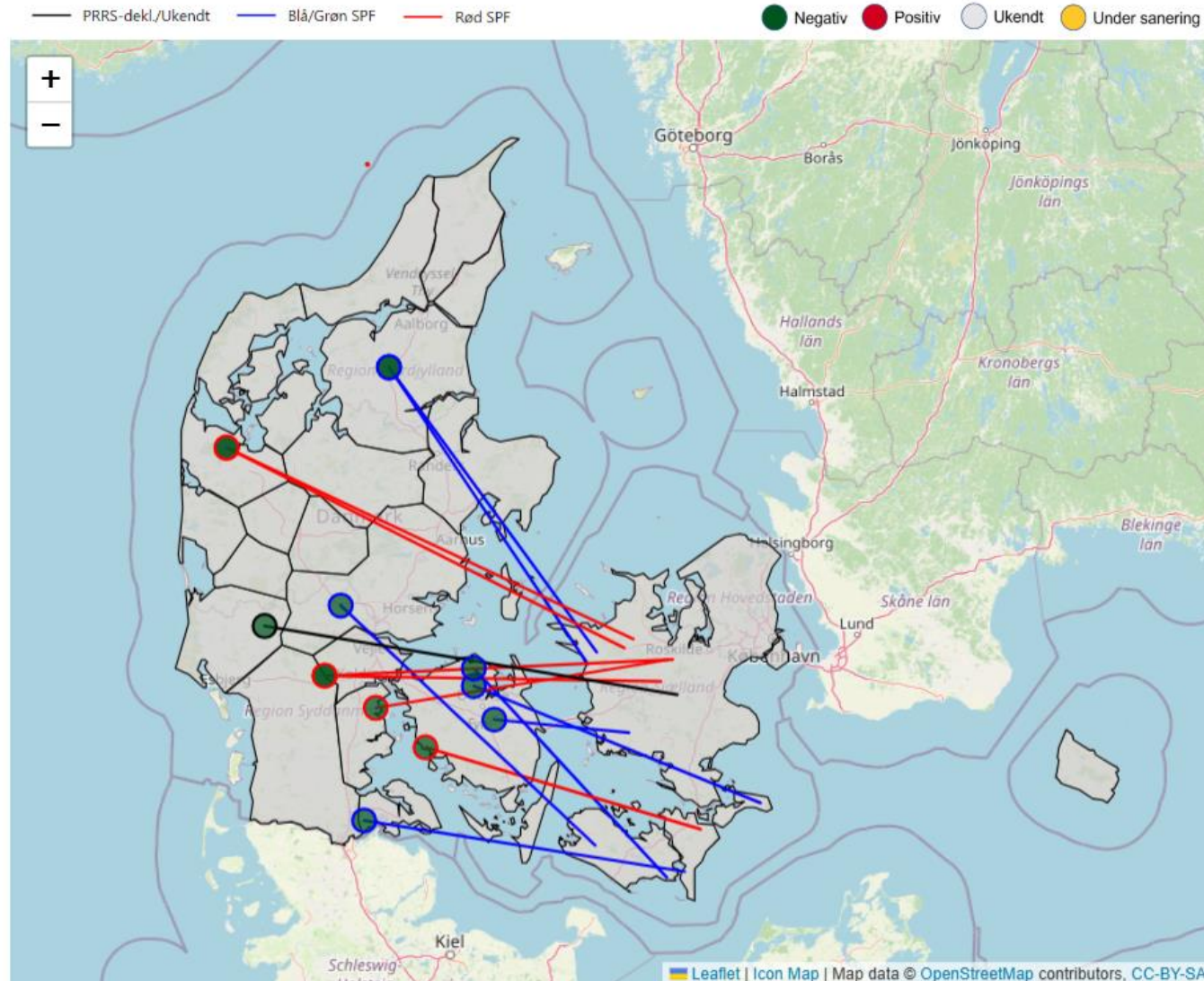


Antal CHR



Map with trade patterns

- Trade information from the pig movement database



Sidste 4 Uger

03-01-2025 - 30-01-2025

Fra status Til status

Flere markeringer Flere markeringer

Intern zone flytning Fra CHR

Nej Alle



Vis flytningsliste

Flytninger vises med en prik for afsender og en linje til destinationen. Hold musen over prikken/linjen for detaljer om flytninger

Klik på zonerne herunder for at filtrere flytninger til / fra zonen. Brug knapperne til at vælge enten flytninger til eller fra zonen

