



# Salmonella Dublin surveillance and eradication program in Danish cattle herds

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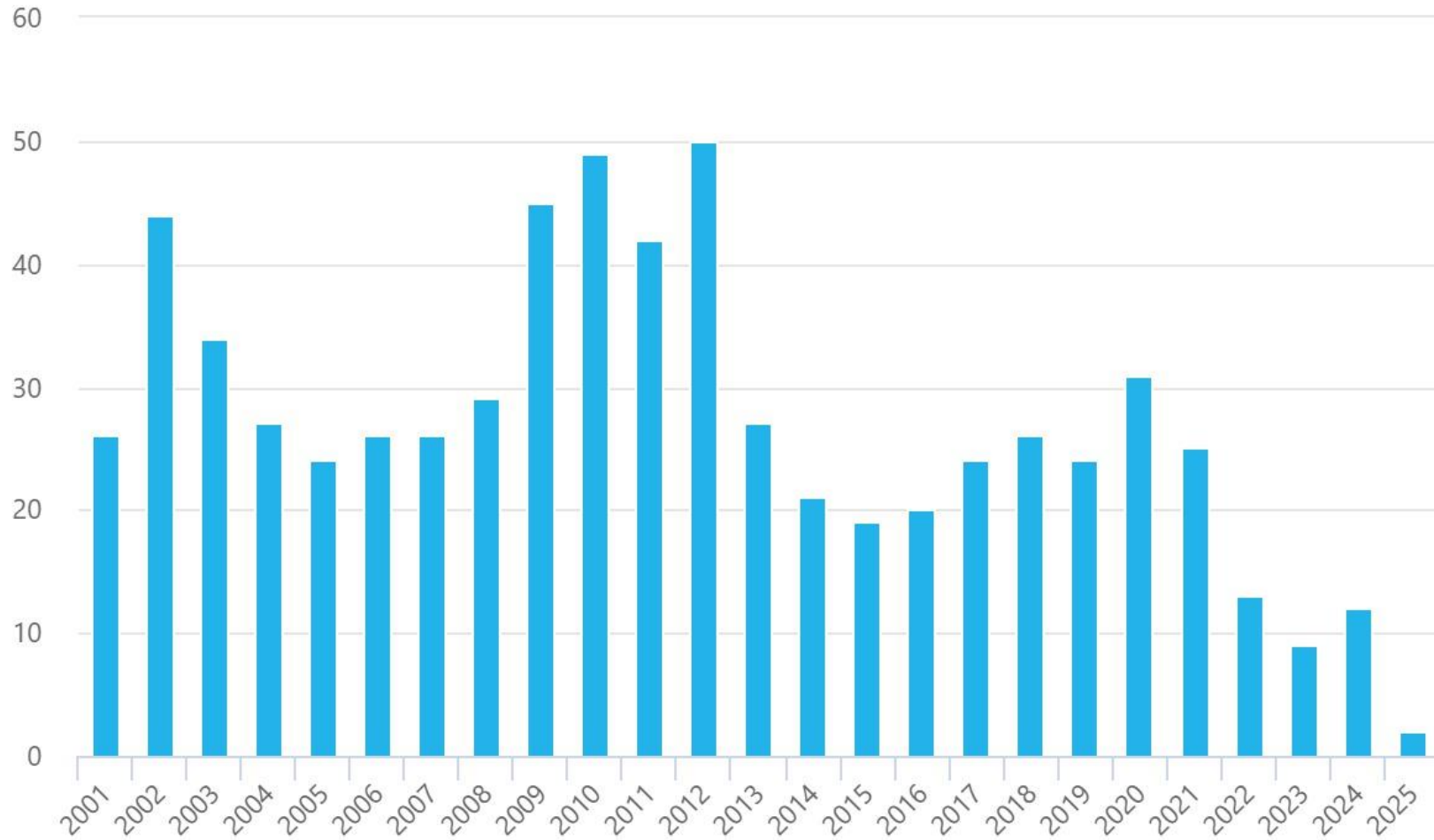
# Denmark



- Herds 14.350
- Cattle 1.412.409
- Dairy cows 540.000
- Dairy herds 2.100
- Average herds size 246
- Average milk yield 10.669 kg per cow per year

