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*LIAISON CENTRE FOR THE MEAT PROCESSING INDUSTRY IN THE E.U.
CENTRE DE LIAISON DES INDUSTRIES TRANSFORMATRICES DE VIANDES DE L'U.E.*

Modernisation of meat inspection:

Danish experience regarding finisher pigs

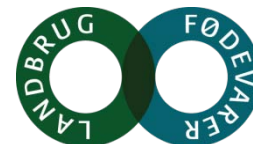
Lis Alban

Chief scientist, DVM, Ph.D., DipECVPH DipECPHM
Danish Agriculture & Food Council

Brussels

October 25, 2010

CLITRAVI - Liaison Centre for the Meat Processing Industry in the EU



President: Mr. Robert Volut (FR)

Vice-Presidents: Mr. Tamas Eder (HU), Mr. Jos Goebbels (NL) and Mr. Marcello Veronesi (IT)

24 Member States (28 members)
+ 3 Associated members from Norway and Turkey

Established on 22 May 1958

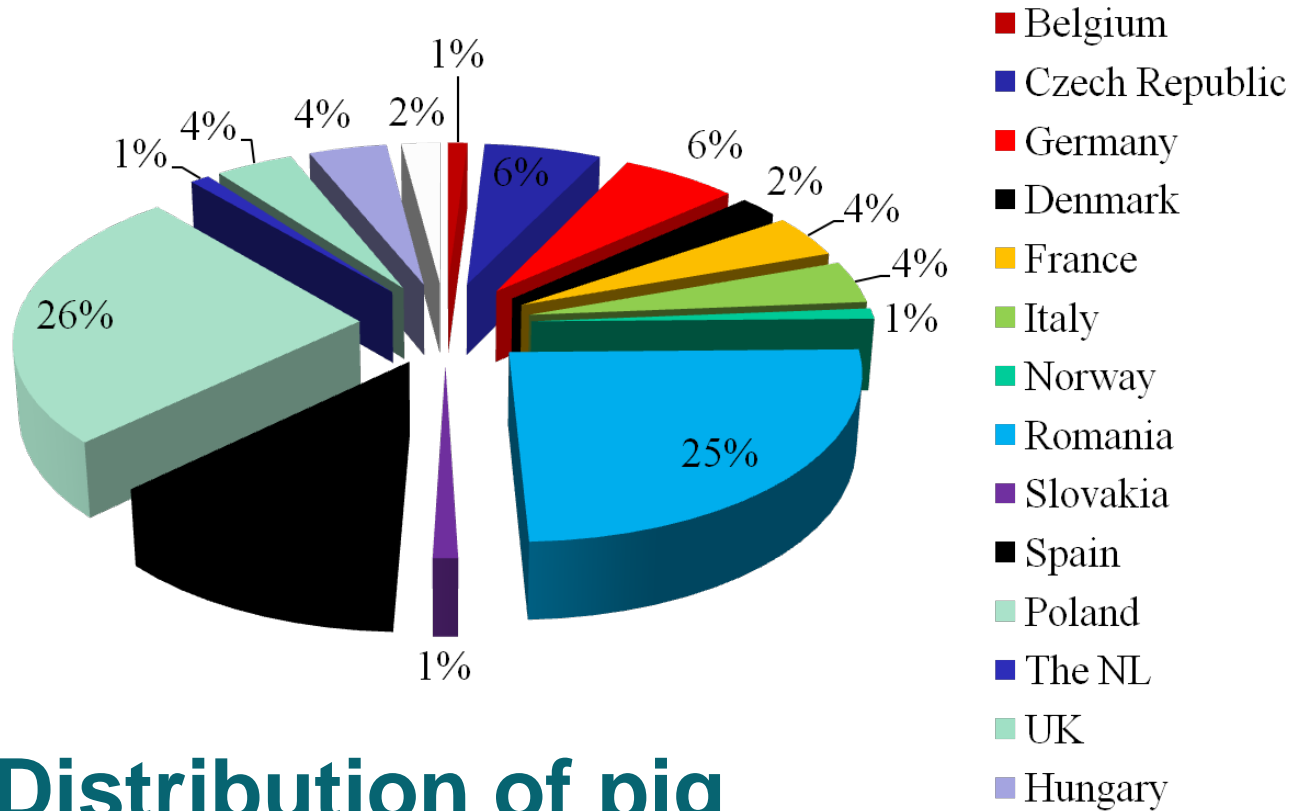
Industry with **turnover** ~ 66.3 billion €
~ 15,000 **companies** (mainly SME's)