Fra zone

Til zone



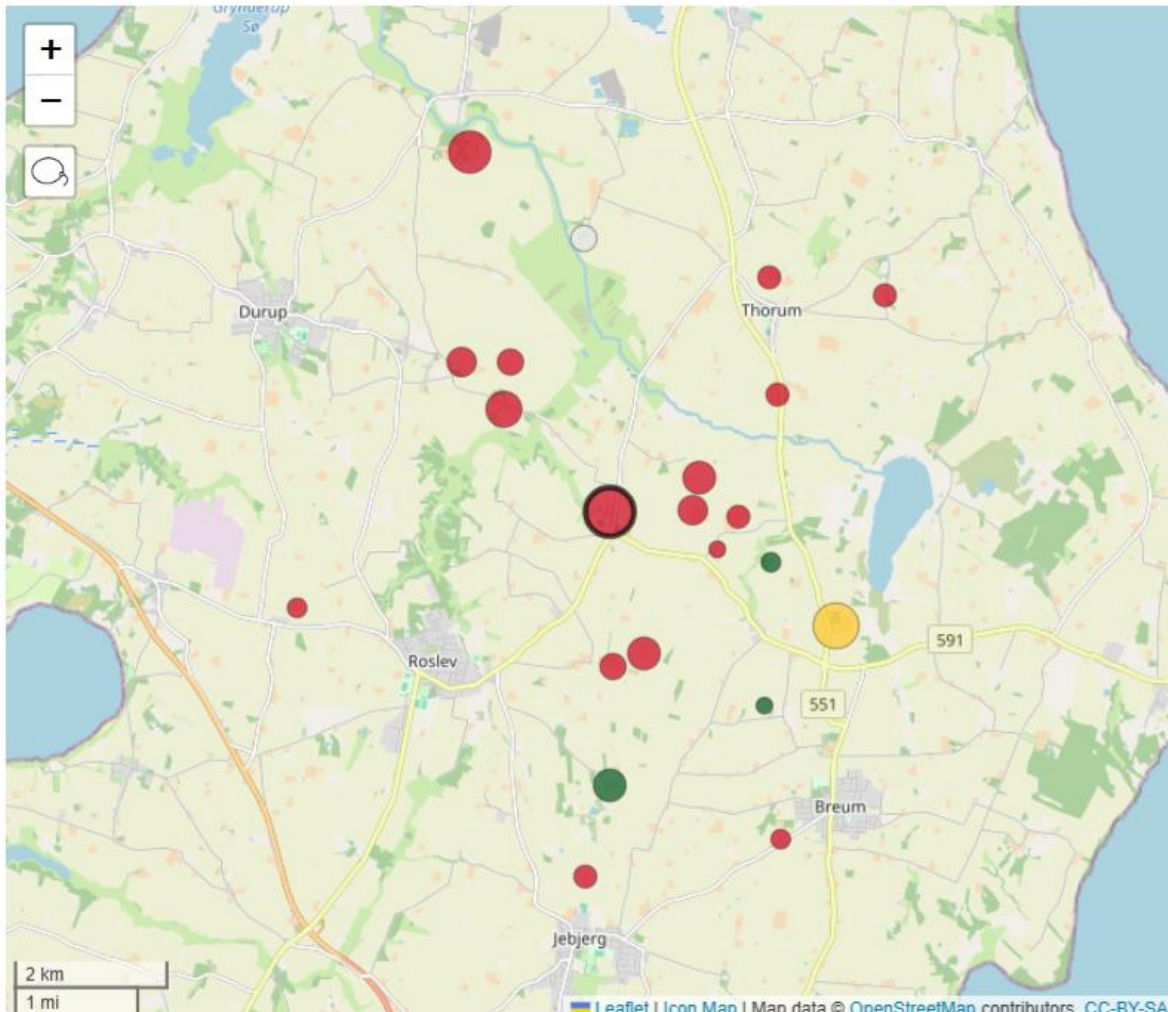
Online GIS model for local spread



PRRS-kort LF regioner Flytninger Status sanering **PRRS overlevelse** PRRS-kort+grid

Om beregningen

Negativ Positiv Ukendt Under sanering



Vælg centralbesætning

87230

Medtag i beregning

- ☒ Markér alt
- ☐ Herd A
- ☐ Herd B
- ☐ Herd C
- ☐ Herd D

CHR Adresse

% overlevelse, PRRS smitte

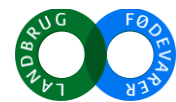
Faktisk Simuleret Lands
gns

År 1	84 %	84 %	96 %
År 2	70 %	70 %	92 %
År 3	59 %	59 %	88 %
År 4	50 %	50 %	85 %
År 5	42 %	42 %	82 %