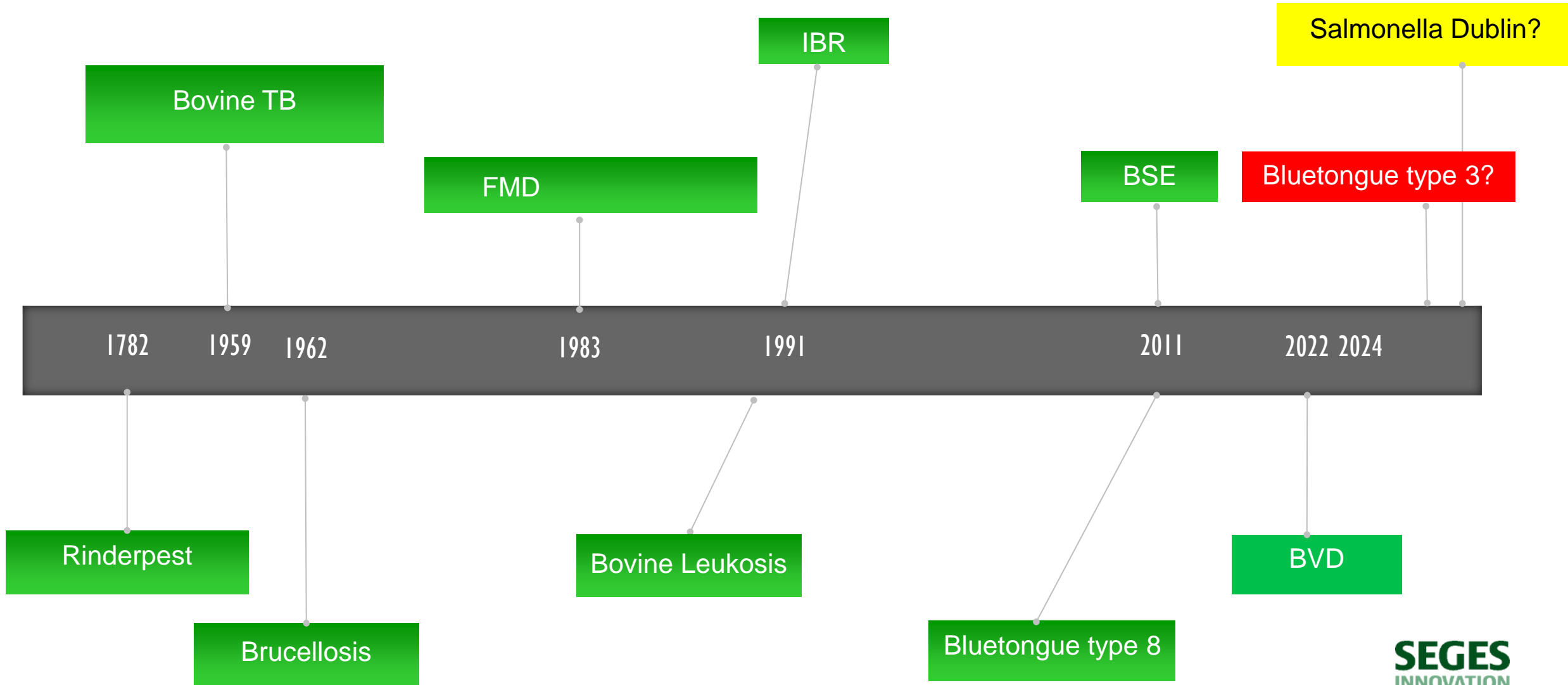
# Humane S. Dublin cases in Denmark

Antal tilfælde af Salmonella, Type: S. Dublin, År: 2001-2025



Statens Serum Institut

# Successful eradication programmes in the Danish cattle population



# Why Salmonella program?



More disease in infected herds



Less production in infected herds



Risk of salmonella contamination to personnel in infected herds - zoonoses



Risk of transmission of salmonella bacteria to beef-food safety



Risk of infection to other herds in the immediate vicinity

# Sampling and administration of surveillance programmes



According to governmental amendments:

All dairy herds sampled by bulk tank milk:

- 4 times annually (BVD, Salmonella)
- 1 time annually (IBR)
- 2 times annually (Streptococcus agalactia)

Non-dairy herds: IT technology automatically points out slaughtered cattle to be blood sampled for IBR, BVD and Salm. Dublin examination by disease specific periods.