Workforce ~ 560,000 people

Total production ~ 12.5 mill. tons/year

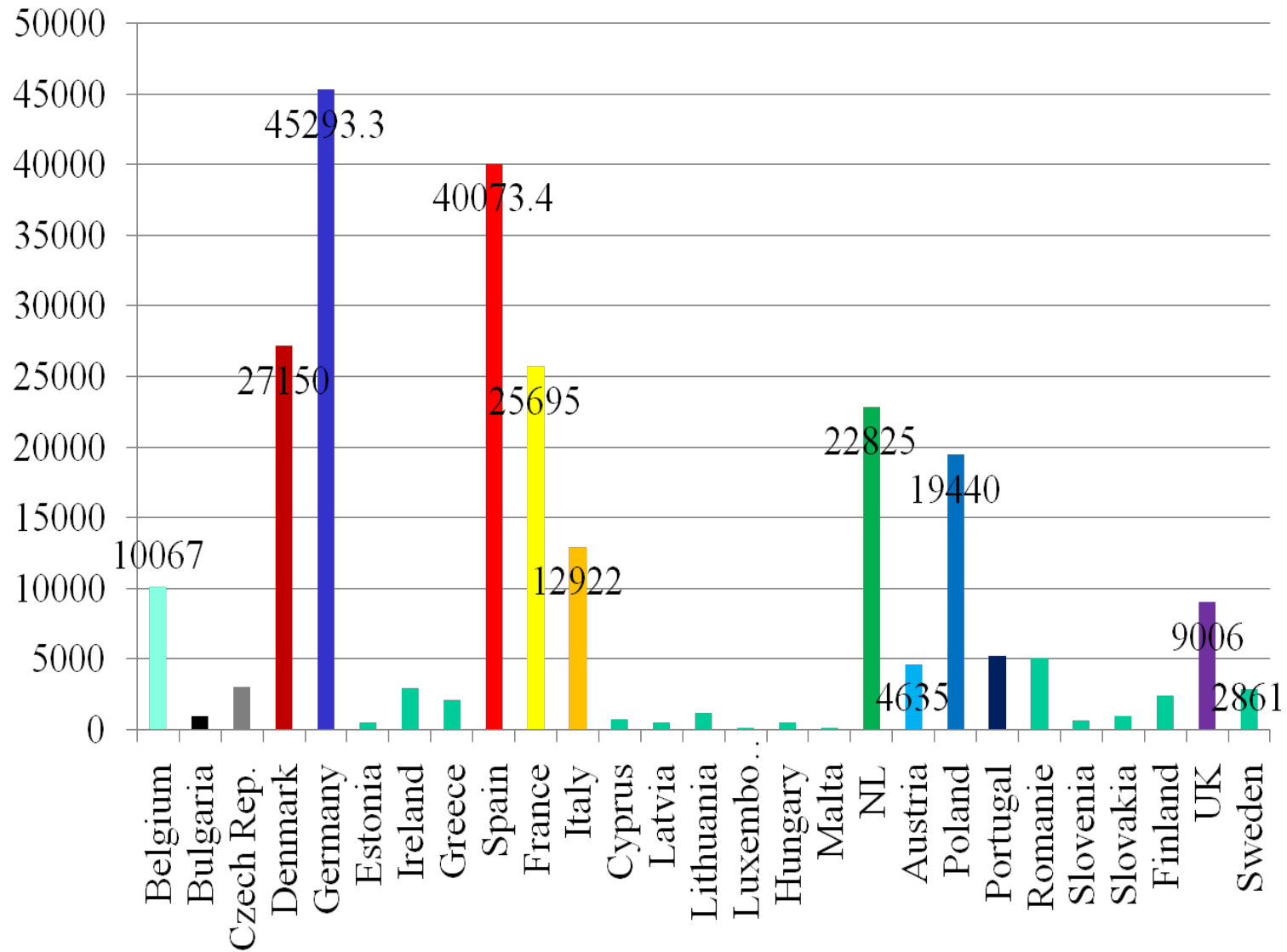
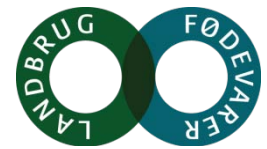
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Total number= 3373