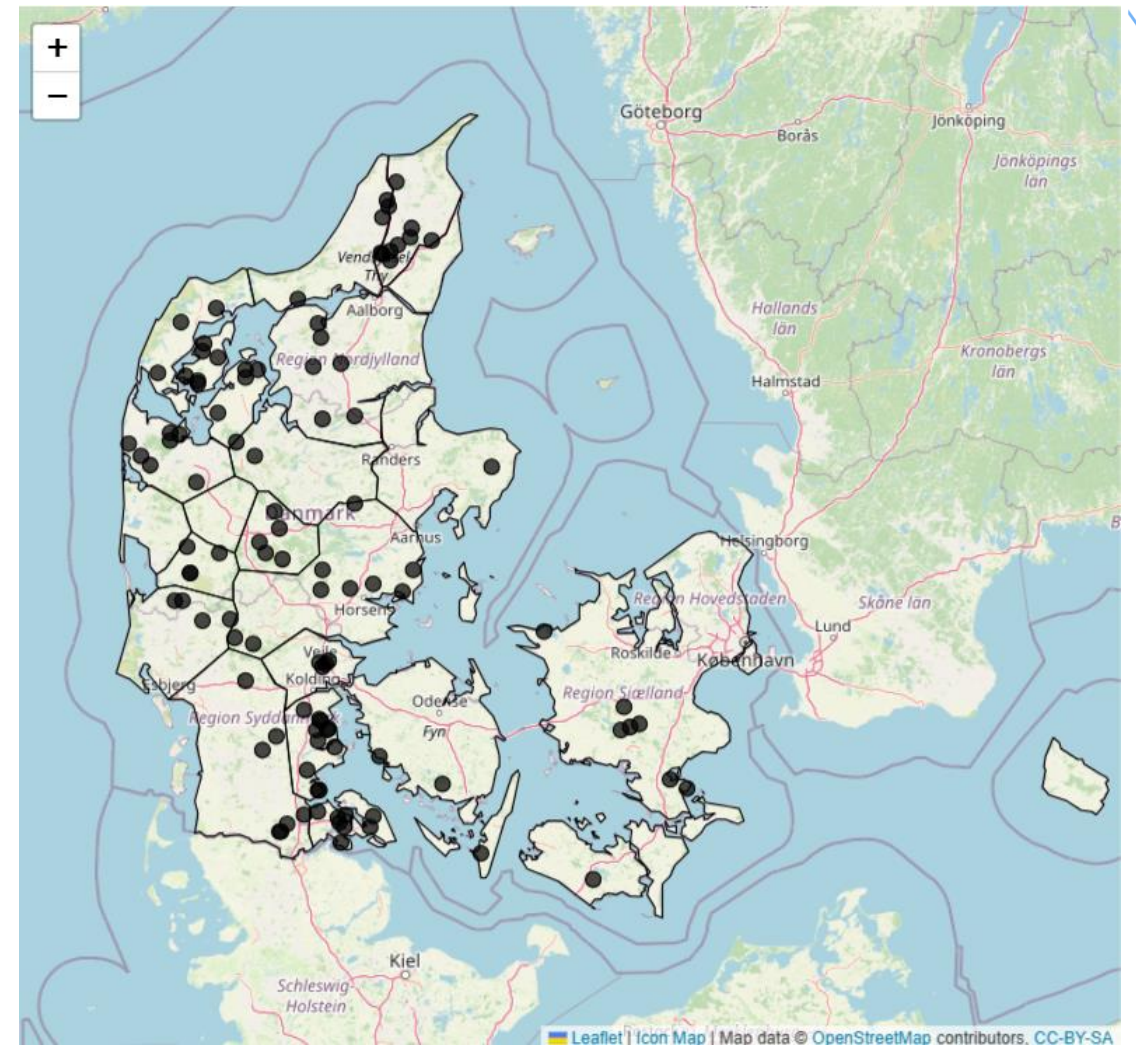
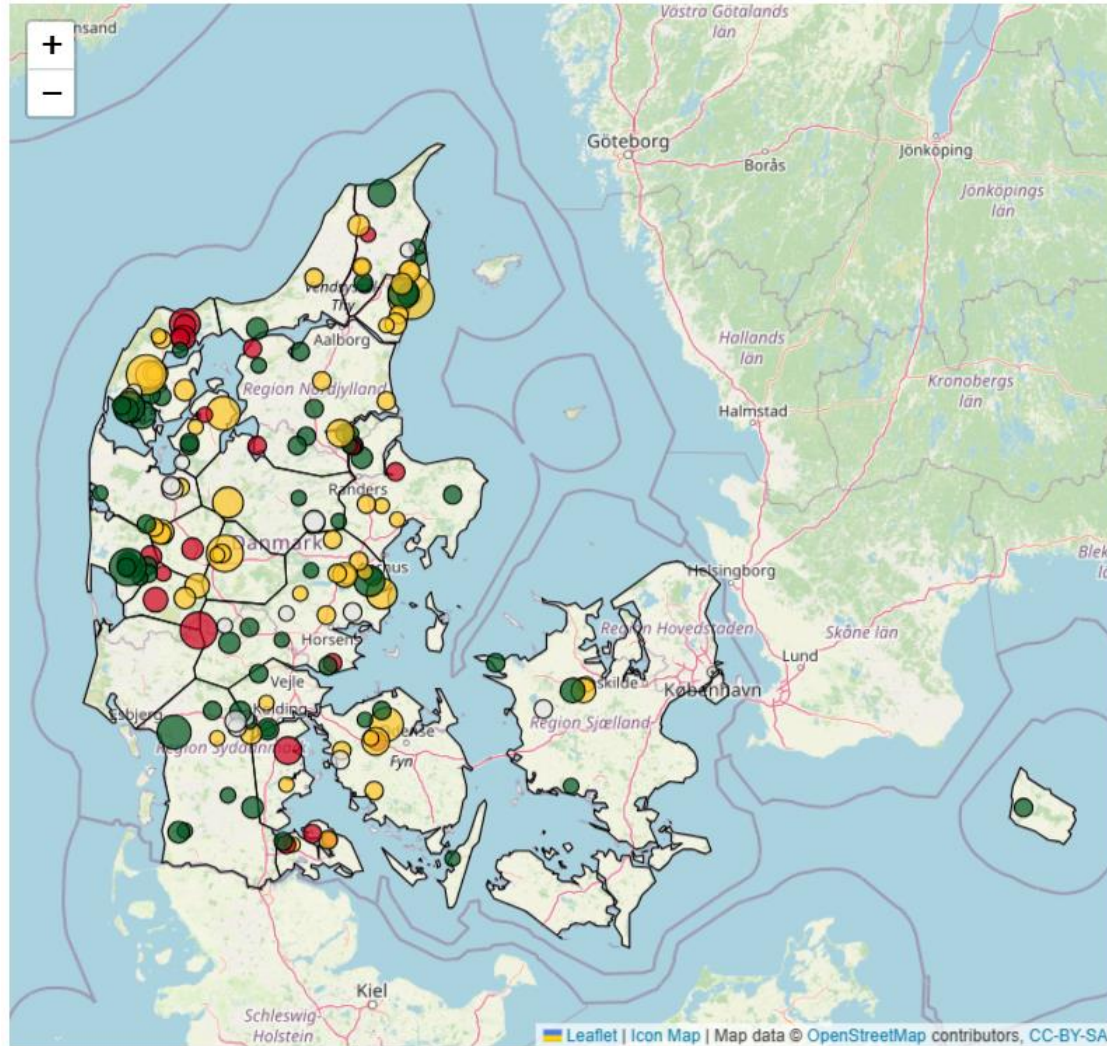
The model estimates risk of infection based on neighbours and common wind direction

Antal VPE	PRRSstatus	Vægt
750	Positiv	0,51
830	Positiv	0,37
1.050	Positiv	0,36
404	Positiv	0,20
399	Positiv	0,15
578	Positiv	0,14
350	Positiv	0,09
176	Positiv	0,09
250	Positiv	0,08
765	Positiv	0,08
300	Positiv	0,05
340	Positiv	0,03

SEGES
INNOVATION



Maps with limited access



Specific tool for local administrators and vets

- **PRRS-OVERBLIK.dk** is a digital tool used by vets from different practices for sharing PRRS status and coordinate their efforts for regional elimination of PRRS
- All vets connected to an elimination region has access to information about herd status in 4 categories (Modified AASV definitions)
- Includes digital guides for elimination: Prepararion of herd, Load-Close-Homogenize, recommended vaccination schedule and laboratory tests
- Geografical overview over herds in the region