SEGES Innovation administrate all clarifications of suspected herds

# Salmonella Surveillance 2025

## Surveillance

Bulk tankmilk  
Herd

Blood sample, heifer  
rearing

Blood from slaughter  
Herd

Salmonella 4/yearly,

Salmonella 1 –  
2/yearly

Salmonella 4/yearly,

## Definition of a Salmonella positive herd

- Bulk tank milk antibody test (ELISA) above 25 ODC %
- Average of the last 4 above 25 ODC %
- A valid test – 21 days since last one
- One positive blood sample – slaughter or test of animals in the herd – cut off value 50 ODC % - surveillance test



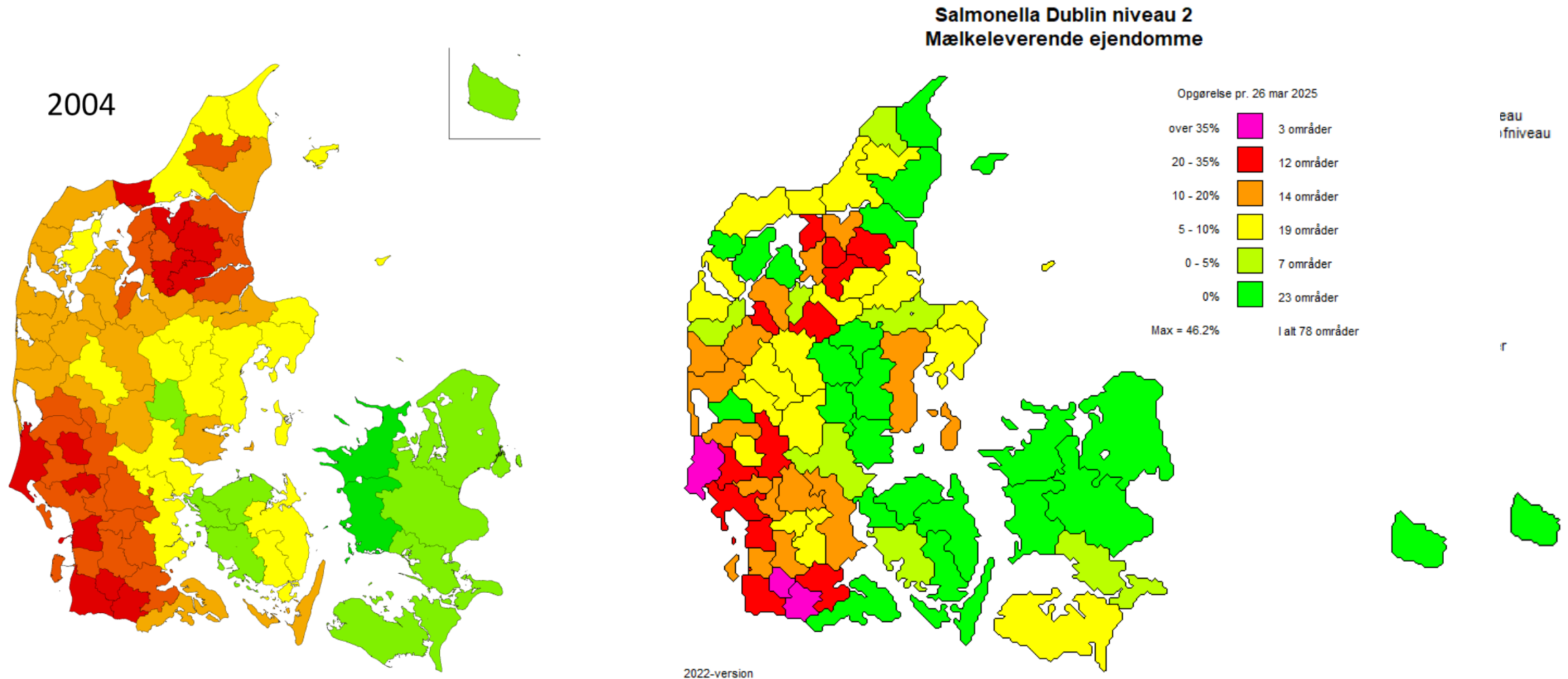


## Definition of level

- Salmonella Dublin level 1 – probably free from Salmonella
- Salmonella Dublin level 2 – positive herd, restrictions and demands for eradication etc
- *Salmonella Dublin level 3 – positive herd, clinical outbreak with positive findings of bacteria or positive testing because of the Salmonella program REMOVED FROM PROGRAM*



