HIS, Liverpool Nov 2018/ / SFVH, Visby April 2019

…OCH VÅRA DJUR, DÅ?

FINNS DET EN NORDISK MODELL?

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STATENS SERUM INSTITUT

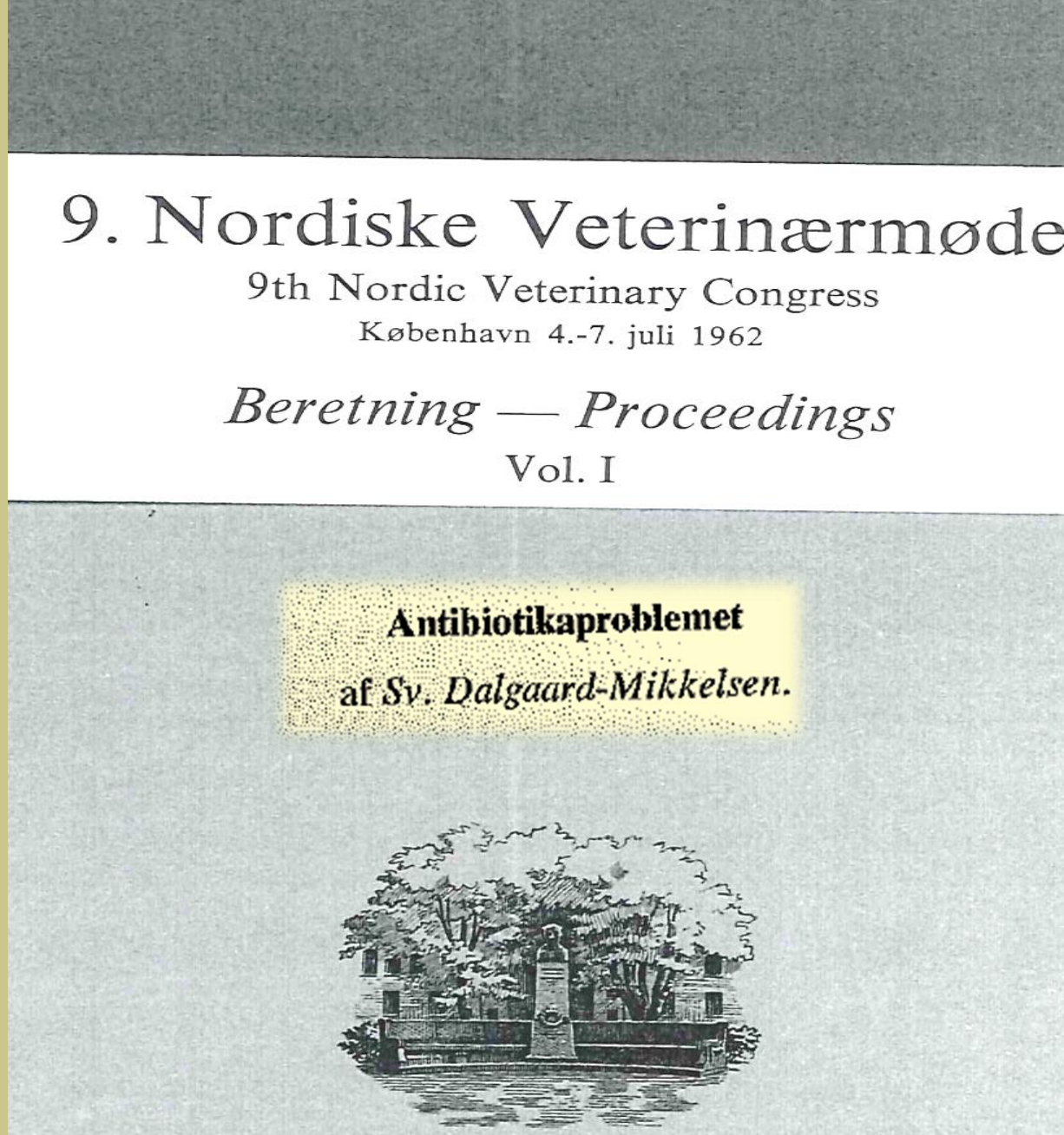
SVA STATENS VETERINÄRMEDICINSKA ANSTALT

1962

NORDIC VETERINARY CONGRESS

PLENARY TALK

“THE ANTIBIOTIC PROBLEM”



..“We veterinarians must reach the truly responsible use of antimicrobials .. ..It is one of the main tasks of our profession to contribute to an increased production of food of animal origin, but it must always be done in such a way that the products do not cause consumers harm”..