Danish PRRS REDUCTION





Status on PRRS eradication in Denmark

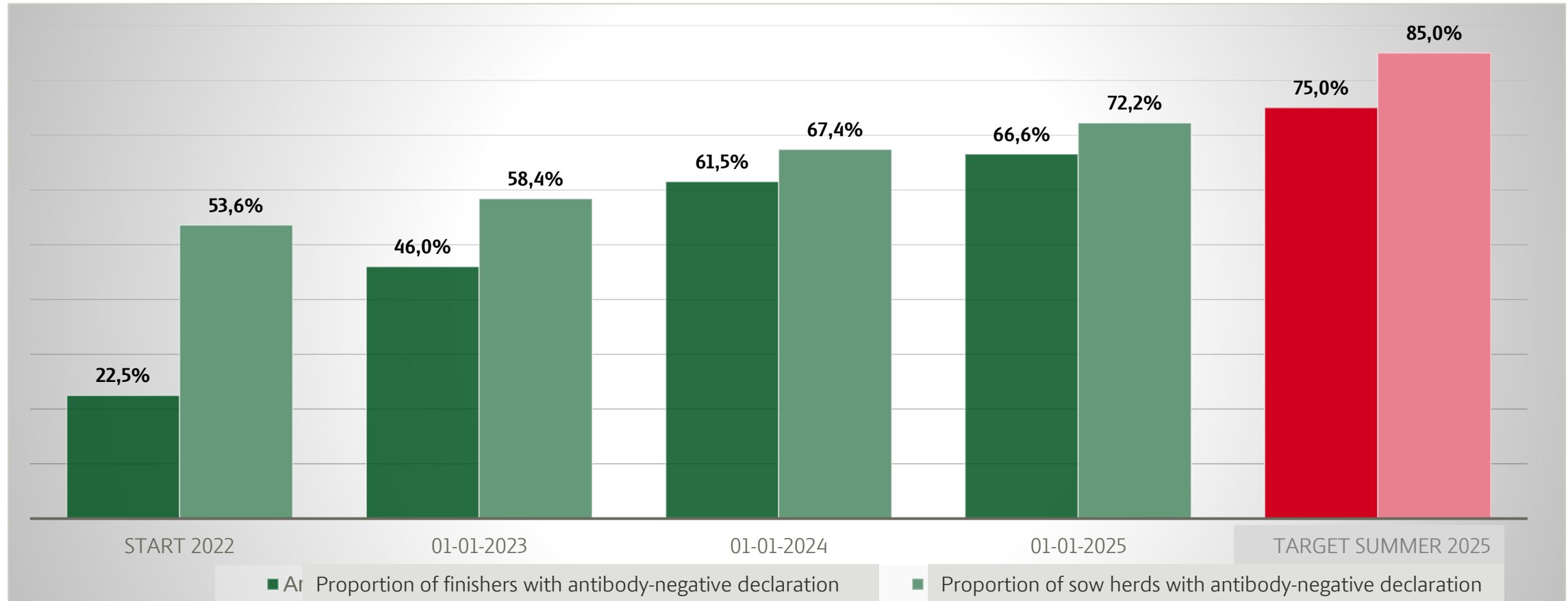
Goals

The overall goal of the strategy for the reduction of porcine reproductive and respiratory syndrome (PRRS) is to increase the proportion of herds free of PRRS



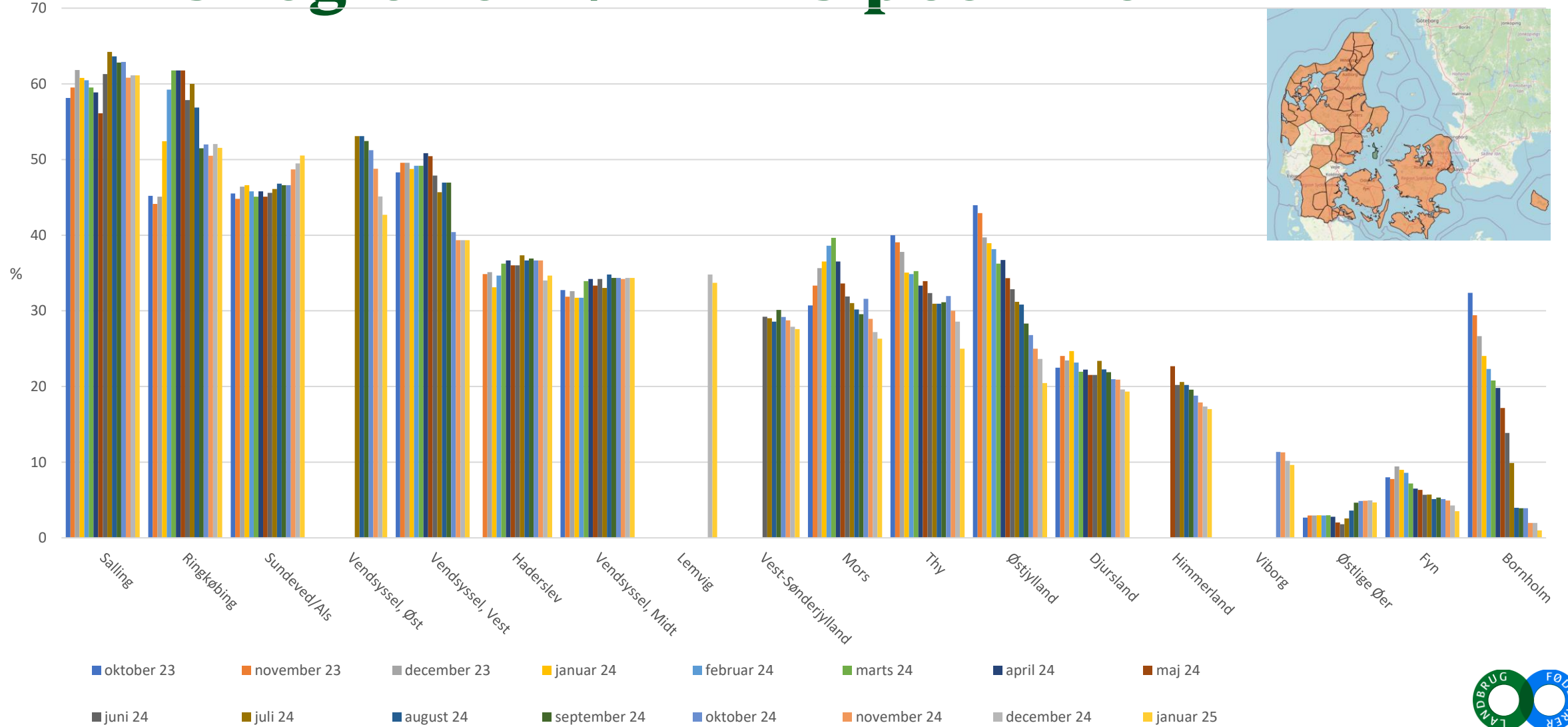
	Starting point 2022	Goals	Jan 2025
Proportion of finishers declared seronegative for PRRSV at slaughter	25%	75%	67%
Proportion of sow herds declared seronegative for PRRSV	58%	85%	72%