# Development in dairy herds between 2004-2025



# Dairy herds with Salmonella Dublin



# Eradications of infectious diseases in cattle in Denmark

1

- Screening
- Voluntary actions

2

- Surveillance
- Mandatory actions

3

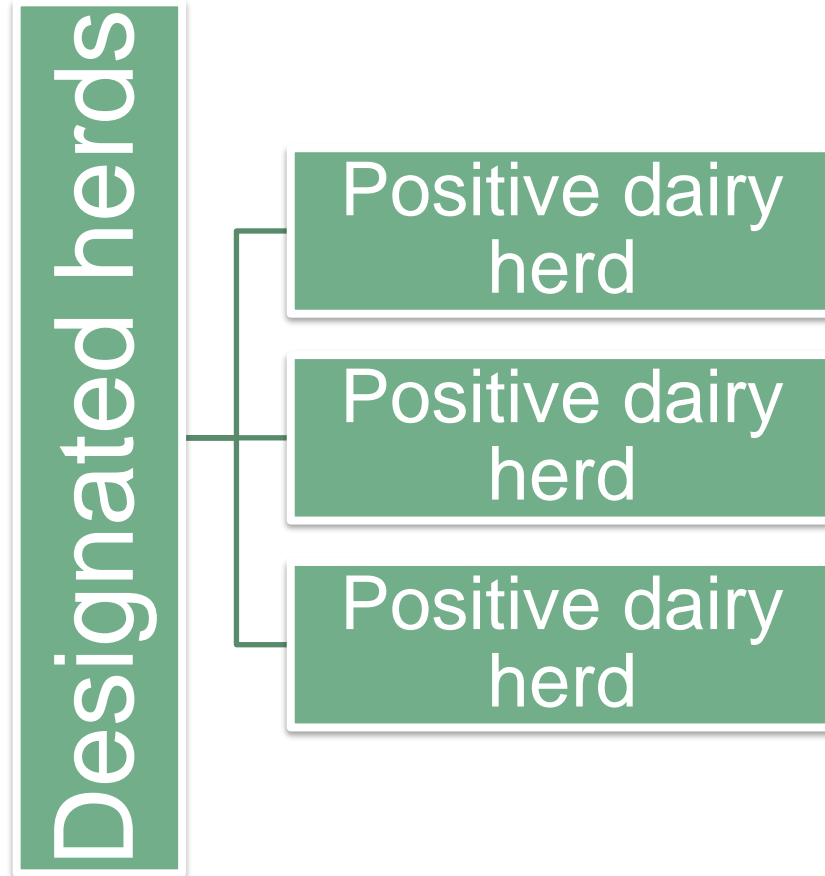
- Surveillance/eradication
- Governmental restrictions in positive herds