OUTLINE

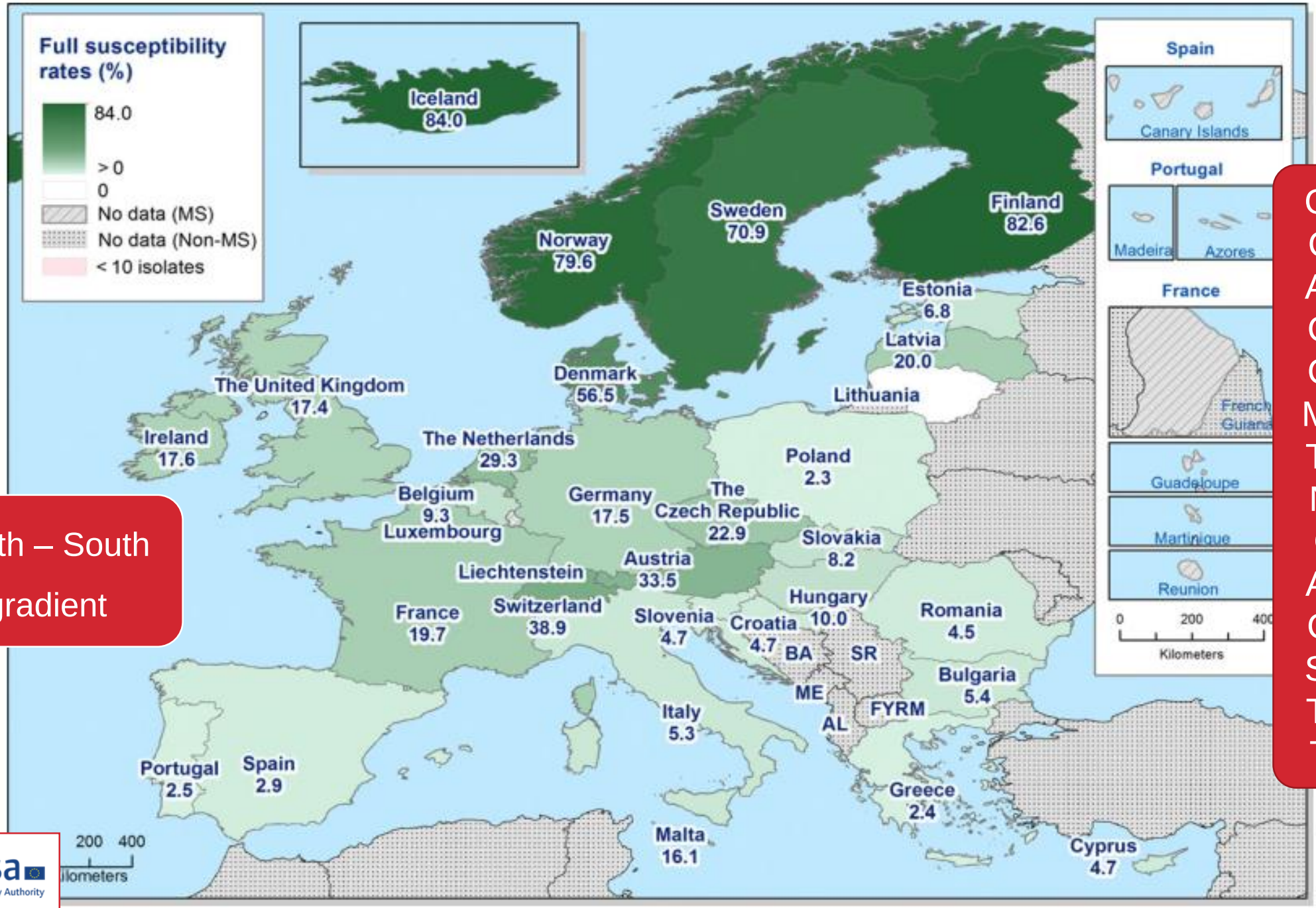
Current:

- Examples, susceptibility rates and antimicrobial sales.
- Geographic and demographic, influence?

History:

- Common ideas; awareness, attitude, action and knowledge.
- Examples from the Nordic countries.