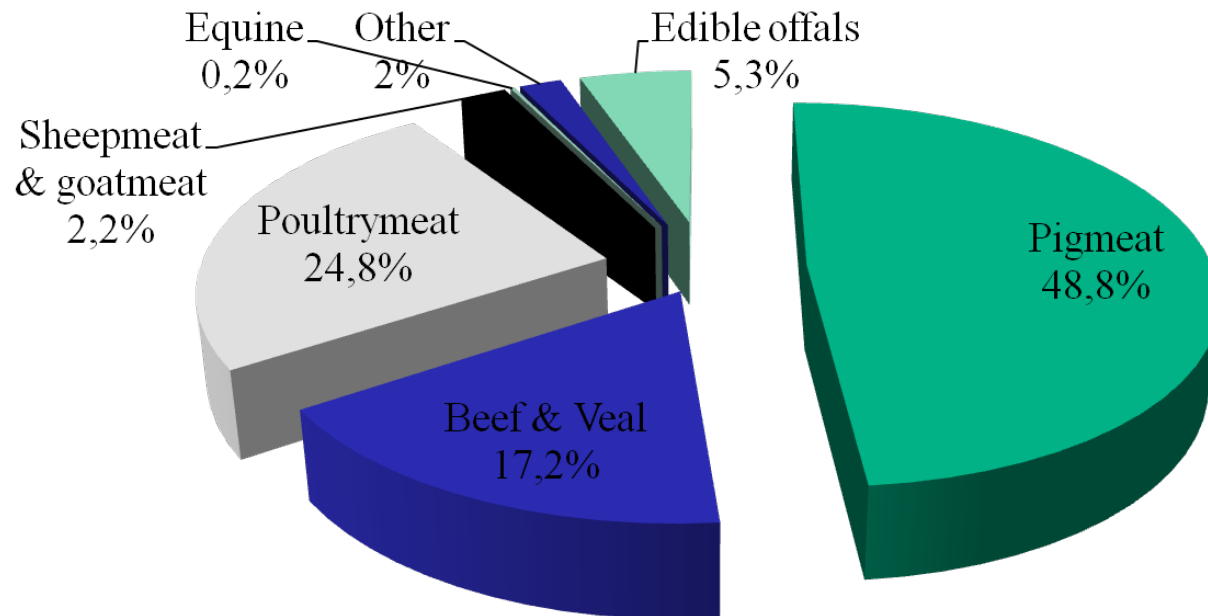
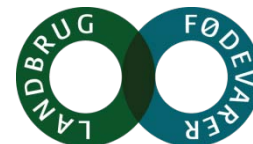
Distribution of pig slaughterhouses in EU

No. of slaughtered pigs in EU (x 1,000)



2009 data

EU Gross internal Production

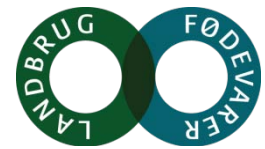


2008 data

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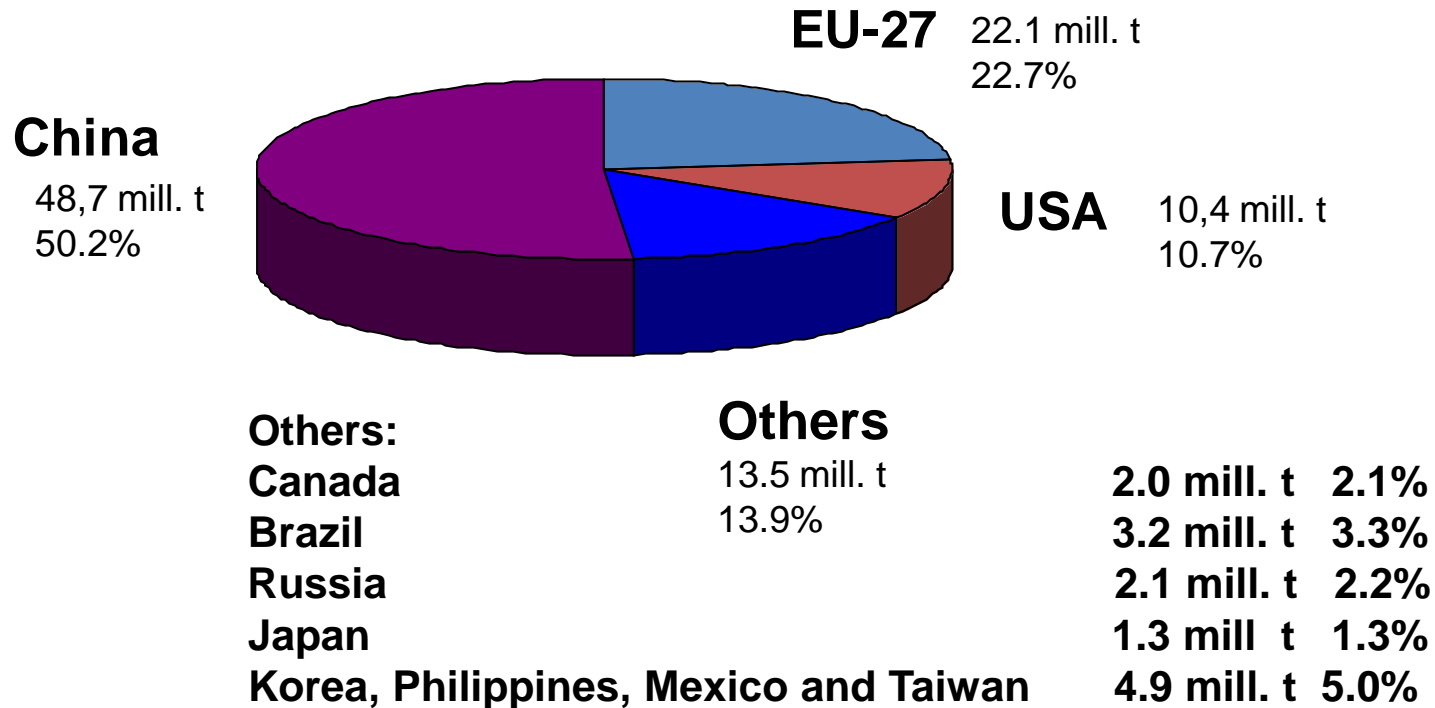
Pigmeat - global production (million tonnes)



Total: 83.3 million tonnes 1999

Total: 97.0 million tonnes 2009

Total: 98.7 million tonnes 2010 (forecast)



Source: GIRA

Now to modification of meat inspection....