# History – The Danish Salmonella Program

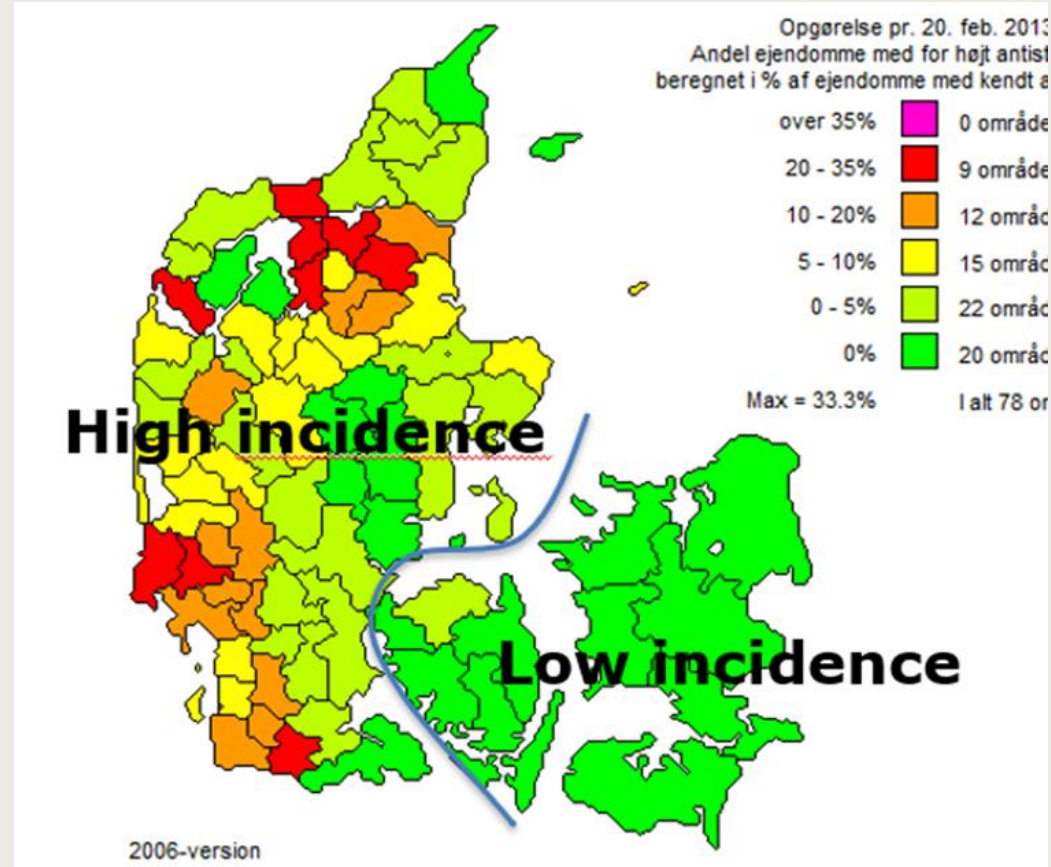


- 2002 – surveillance starts
- 2007 – 2009 Voluntary effort
  - Idea generation and testing, informations campaign
  - Establishing advisory network, manuals, Farmer Fields Schools
- 2010 – 2012 Trading restrictions
- 2013 – 2021 Legislation for positive herds, restrictions changes over the years
- 2021- Mandatory Control by authorities in all positiv herds twice a year, test program
  