Photo C. Greko



North – South gradient

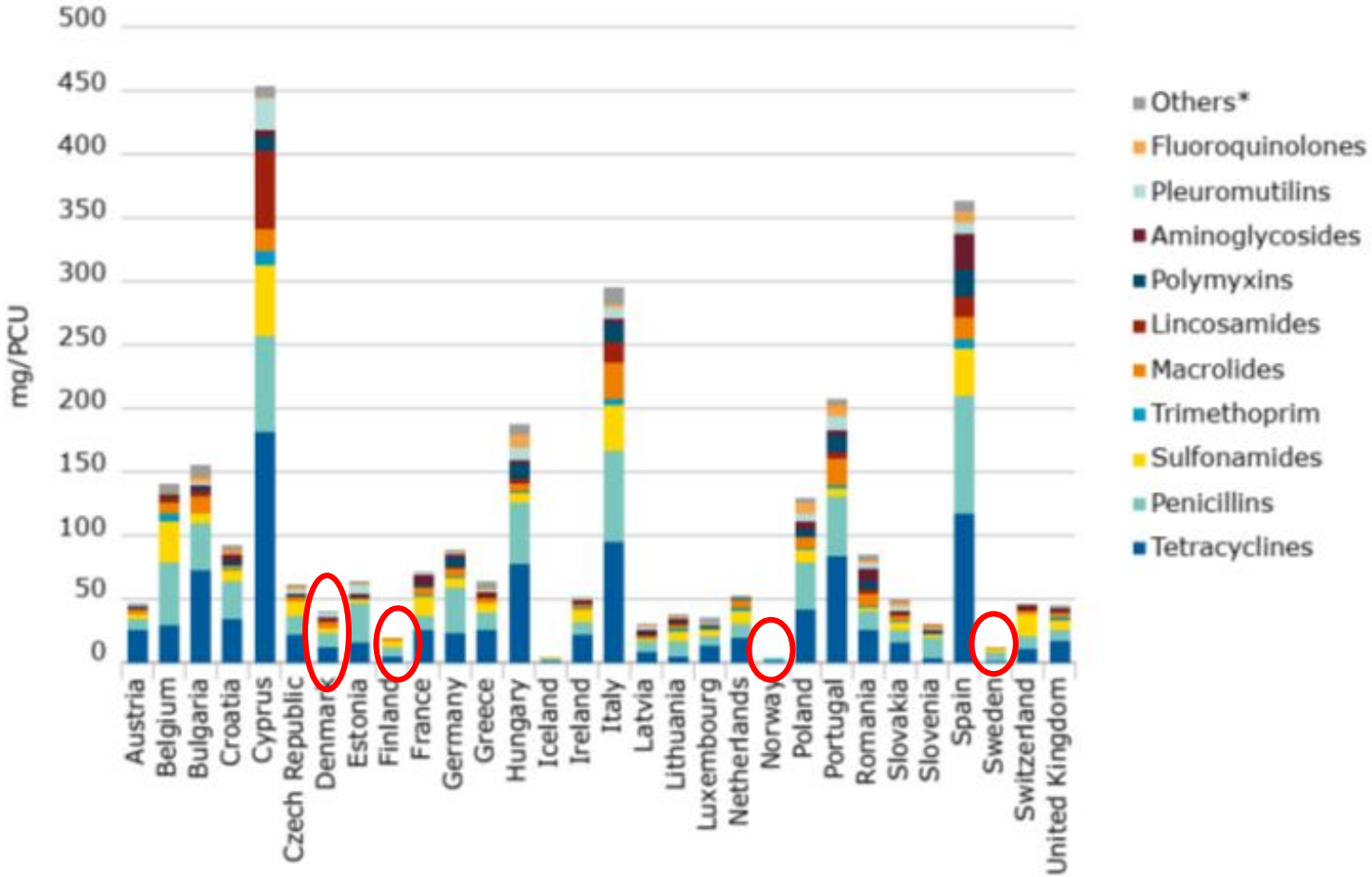
GEN
CHL
AMP
CTX
CAZ
MEM
TGC
NAL
CIP
AZM
COL
SMX
TMP
TET

efsa
European Food Safety Authority
2017

Figure 91: Spatial distribution of complete susceptibility to the panel of antimicrobials tested among indicator *Escherichia coli* from broilers, using harmonised ECOFFs, 30 EU/EEA Member States, 2016

TOTAL SALES OF AM FOR FARM ANIMALS AND HORSES EU/EEA COUNTRIES 2016

Figure 2. Sales for food-producing species, in mg/PCU, of the various veterinary antimicrobial classes, for 30 European countries, in 2016[1]



Nordic countries among the lowest users

North- South gradient

*Amphenicols, cephalosporins, other quinolones and other antibacterials (classified as such in the ATCvet system).

