



DG SANCO Workshop

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Brussels

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www.camcon-eu.net



Veterinærinstituttet
Norwegian Veterinary Institute



Universiteit Utrecht



Dianova

Food Safety & Animal Insight



CENTRAL VETERINARY INSTITUTE
WAGENINGEN UR



Universidade do Minho



CReSA^R

Centre de Recerca en Sanitat Animal



CamCon

Campylobacter control - novel approaches in primary poultry production

■ Project in EU - FP7

- Started May 2010
- End April 2015 (4 years + 1 year extension)
- Small-medium sized – 3 mill Euro from EU

■ Vision

- To provide the European broiler producers and governments with knowledge and tools to achieve production of “low risk broilers” (meaning *Campylobacter*-free broilers or broilers with a very low contamination level of *Campylobacter*).

■ 5 scientific Work Packages

Veterinærinstituttet
Norwegian Veterinary Institute

Dianova
Food Safety & Animal Insight

DTU

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WAGENINGEN UR

Universiteit Utrecht

Newcastle University

UNIVERSITY OF LIVERPOOL

PIWet

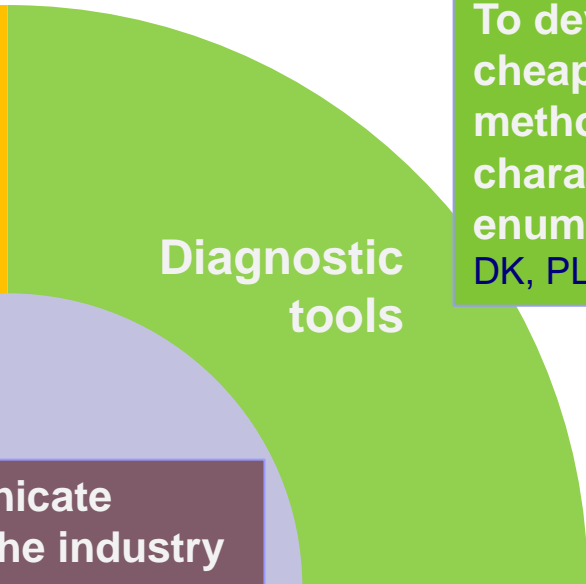
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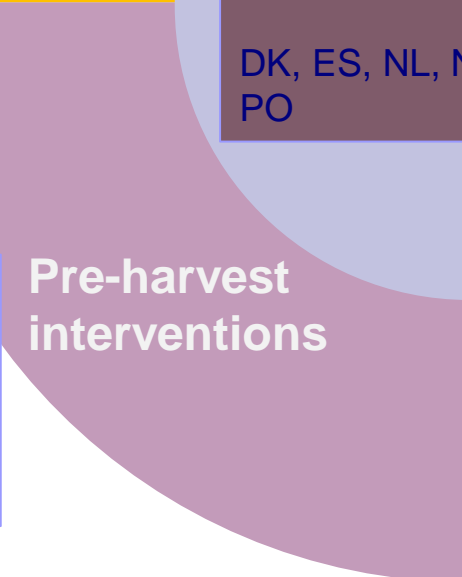


To evaluate the cost - effectiveness of interventions and the public health risks
DK, ES, NL, NO, UK, PL



To develop efficient, cheap and rapid methods for detection, characterisation and enumeration
DK, PL

To investigate the effect of pre-harvest interventions
DK, ES, NL, NO, UK, PO



To understand the epidemiology in poultry and their environment
DK, ES, NL, NO, UK, PL

Diagnostics

WP-leader: Mathilde Josefsen, DTU

- Method for detection of *Campylobacter* in air
 - Air sampling – followed by qPCR
 - Tested in industrial scale (Poland)
 - Published papers