- Eradication is the goal

# Trading restriction – bull calves



# Next step in the eradication program



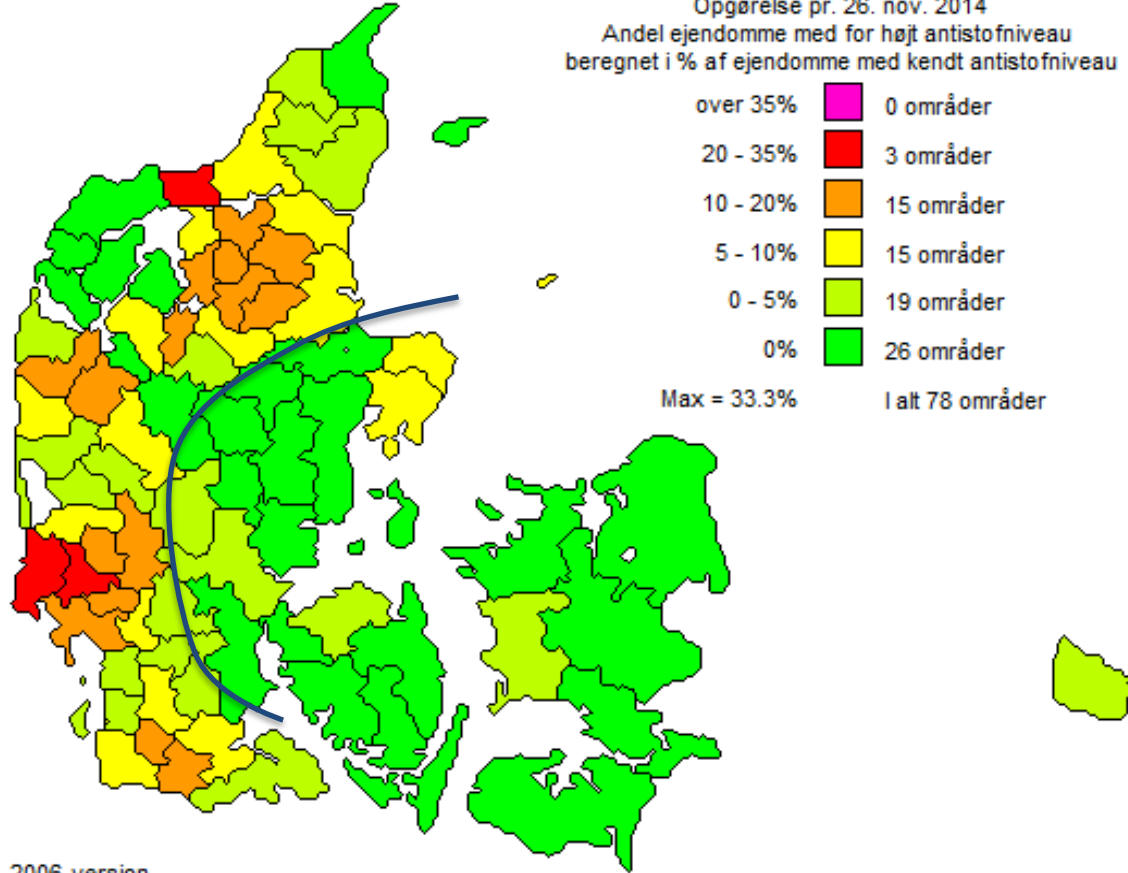
# Advance in regionalization

## Antistoffer - Salmonella Dublin Mælkeleverende ejendomme

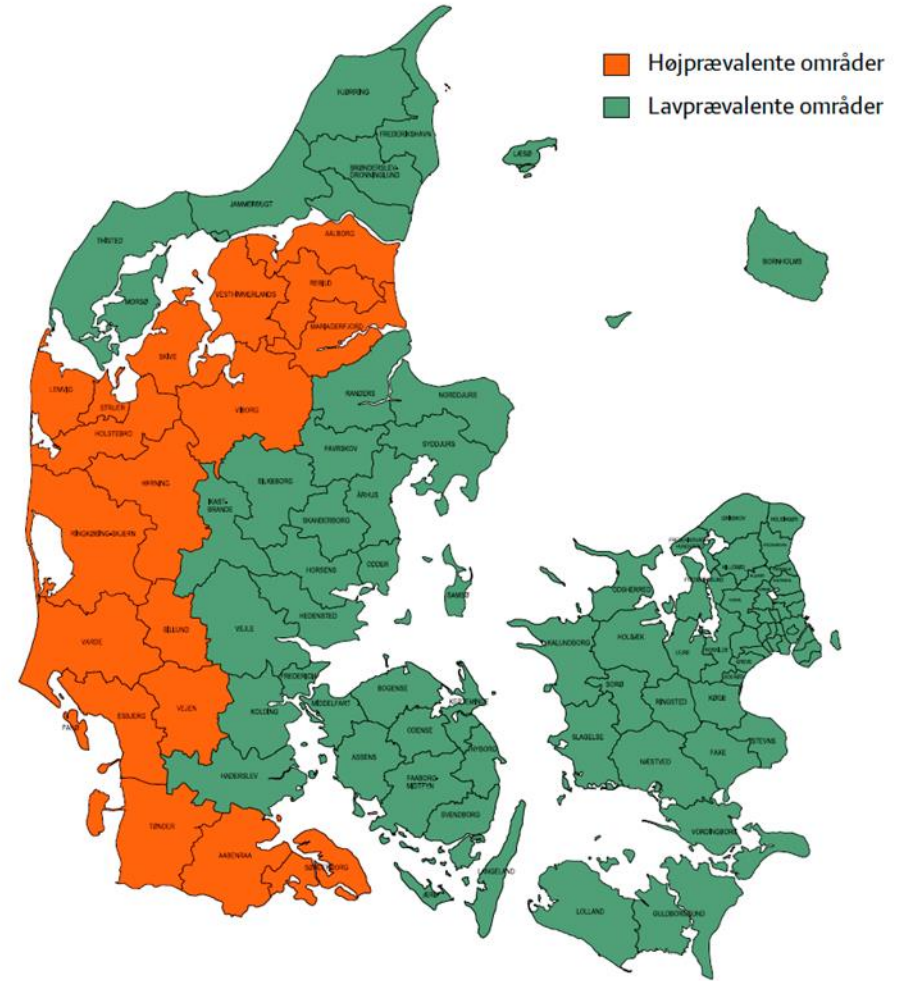
Opgørelse pr. 26. nov. 2014  
Andel ejendomme med for højt antistofniveau  
beregnet i % af ejendomme med kendt antistofniveau

over 35%	0 områder
20 - 35%	3 områder
10 - 20%	15 områder
5 - 10%	15 områder
0 - 5%	19 områder
0%	26 områder

Max = 33.3% I alt 78 områder



2006-version





# Regionalisation 2014-2018


- To protect herds in low-incidence areas:
  - Ban on movement of animals from high-incidence country parts to low-incidence areas, except:
    - Male calves from level 1 to rose calfproduction, animals attending animals fairs,
- Level 2 in low-prevalent areas is subject to restriction
- From 2019 – all regions cancelled
  - Level 1 – free trading in all country
  - Level 2 – NO trading – only slaughter or export



# Salmonella program

Miljø- og Fødevareministeriet  
Fødevarestyrelsen

CHR



Genveje til

- Landbrugsindberetning
- Webdyr
- Bestilling af øremærker
- Webservice til CHR m
- Søgning og upload
- Regler om CHR
- Fødevarestyrelsens h

Om siden

I CHR kan du fremsøge en række oplysninger om besættninger af kreaturer. Desuden tilbydes en række selvbetjeningsløsninger, som kan fx:

- Søge ejendomme med kreaturer
- Søge besættninger
- Søge kreaturer
- Indberette svineflytninger
- Udskrive kvægpas
- Udskrive sundhedsdokumentation for får og geder
- Finde ud af hvor æggekasser kommer fra

For kommuner er der en mulighed for at udtrække en liste med samtlige besættninger beliggende i et bestemt område.