Recent changes in EU legislation enable introduction of modifications of traditional meat inspection

Relevant for finisher pigs from integrated production systems housed under controlled housing conditions

Requires risk assessment

Demonstrate that food safety is not reduced



Aim

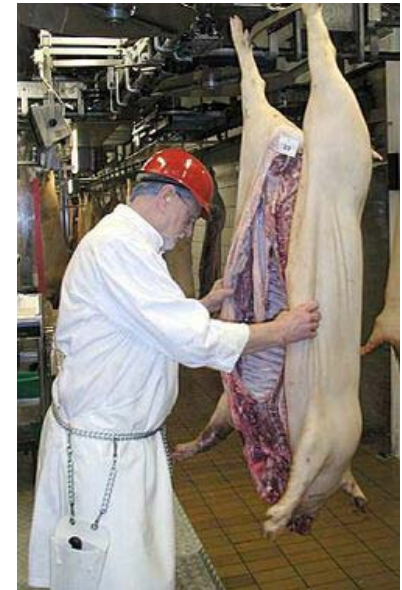
Use of knife should be reduced

Will decrease spreading of food safety hazards like *Salmonella* and *Yersinia*

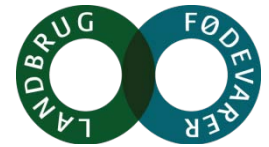
Food safety value of routine incision into mesenteric/mandibular lymph nodes and the heart of Danish finisher pigs from controlled housing systems?

Effect on animal health?

Will it be more difficult to identify animal disease?



Joint effort



Risk assessment conducted following international guidelines as joint effort between

University

Industry and

Veterinary services

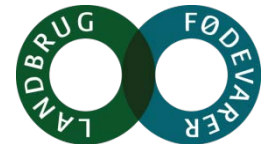


danish meat association

Ministry of Food, Agriculture and Fisheries
Danish Veterinary and Food Administration



Materials

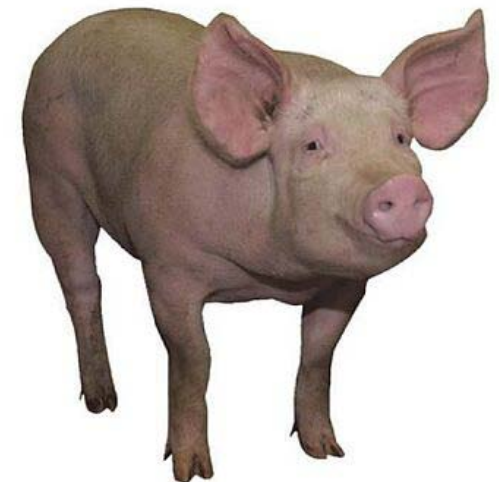


Data from slaughterhouse and laboratory statistics as well as information from literature and expert opinions used

Horsens project, 1993

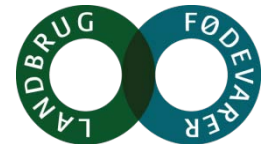
Detailed data from double control of 183,383 finishers

Conclusion: limited difference between visual and traditional control in ability to identify lesions