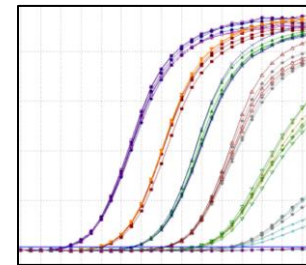


Air sampler



Gelatin filter

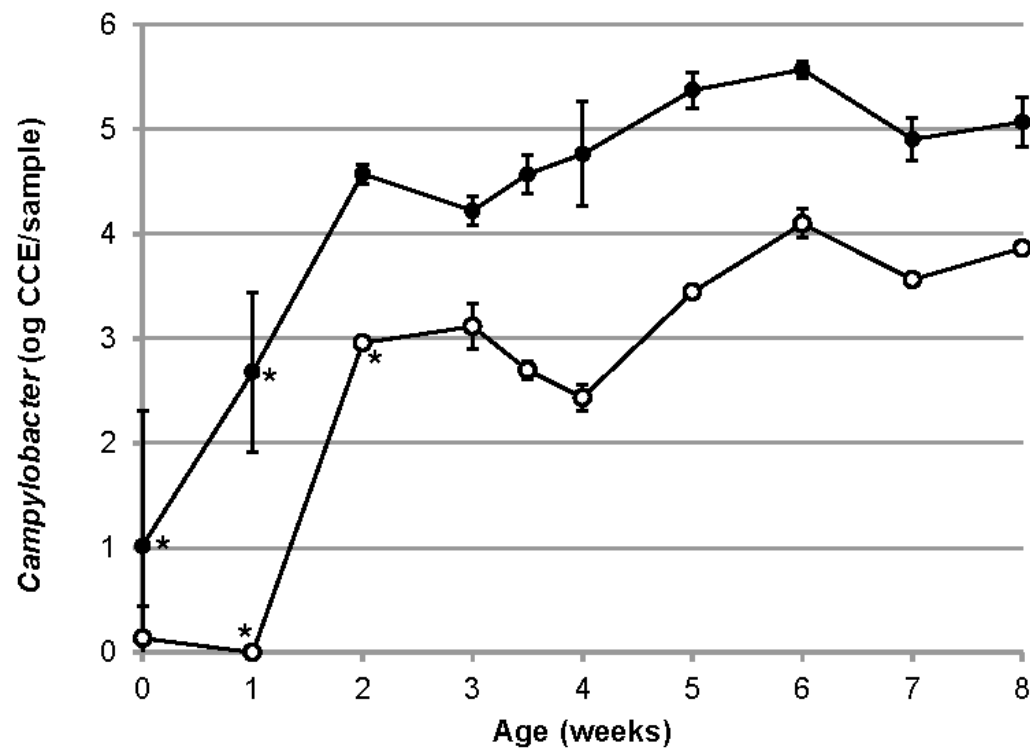
DNA
extraction →



Real-time PCR

■ Method

- Highly sensitive
- Cost efficient
- User friendly



●: Air samples, O: Boot swabs

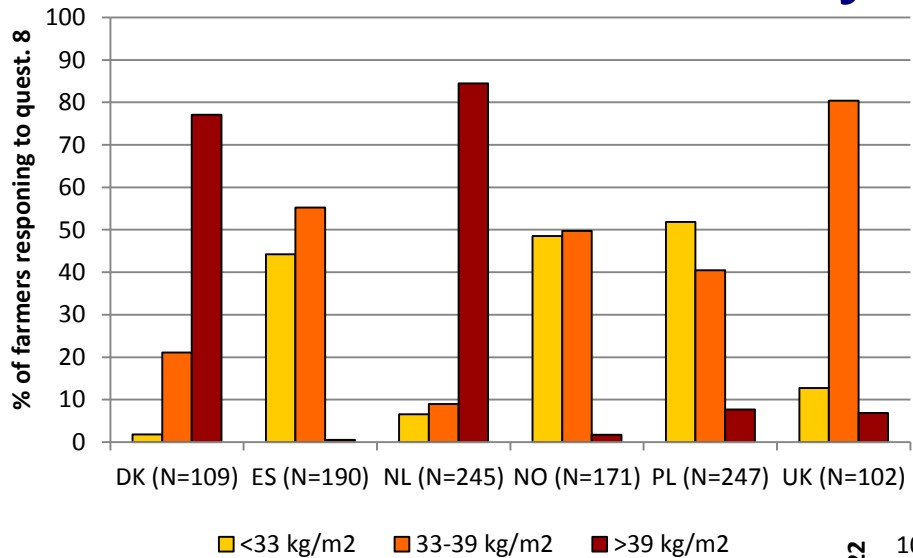
Epidemiology

WP-leader: Nicola Williams, Univ. Liverpool

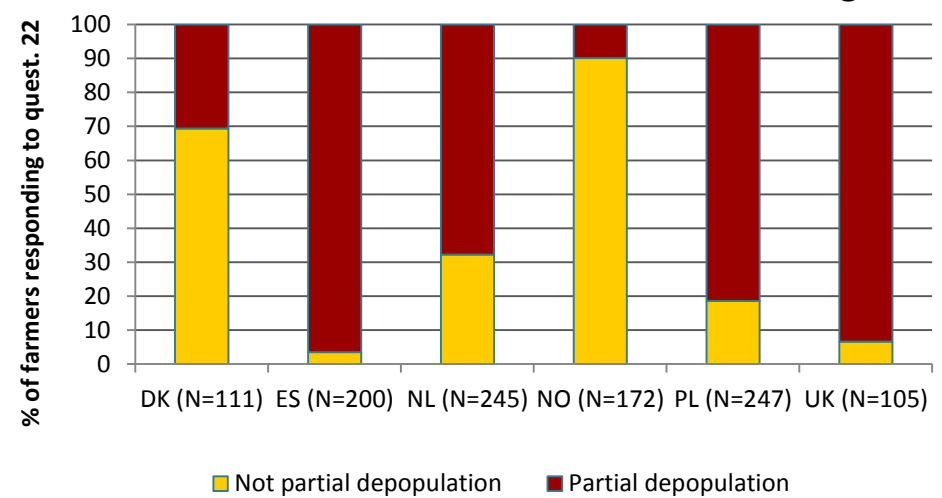


- Report on farming practices in 6 countries – 1100 farms
 - Huge differences between countries
- Campy-data from flocks in 6 countries
 - To be analysed with data on climate and from questionnaire
- Intensive study in UK and Spain
 - To be analysed – descriptive epidemiology and risk factors
- Studies on flies – UK and Spain
 - Species distribution, *Campylobacter* carriage, flight distances
 - Flies can fly 10-15 km/22 hours. They can easily spread *Campylobacter* over long distances.
- *Campylobacter* subtypes varies between countries
- Colonization studied by using advanced models
 - Risk factors: Prevalence in nearby farms, higher temperature, higher humidity
 - Biosecurity important

Questionnaire survey, examples



Thinning



Pre-harvest interventions

WP-leader: Jaap Wagenaar, Univ. Utrecht

■ Fly screens

- UK (collaboration with another project)
 - Biosecurity in participating farms not good enough to install fly screens
- Spain
 - Fly screens doesn't hamper ventilation
 - Biosecurity measures seem promising
 - Fly screens to be installed to see effect on *Campylobacter* prevalence



■ Bacteriophages

- Little effect – will look more into resistance mechanisms

■ Vaccines

- Flagellin based subunit vaccine
 - Gives antibody response, but no protective effect in large scale study

Risk assessment and economics

WP-leader: Maarten Nauta, DTU

- Risk assessment, cost-effectiveness of interventions
- Models have been built
 - existing models will be compared
 - are simple models as good as complex ones?
- Data to be included (from CamCon and literature)

From science to industry

WP-leader: Mogens Madsen, Dianova

■ Develop

- Best Practice Manual
- Specific targeted learning programmes
- Voluntary Certification Programme

■ Material developed in Spanish

- How to behave to have good biosecurity
- Posters, PP-presentations



Campylobacter: Instrucciones de entrada de la nave

At entry / Al entrar

1.1





Wash hands with disinfecting soap
Lavarse las manos con jabón desinfectante

1.3+4.1!





Step over the barrier to the clean zone
Pasar por encima de la barrera a la zona limpia

1.4





Take on clothes dedicated for use inside the broiler house (working clothes)