[1] Differences between countries can be partly explained by differences in animal demographics, in the selection of antimi in dosage regimes, in type of data sources, and veterinarians' prescribing habits.

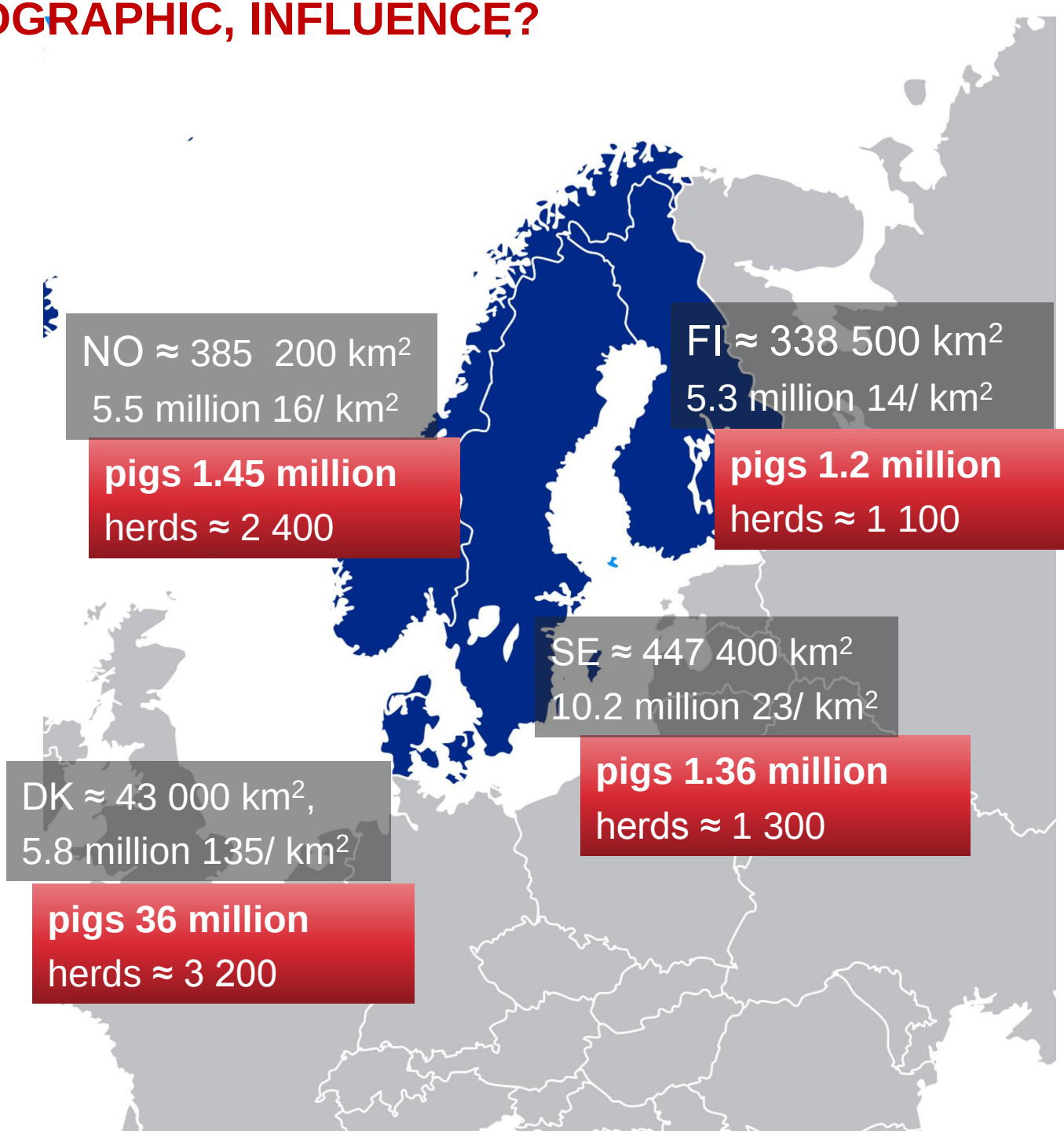
DEMOGRAPHIC AND GEOGRAPHIC, INFLUENCE?