Objectives and status



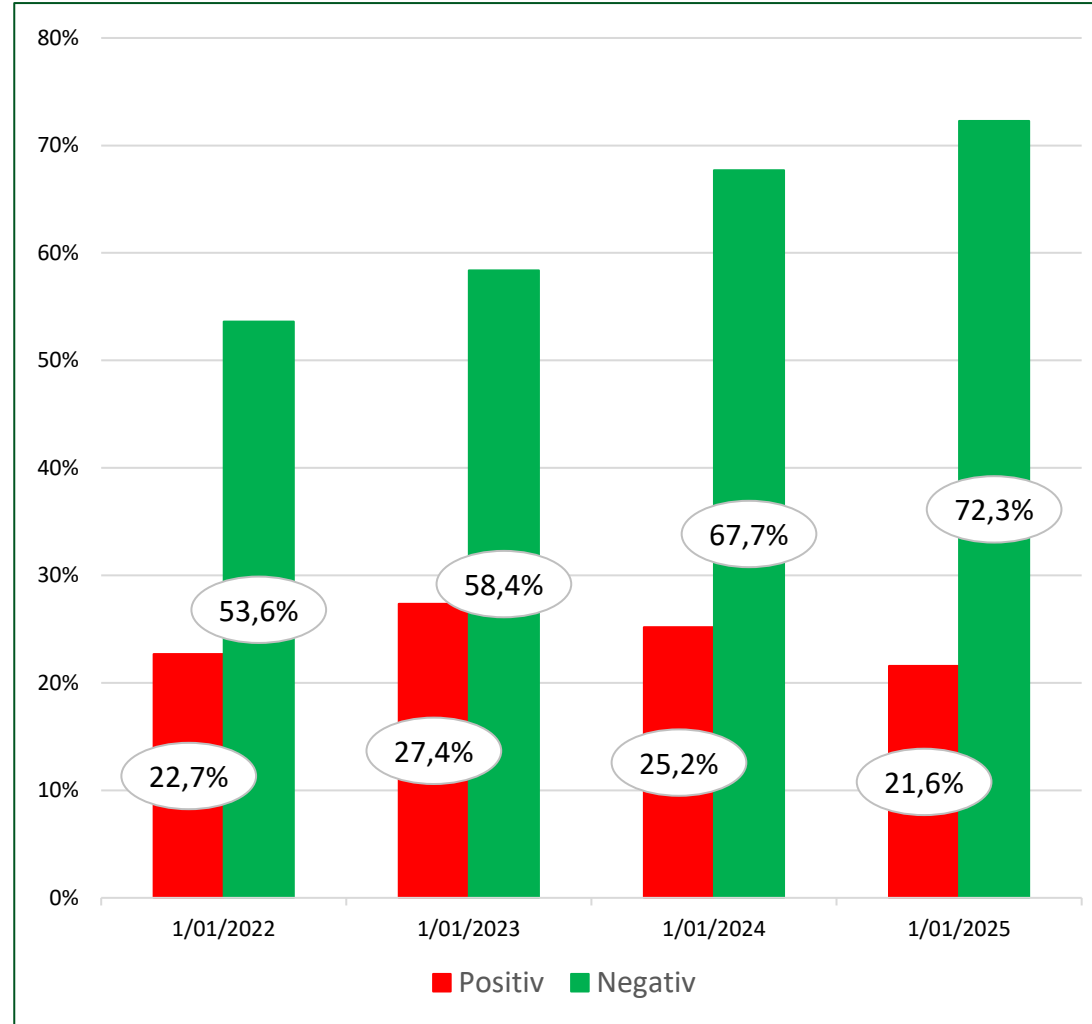


PRRS regioner -% PRRS positive

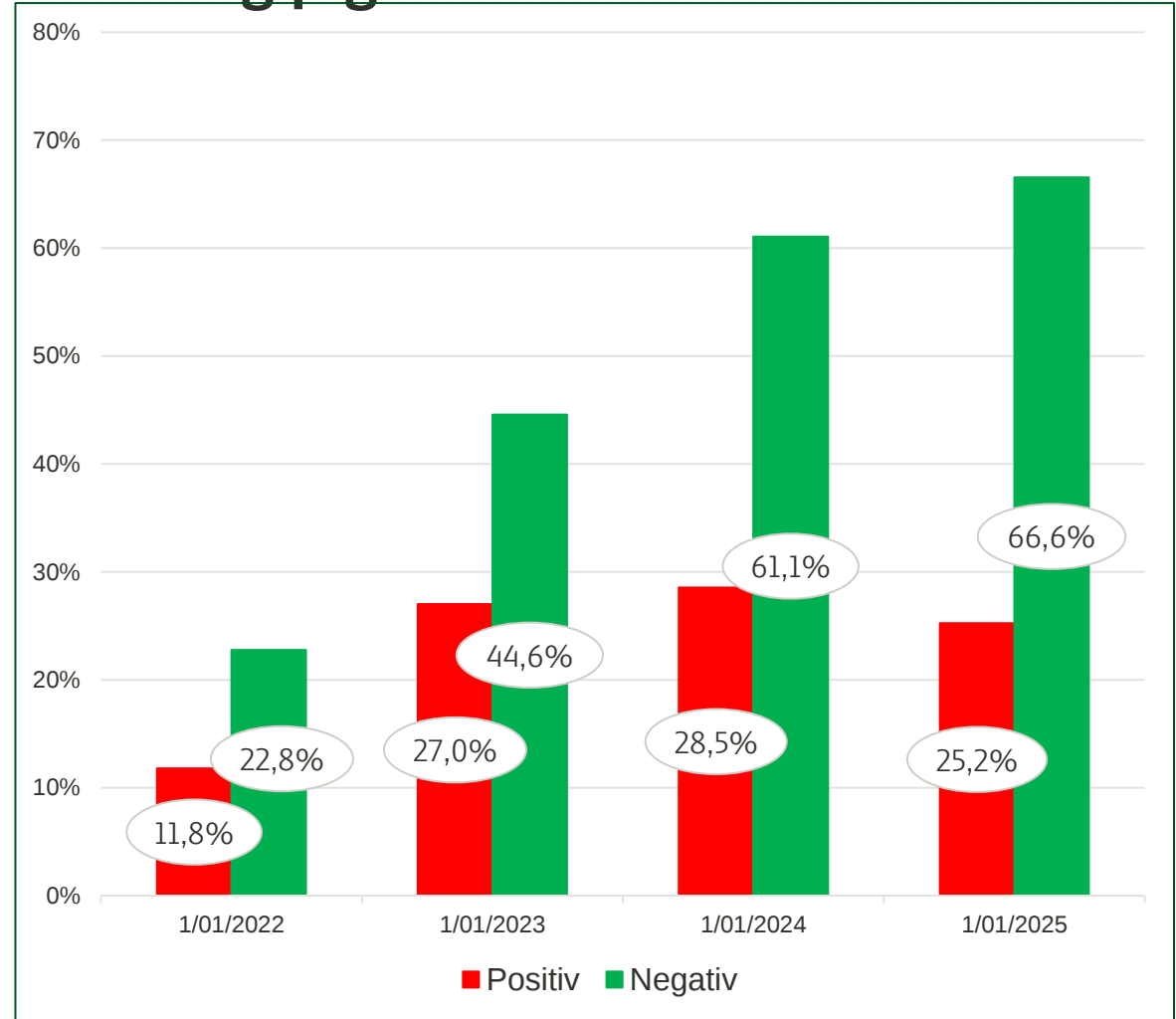




Sow herds

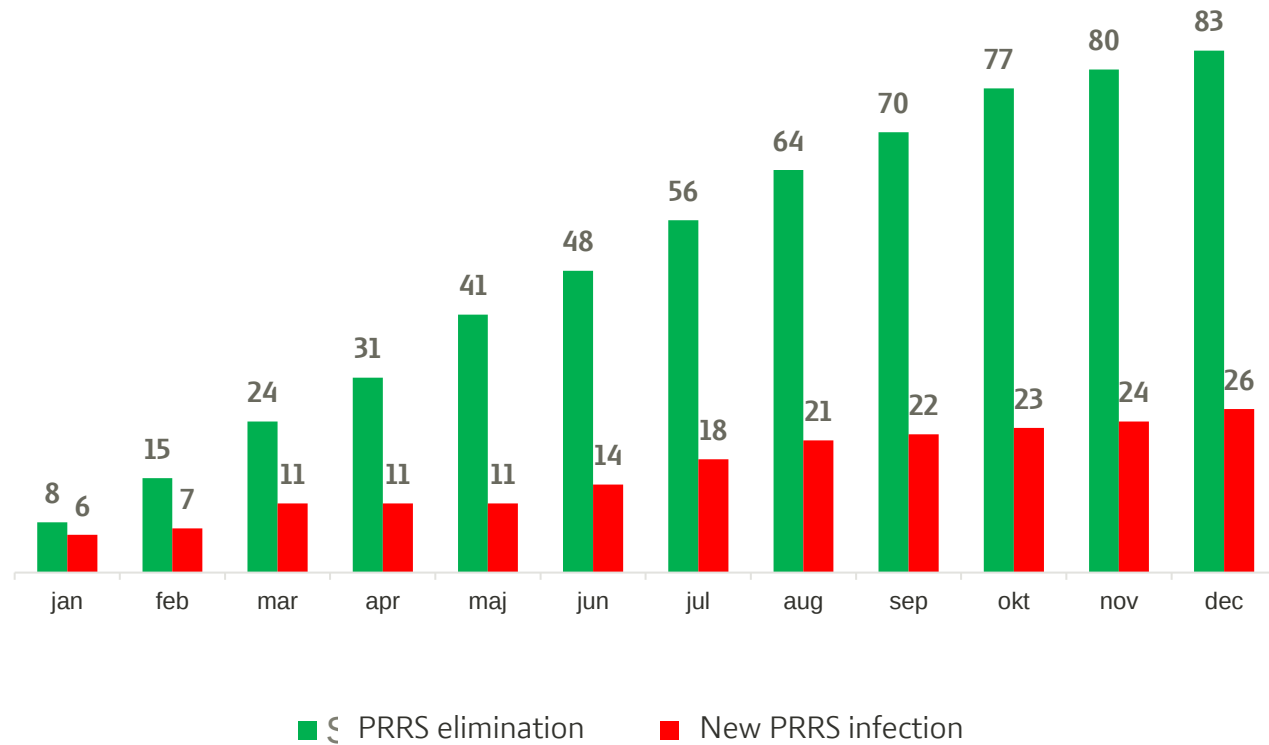


Growing pigs



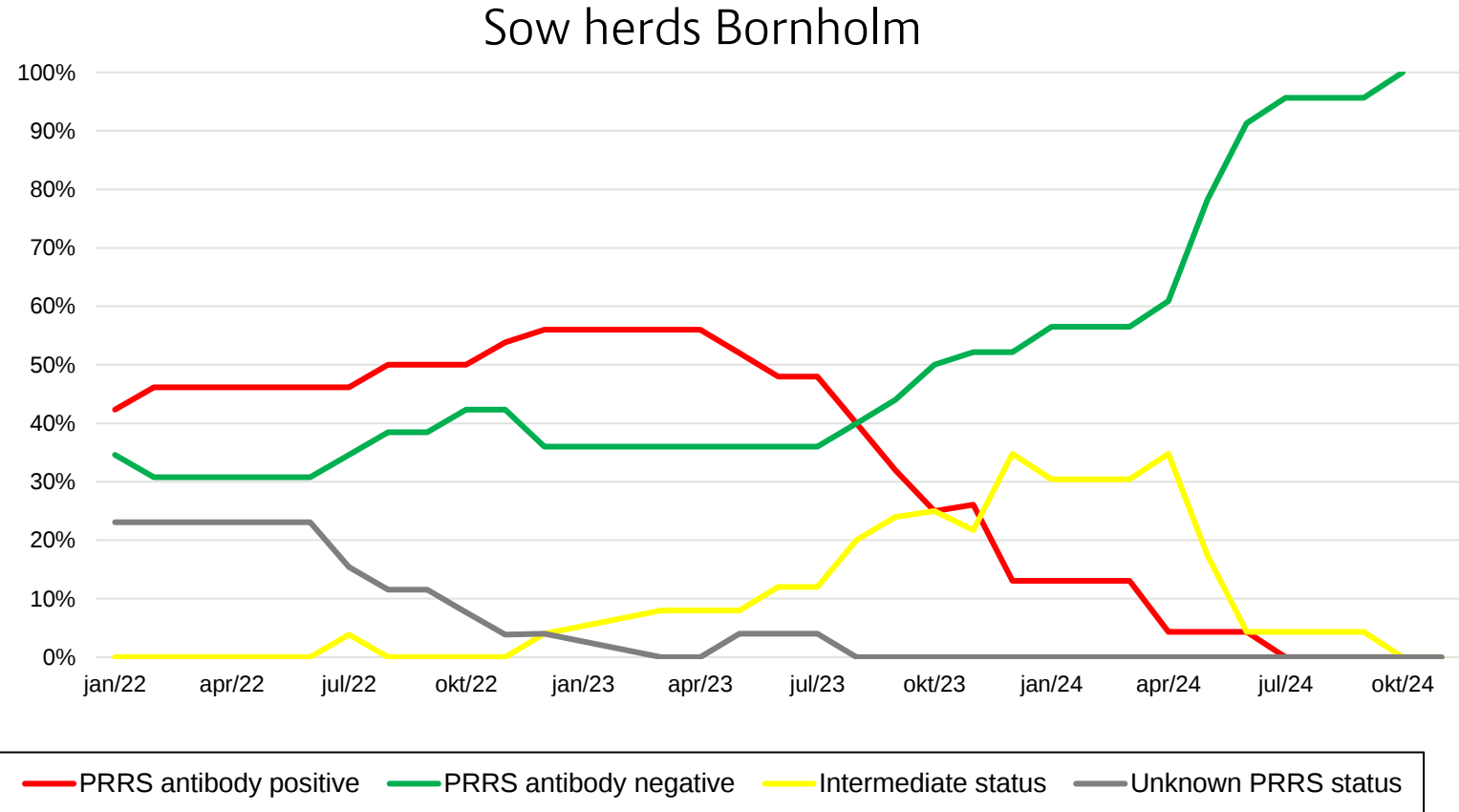
Eliminations and new infections in 2024