ejendomme Besættninger Ejere og brugere

quafarms Svineflyt Leveringsklæringer

Kvæg Kvægpas Besættingsliste

Surveillance program  
with public access

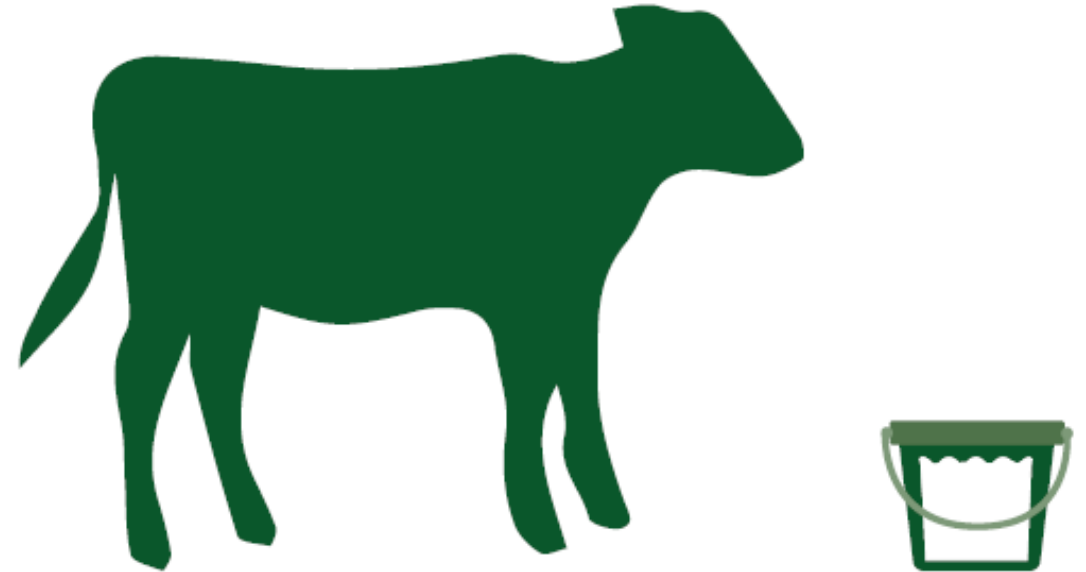
Movement restrictions

Mandatory eradications  
in infected herds – herd-  
specific systematic  
action-plans incl. Test  
strategies

Official restrictions in all  
test-positive herds

## Mandatory control in the Level 2 Herds

- Prohibition on the sale of livestock, excluding animals for slaughter, and animals for export
- The herdowner shall, in cooperation with his veterinarian, prepare a herd-specific, active and time-limited action plan for the control of Salmonella Dublin
- The impact of the action plan shall be documented
  - Quarterly Blood tests of 8-25 calves older than 3 months
  - Two times pr year – testing of 25 heifers
  - Two times a year – control by authorities. Paid by herdowner



## Other Restrictions in positive herds

- Animal fairs
- Animal transport
- Visitors
- Manure-handling



## Different approaches

- Call all positive farms – offer one visit by specialist
- Levi-fonded project – 3 years
- News, information online
- Assistance by phone
- Visit at farms
- Tools in DMS
- Test guides
- Courses for veterinarians and advisor

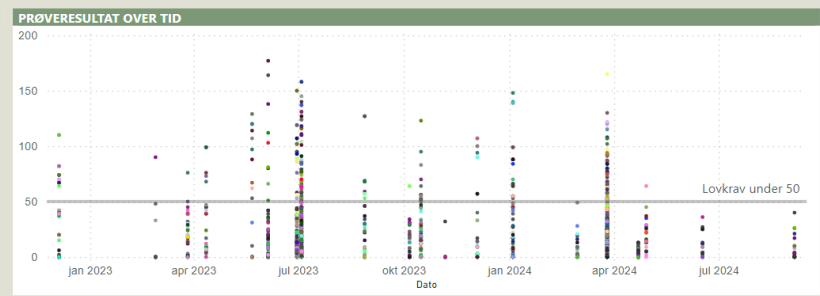


# Test results - one farm – tools in DMS

**DMS SALMONELLA DUBLIN - ENKELTDYRSPRØVER** seneste 2 år Vittargård 45665 Kvæg

**FILTRE** Kort - Egen ejendom og naboer Kort - Hele Danmark Tankmælksprøver Enkelttdyrsprøver

Periode: 05-12-2022 - 05-09-2024  
 Prøvetype:  Sanering  Andre  
 Status:  Ko  Ungdyr  Opdrætskvie  
 Dyr:  Ko  Opdrætskvie  
 Laktation:  Ungdyr  1. kalvs  2. kalvs  Øvrige kalvs  
 Aldersgruppe:  61 - 180  > 180  
 Alder i dage: 85 - 3389  
 Dage efter kælvning: 4 - 879  
 1870 Antal prøver  
 1.081 Antal dyr  
 Type (mælk/blod):  Blod  Mælk  
[Enkelttdyrsprøver \(Alle prøver\)](#) [Vis kun gentagne prøver](#)