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Materials



Export nation USA required
up-to-date in-country data

Data from 10 slaughterhouses

- 63 lymph nodes with granulomatous lesions
- 88 hearts with endocarditis

Samples underwent microbiological and
pathological examinations

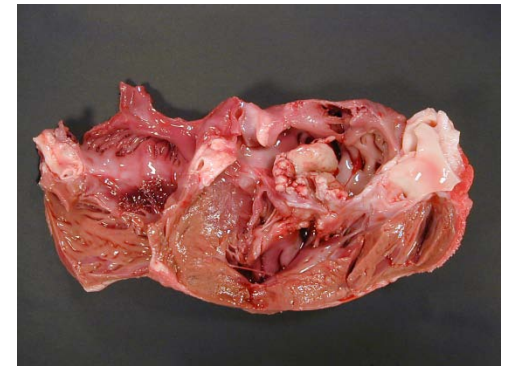
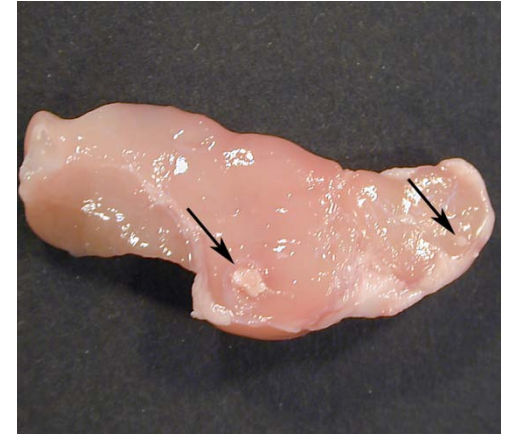
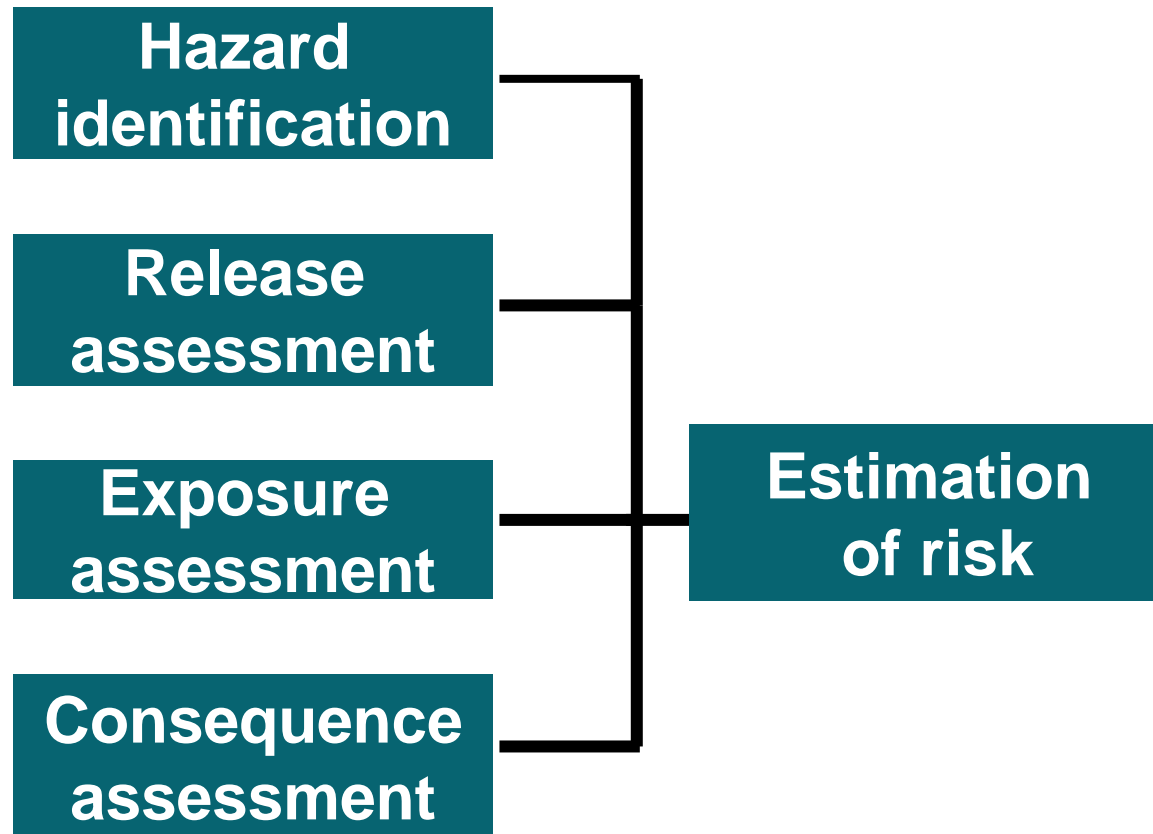
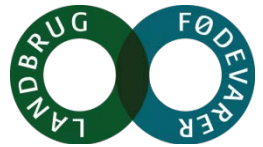


Photo: Henrik Elvang Jensen

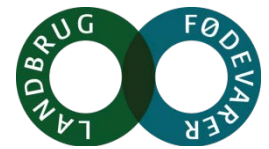
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OIE approach used



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Bovine Tuberculosis



The most important hazard

- Denmark officially free since 1980
- Last case seen in 1988
- Never found in free-ranging wildlife



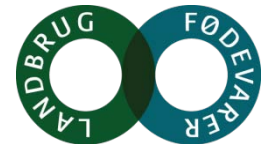
Surveillance in cattle and pigs

- Clinical surveillance for cattle
- Meat inspection of cattle, sows and boars
- Testing during import/export of breeding animals

If lymph nodes are not opened routinely, granulomatous lesions might pass meat inspection unnoticed

- Granulomatous lesions might be indicative of bovine TB

Lymph nodes



Observed prevalence of granulomatous lesions
in DK lymph nodes = 0.01-0.02%

Found primarily in mandibular or mesenteric lymph nodes
Results in local condemnation

If found in liver or lungs:
Culture required and decision depends on result

All 63 lymph nodes examined were
negative for *Mycobacterium* spp.