Sow herds with PRRS eliminations or new PRRS infection
Accumulated 2024

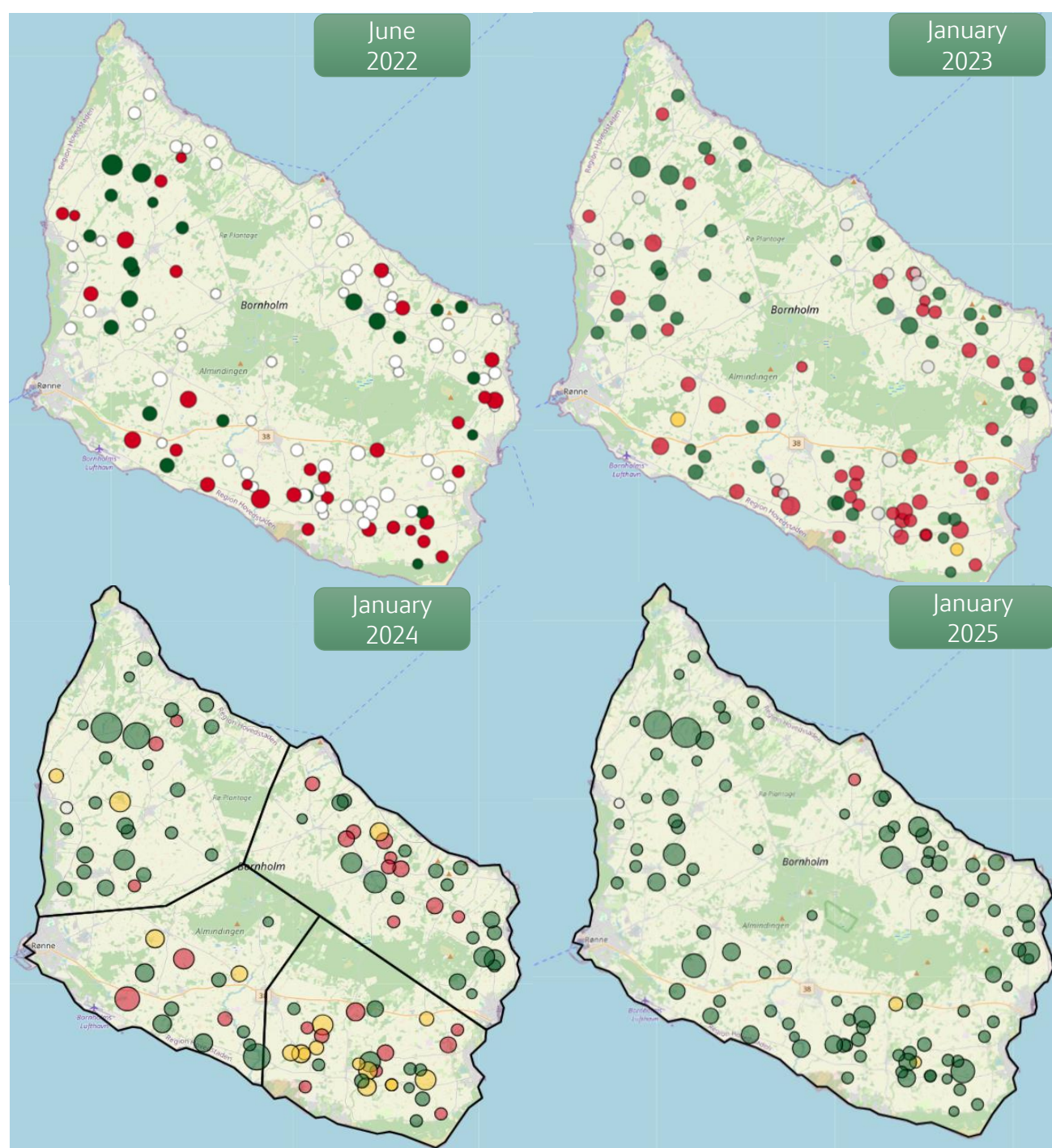


Year	New PRRS infections	# neg. sow herds January 1st	Risk of infection
2020	63	920	6,8%
2021	55	887	6,2%
2023	32	874	3,7%
2024	26	912	2,9%

Bornholm - the first PRRS negative region



Bornholm - the first PRRS negative region