OBS! Visualiseringen har en begrænsning på 60 dyr pr. dato. Begræns ev. søgninge

Dyr nr.	Dato	Dyr	Prøve	Alder i år	Alder i mdr.	Typ (m)
4566508474	05-12-2022	Opdrætskvie	39,00	0	2,79	Blod
4566508469	05-12-2022	Opdrætskvie	0,00	0	2,96	Blod
4566508467	05-12-2022	Opdrætskvie	64,00	0	2,99	Blod
4566509163	29-01-2024	Opdrætskvie	0,00	0	3,02	Blod
4566508463	05-12-2022	Opdrætskvie	0,00	0	3,06	Blod
4566508564	27-02-2023	Opdrætskvie	0,00	0	3,06	Blod
4566508857	28-08-2023	Opdrætskvie	0,00	0	3,06	Blod
4566508856	28-08-2023	Opdrætskvie	0,00	0	3,09	Blod
4566509229	06-05-2024	Opdrætskvie	0,00	0	3,09	Blod
4566509161	29-01-2024	Opdrætskvie	0,00	0	3,12	Blod
4566509162	14-08-2024	Opdrætskvie	0,00	0	2,12	Blod

**DMS SALMONELLA DUBLIN - TANKMÆLKSPRØVER** seneste 5 år Vittargård 45665 Kvæg

**FILTRE** Kort - Egen ejendom og naboer Kort - Hele Danmark Tankmælksprøver Enkelttdyrsprøver

Periode: 01-01-2019 - 04-11-2024  
 Tankmælksprøver: Seneste 5 år  
 CHR-nr:  45665  Gyldig  Ikke gyldig

Nyheder om Salmonella Dublin  
 Nyheder om smittebestivelse

Smitterisiko	Besætningsstørrelse				
	Smittede naboer	1-100	100-200	200-300	300-500
0	0,2%	0,4%	0,6%	0,6%	1,0%
1	0,5%	0,9%	1,4%	1,4%	2,5%
2-3	1,4%	2,6%	3,8%	4,0%	6,7%
4-7	4,0%	7,1%	10,3%	10,6%	17,1%
8 +	9,0%	15,3%	21,3%	21,9%	32,7%

Leverandør	IMMUNISERING KALVE					Antal mårte kalve	DØDELIGHED			ADD kalve og ungdyr u. 24 mdr. (9 mdr.)
	Leverede kalve	Super god (%)	God (%)	Rimelig (%)	Dårlig (%)		Dødfødte kalve (%)	Døde kalve 1-30 dg (%)	Døde kalve 1-180 dg (%)	
779						18	5,5	1,7	4,3	0,47
321	50	0	17	33			6,3	1,8	4,3	0,38
285							5,0	5,3	10,1	1,06
219							4,7	1,1	1,5	0,18
164							6,4	4,8	3,9	0,39
145							1,3	2,1	3,2	0,16
99							4,1	1,9	7,4	
94							5,5	1,4	2,0	0,10
65										
42							7,5	5,2	4,4	0,10
41							1,4	1,1	2,7	0,11
14										2
12										1
12							3,4	8,2	5,7	0,37

1	0	18-04-2008	B
1	10	29-11-2024	D
1	0	05-10-2002	A
1	3	02-01-2023	B
1	0	04-05-2007	A
		21-12-2024	
1	0	05-10-2002	B
1	1	05-10-2002	A
	2	17-05-2008	B
	1	18-08-2015	
	1	15-03-2016	B
	2	19-03-2005	A
	1	12-12-2024	D
	2	18-07-2006	B
	1	08-12-2015	B
	1	08-09-2015	B
	1	18-09-2009	B
	1	05-11-2011	A
	1	03-05-2005	B
	1	02-01-2023	B

Salmonellari-sikoscore	Vurderet risiko for at komme i niveau 2
● A	● Lav risiko
● B	● Middellav risiko
● C	● Middelhøj risiko
● D	● Høj risiko
● E	● Meget høj risiko

**Thank you for your attention**