Rhodococcus equi was most commonly found (63%)
This organism not pork-borne

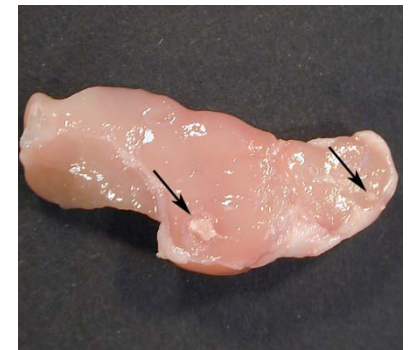
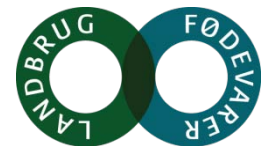


Photo: Henrik Elvang Jensen

Avian tuberculosis



Backyard poultry, zoological gardens and pigs

Prevailing opinion in literature:
Avian tuberculosis not pork-borne



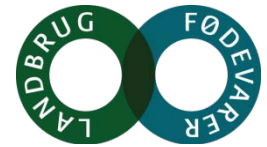
Mostly only one livestock species on premises
=> Negligible risk from poultry to pigs

Mainly caused by use of raw peat as litter material
=> Use of raw peat prohibited by DK swine industry
=> Herds audited every 3 years as part of Danish Standard

Mandibular/mesenterial lymph nodes used
as pet food after adequate heat-treatment
=> No risk for pets

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Hearts



If hearts are not opened routinely a heart with endocarditis might pass meat inspection unnoticed

- Endocarditis in 0.01% of hearts

Primarily as result of infection with

- *Streptococcus suis* or *Erysipelothrix Rhusiopathiae*
- Confirmed by literature and own data

S. suis and *E. rhusiopathiae* have limited capacity to be food-borne

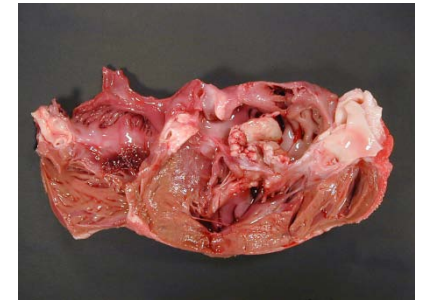
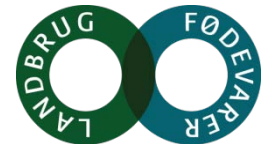


Photo: Henrik Elvang Jensen

Contact infections occur

- Slaughterhouse workers at risk - Might get infection in wounds
- Years of focus on working environment limit risk
 - Not considered a problem by DK slaughterhouse workers' union

Hearts



Statens Serum Institute study of human meningitis

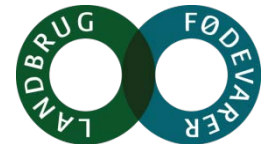
- Only one case of *S. suis* found in DK during a 3-year study
- Case was a farmer
- Indicates that infection might have been caused by contact

Presence of endocarditis does not *per se* make the meat unfit for human consumption

If other lesions indicative of systemic disease are observed, carcass should be subjected to extended meat inspection following traditional rules



Hearts



Hearts should be opened after meat inspection, and prior to sales

Blood coagulum should be removed

If lesions are found in a heart, heart should be condemned

Will reduce exposure of bacteria consumers

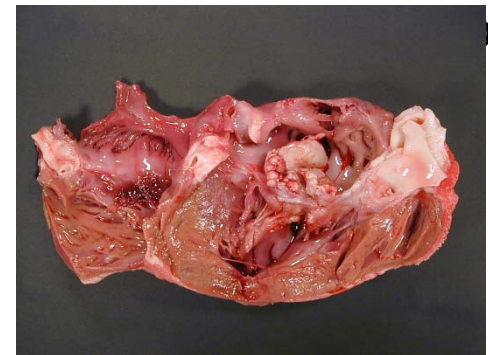
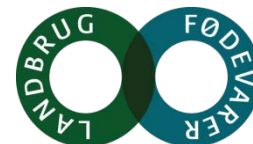


Photo: Henrik Elvang Jensen

Effect on animal health



New EU Animal Health Strategy puts more weight on prevention

Therefore necessary to evaluate effect of omission of routine incisions on ability to identify animal disease

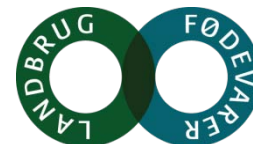
We divided according to production diseases/exotic diseases

Conclusion

Suggested changes to meat inspection had no effect on ability to identify disease