Avoid re-introduction to PRRS-free regions



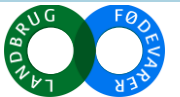
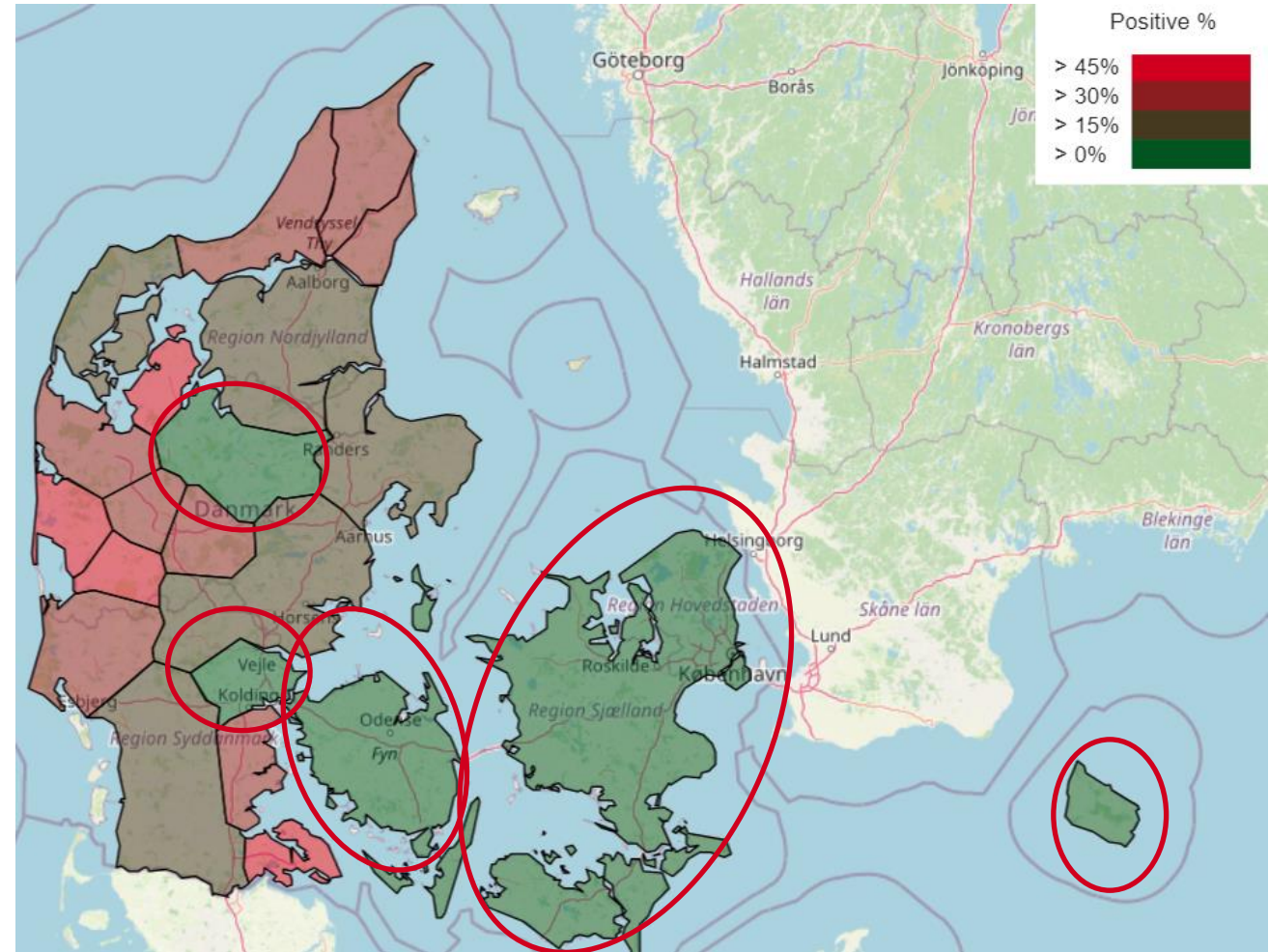
Clean regions must be protected

Focus on live pig transports

- Protect sow herds with gilt quarantines
- Where do the grower pigs come from?
- When was the last testing of the herd of origin?

External biosecurity

- Each herd owner has responsibilities
 - Access to herd
 - Clean ramps
 - Delivery of live and dead pigs
 - Waggon for manure, equipment etc.



Key elements

- Cooperation
- Transparency
- Regionalisation
- Real-time sharing of data



Everything is going according to plan!

Danish
PRRS
REDUCTION



TAK!