DK larger herds on smaller geographic area

FI, NO, SE smaller and more scattered herds

NO, SE peninsula

Climate




HEALTHY ANIMALS DO NOT NEED
ANTIMICROBIALS!

HEALTHY ANIMALS = PREVENTION OF DISEASES

Communication and collaboration

Stop diseases at borders:

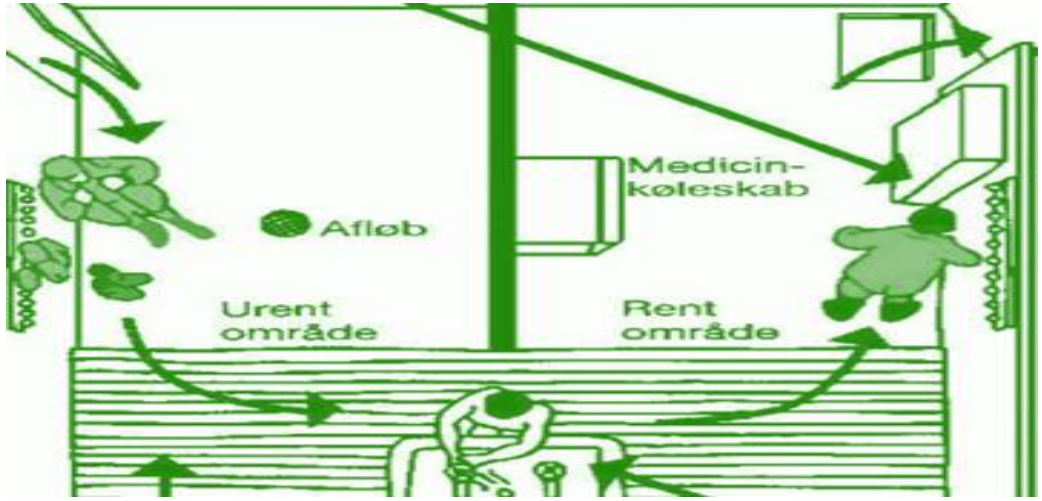
- Restricted import of live animals
- Biosecurity/hygiene at farm level

Animal health management:

- Vet's advisory consultants in prophylactic healthcare
- Vaccination programmes
- Focus on good husbandry and animal welfare (public pressure)
- Information and education

Legislation:

- Surveillance and control programme for some diseases; reduce/eradicate
- Contingency plans – always in case of epizootic diseases, e.g. tracing, movement restrictions, stamping out etc.
- Animal ID and registration of movement, herds or individuals
- Salmonella control of feedstuff
- IPC in animal hospitals and at farms



ANTIMICROBIAL GROWTH PROMOTERS - EARLY POLICY

Communication and collaboration

- SE – regulated ban in 1986 due to farmer/public pressure
- NO – phased out 1995 by livestock industry
- DK – phased out gradually 1995-1999
- FI – phased out gradually 1990-1999
- EU – phased out 1 January 2006

Globally – still in use in most countries outside EU/EEA

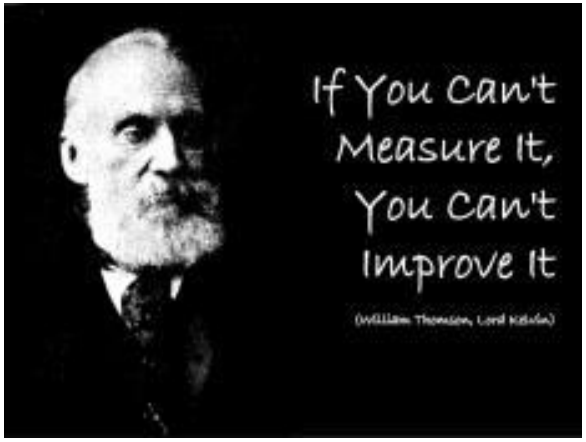
Peter Hermes Furian

India Today, July 31 2014

SURVEILLANCE

Communication and collaboration

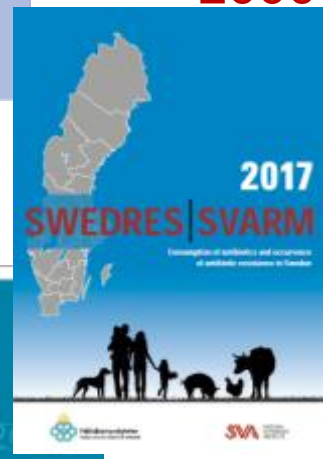
- Surveys and research on AMU from the 1980´s.
- Establishment of surveillance programs and reports on AMU and AMR started 1996.