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Mid-way conclusion

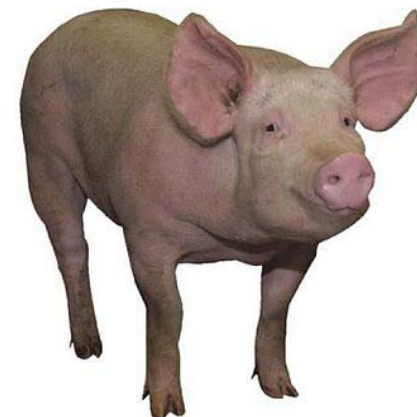


Omission of routine incisions into mandibular / mesenterial lymph nodes and heart do not seem to be associated with increased risk for human health

- And no effect on ability to identify exotic disease

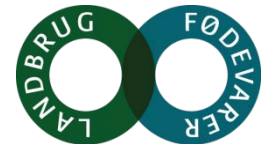
Relevant for finisher pigs from integrated production systems, raised under controlled environment

- Indoor since weaning
- Food chain information exchanged prior to slaughter



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Prerequisites



Animal health and
zoosanitary status



Denmark is official free of Bovine TB
for more than 30 years

Origin of animals



Born and raised in Denmark

Raising conditions



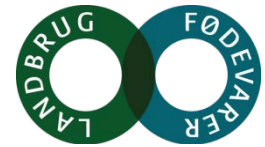
Finisher pigs from integrated
production systems, raised under
controlled environment and kept
Indoor since weaning

Food chain
information

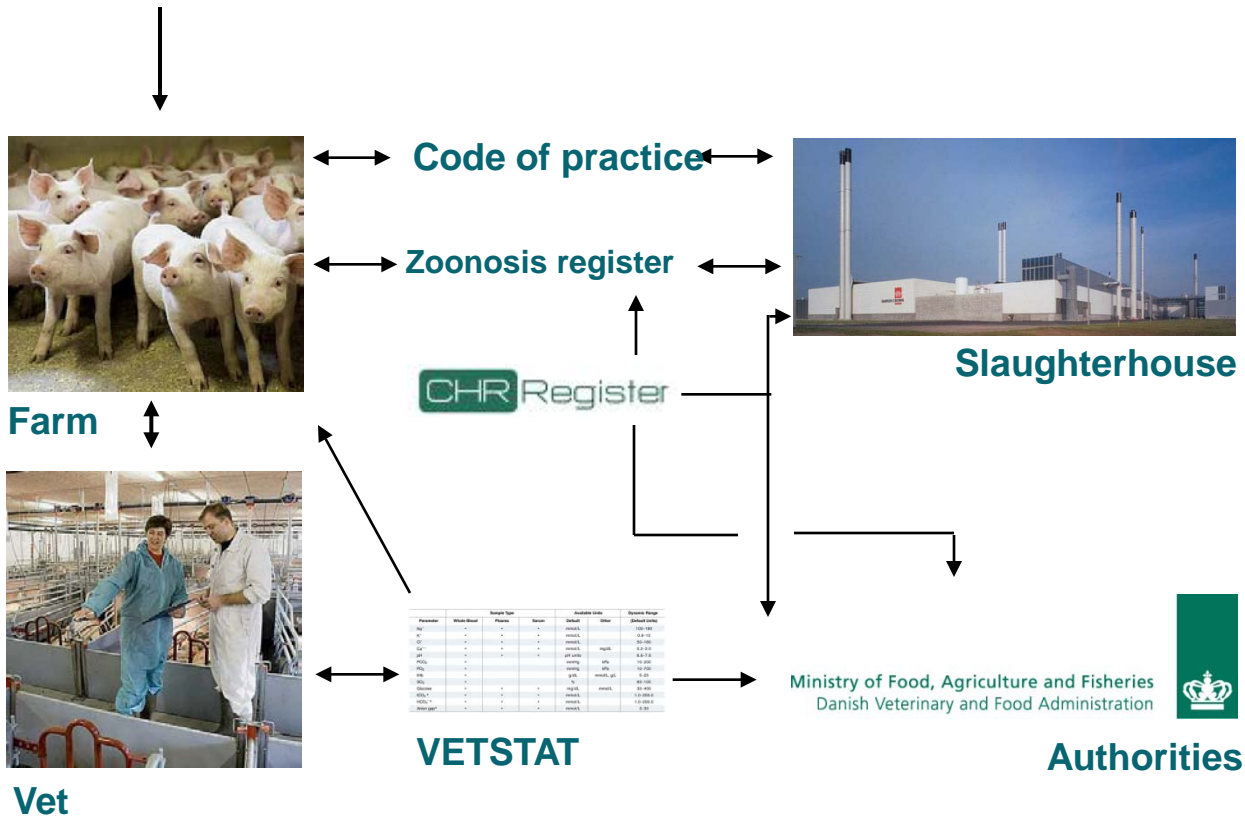


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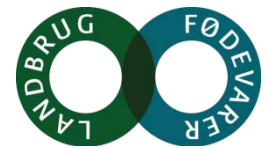
Food chain information