1999/2002

1996

2000



2000

https://www.danmap.org/Downloads/Reports.aspx
https://www.evira.fi/elaimet/elainten-terveys-ja-elaintaudit/laakitseminen/antibioottiresistenssin-seuranta/finres-vet-raporit/
https://wwweng.vetinst.no/surveillance-programmes/norm-norm-vet-report
http://www.sva.se/en/antibiotika/svarm-reports

SURVEILLANCE CONT.

Aims of monitoring AMU and AMR – e.g. defined by FAO/OIE/WHO*

1) Documentation of the situation
2) Identification of trends
3) Linkage of AMU and AMR
4) Basis for risk assessment
5) Basis for interventions
6) Evaluation of effectiveness of measures implemented
7) Basis for focused and targeted research

The Nordic surveillance data forms a natural basis for these purposes

*http://www.oie.int/doc/ged/D454.PDF

Communication and collaboration

ACTION PLANS

- Action plans to contain AMR early established.

- Coordinated action plans involve government, authorities, industry, researchers, veterinarians, farmers and their organisations.

	Denmark	Finland	Norway	Sweden
Livestock industry action plans	2010 2015	1994 2001	1996 2017	1994 1995 2008
Governmental action plans	2010 2017	2000 2017-2021	2001-2004 2015-2020	2008 2015-2017 2018-2020

PRUDENT USE GUIDELINES

Communicatiand colon laboration

	Denmark	Finland	Norway	Sweden
Food producing animals	1996, 2010, 2018	1996/2003/2009 2016	1998, 2012 (under revision)	1998, 2011, 2013, 2015, 2017
Companion animals	2012, 2018	1996/2003/2009 2016	2014	1998, 2009, 2011, 2016, 2019
Horses	2017	1996/2003/2009 rev. 2016	Under development	1998, 2013

Basic rules, e.g.

- Narrow spectrum penicillins recommended as first choice when indicated for treatment.
- Individual treatment when feasible.
- Group treatment diagnostic testing required, e.g. DK.

CONTAINMENT OF CRITICALLY IMPORTANT AM (CIA) FOR HUMAN USE

WHO 5TH REV OCT 2016

FINLAND FIRST

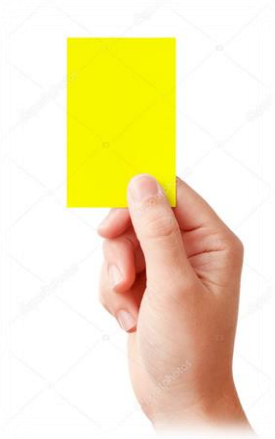
1998 government decree (935/1998)*
prohibited use of certain AM for animals
to prevent AMR transmission

…long list, e.g….
…glycopeptides, e.g. vancomycin
…streptogramins, e.g. virginamycin
…3rd 4th gen cephalosporines
…rifampin
…mupirocin
…linezolid
…carbapenems…etc

Policies of CIA usage within the animal sector varies among the other three Nordic countries, from restrictions to ban

*https://www.finlex.fi/sv/laki/alkup/2014/20141054

DENMARK - ANTIMICROBIAL STEWARDSHIP/YELLOW CARD INITIATIVE INTRODUCED 2010

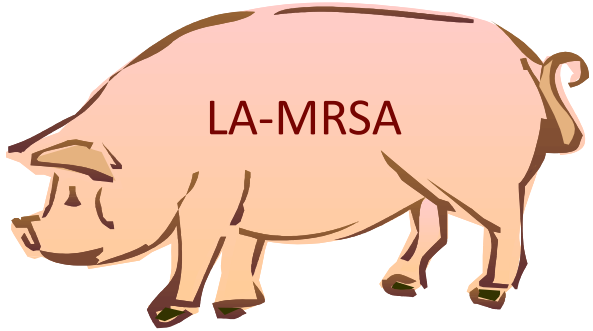


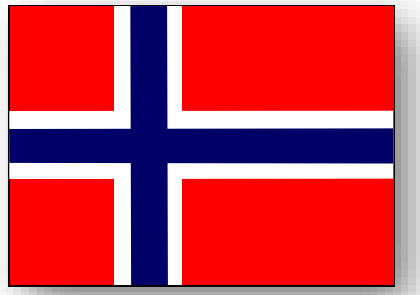
- A call from the government to reduce the AMU in Danish pigs, since pig production is the main driver of AMU in DK.
- Herd-level thresholds of consumption was decided to target the highest users. Thresholds lowered over time.
- Usage above the decided threshold gives a yellow card
- Simultaneous introduction of mandatory visits of the farm-vet on a regular basis.
- AMU is reported by each farmer and compared to the vets prescribing level and sales level for complete coverage of total consumption.
- The AMU in Danish pigs was reduced by 28% from 2009 to 2017.

https://www.foedevarestyrelsen.dk/english/Animal/AnimalHealth/Pages/The-Yellow-Card-Initiative-on-Antibiotics.aspx

NORWAY – CONTROL / ERADICATION OF LA-MRSA IN PIGS

- ✓ Pig population wide annual MRSA surveillance since 2014 to date
- ✓ All findings of LA-MRSA in pig farms results in eradication and follow-up testing
- ✓ Depopulation through slaughter if pigs where otherwise fit for slaughter
- ✓ Affected pig farms subjected to thorough cleaning and disinfection
- ✓ Studies show a net benefit from a socioeconomic point of view of using these measures – i.e. surveillance and control through eradication





INTRODUCTION OF ESBL IN BROILER

THE BROILER PYRAMID

Two companies provide pedigree

Pedigree

Great Grandparents

Grandparents

Parents

Broilers

Import to Sweden

3rd gen cephalosporine one-day old chicken

Selection and transmission of ESBL

ESBL transmitted to the flocks

Slide, Oskar Nilsson, SVA

Communication and collaboration

Nordic Guidelines for Mastitis Therapy

Agreed in unanimity at The NMSM Annual Conference
June 12, 2009, Ideon Science Park, Lund, Sweden

General policy

- Only acute clinical mastitis cases should be chosen for treatment decision.
- Subclinical mastitis in general has too high self-cure or too low cure rate in proportion to the treatment costs during lactation.*
- Subclinical mastitis should instead be treated during the dry period.
- Pronounced restrictive use should be regarded for *cephalosporins* and *quinolones*.

** Exception from this rule could be made in herds during eradication of Streptococcus agalactiae.*

NMSM

Actions that always should be made regardless of treatment decision

Evaluate prognosis

- If replacement animals are at hand culling should always be considered an alternative if prognosis is doubtful (ex. several quarters infected).
- A comparison between the cost for culling vs. the estimated cost for treatment should always be made.

Biosecurity actions

- Analyze if future effective segregation is possible if the case is a contagious mastitis.
- Drying of chronically infected teats could be used, if remembering it is not the same as segregation.

Bacteriologic culturing

- The main purpose is to continuously monitor the mastitis pattern of the herd.
- A certified mastitis laboratory is considered the best choice.
- Home culturing could be valuable if correction of drug choice can be expected.

Supportive treatment

- Milk the cow, using the milking machine, once or twice more per day.
- Move cows in loose housing to a sick pen for optimal cow comfort, cubical hygiene, watering and feeding.

Additional treatment on demand

- Oxytocin injections for enhancing milk let-down.
- Fluid therapy intravenously or orally.
- Non-Steroid Antiinflammatoric Drugs.

Animal Welfare

- Cows with highly affected physical conditions and great pain should be treated as soon as possible with the drugs available.
- Also, in these cases the same principles for antibiotic choice as presented in this policy should be considered as far as possible.

Treatment follow-up

Evaluation of treatment outcome by the veterinarian:

- Should always take place within 4-8 weeks.
- Repeat the calculation of long-time prognosis and cost for culling.
- Decide further bio-security actions
- Use somatic cell count, clinical symptoms and animal condition in the evaluation.
- If needed, do bacteriological culturing or PCR, and always send these samples to a certified mastitis laboratory.

Antibiotics needed for mastitis therapy in the Nordic countries

- Penicillin G.
- A β-lactamase resistant antibiotic.*
- An antibiotic with effect on gram-negative bacteria legal in the country.

** Only in case of severe animal welfare conditions.*

ACKNOWLEDGEMENT

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Thanks for
listening