Audit of integrated production systems



Communication and Trade



Risk communication

Risk assessment went through external review
- Comments from reviewers incorporated

Work presented and discussed with vets working at abattoirs

Trade issues

Denmark exports pork to >200 countries
- Some countries have requirements to meat inspection

Assessment and description of new meat inspection system presented to US Food Safety and Inspection Services in December 2008

Acceptance of equivalence granted on December 24, 2008



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Supply Chain Meat inspection – The danish way

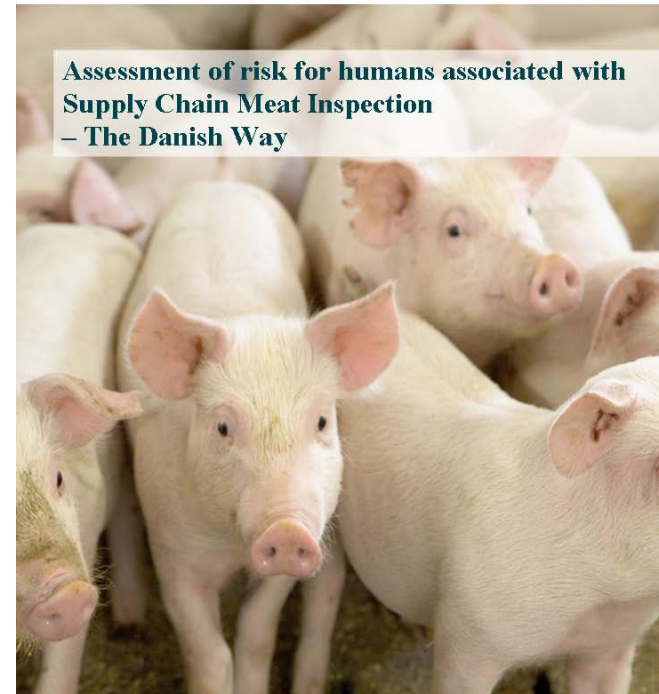
**Sows, boars, and outdoor
pigs will continue to go
through traditional control**

Full report:

<http://www.lf.dk/Aktuelt/Publikationer/Svinekod.aspx>



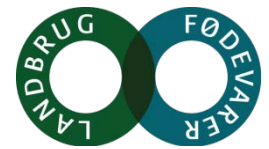
Ministry of Food, Agriculture and Fisheries
Danish Veterinary and Food Administration



**Assessment of risk for humans associated with
Supply Chain Meat Inspection
– The Danish Way**

December 2008

Summing up



Aim of meat inspection primarily food safety

But animal health and welfare also play a role

- Individual needs in MS of data describing animal health and welfare
- Important to prevent exotic livestock diseases
 - focus on ability to identify disease



Trade issues relevant for country like Denmark

- The customer is always right

Concept of controlled housing used in Denmark

Applies to majority of Danish pig herds

- Same definition when applied to *Trichinella*

Auditing in all herds every 3 years as part of Danish Standard

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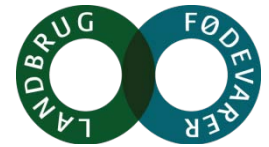
Most important hazard in pork is *Salmonella*
- according to human EU statistics

=> Promote implementation of *Salmonella* risk-mitigating actions in EU

- Freedom of method preferred
- In Denmark, hot water decontamination in place for high-risk pigs
=> Low prevalence (1%)
Alban & Sørensen,
Fleischwirtschaft, 90 (9)
p.109 -113



Proposal



Two kinds of surveillance, depending on level of infection in country/region

Relevant for *Trichinella*, bovine tuberculosis, *Cysticercus bovis*

Low intensity surveillance for free / very low countries

Aim: to continuously document absence of infection in population of interest

Higher intensity of surveillance for other countries

Aim: to take infected animals out of food chain and combat disease in herds

More work should be conducted into requirement to and effect of risk-based surveillance

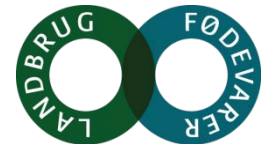


Thank you for your attention

Co-author Birthe Steenberg is
acknowledged for comments



Food chain information



Information

- Herd
 - *CHR-number*
 - *Address*
- Name of slaughterhouse
- Status of holding and health status of animals
- *Salmonella* status
- Information on indoor/outdoor
- Occurrence of diseases that may affect safety of meat
- Veterinary medicinal products or other treatments with withdrawal periods
- Name and address of veterinary practitioner



Where to find it?

Slaughterhouse database

- pig producers
- Danish QS
- Code of practice - contract between slaughterhouse and pig producer
- CHR register
- Zoonosis register
- VET-STAT
- Slaughterhouse
 - own check procedures