Ponerse la ropa específica para trabajar dentro de la nave de pollos (ropa de trabajo)

2.2 |





Use only tools and utensils dedicated for use in this broiler room /
Usar únicamente las herramientas de uso específico para esta nave

5.3



Biosecurity – CamCon definition

- The sum of comprehensive preventive measures instituted at farm, environment and house level with the purpose to
 - prevent unintended entry of *Campylobacter* into poultry flocks reared in containment houses
 - prevent dissemination of *Campylobacter* from already infected flocks to the farm environment (air, soil, or water) or to other poultry houses.

Preliminary main conclusions CamCon

- Biosecurity (good enough!) very important
- Difficult to produce effective vaccines and bacteriophages
- Has expanded the knowledge base regarding *Campylobacter* epidemiology and prevention
 - Publication list: www.camcon-eu.net

Norwegian Action Plan and Campy research

- Action Plan against Campylobacter in Broilers
 - All flocks (May - October) tested 4 days before slaughter
 - All positive flocks: Heat treated or frozen (>3 weeks)
 - Lessons learned
 - Few “bad” farms – focus on these - upgrade biosecurity
 - Test as close to slaughter as possible
 - Will discover as many positive flocks as possible – treat these

- Research primary production
 - Environment / Biosecurity important
 - Increased temperature and excessive rainfall increases risk
 - Other positive flocks nearby increases risk
 - Also for humans
 - Very good biosecurity important

History of other EU funding

(information provided by the Commission)

- **CAMPYBRO** (FP7-SME ref. 605835): Control of *Campylobacter* infection in broiler flocks through two-steps strategy: nutrition and vaccination. From 2013-09-01 to 2016-08-31.
- **AIRPATH** (FP7-SME ref. 243634): Effective control of air and insect borne pathogens and diseases in European broiler houses. From 2010-05-01 to 2013-04-30.
- **POULTRYFLORGUT** (FP6-FOOD ref. 7076): Control of the intestinal flora in poultry for ensuring the products safety for human consumers. From 2005-03-01 to 2008-02-29.
- *Campylobacter* control in broilers by means of in ovo vaccination (QLK2-CT-2000 ref. 40408). From 2000-05-15 to 2001-05-14.
- **CAMPYNET** (FP4-SMT ref. 4987519): A network to standardise and harmonise the molecular subtyping of campylobacters. From 1998-10-01 to 2001-12-31.
- Pathogenic microorganisms in poultry and eggs (COST ref. 97). From 1994 to 1998.
- Prevention and control of potentially pathogenic microorganisms in poultry and poultry meat processing (COST ref. 906). From 1989-07-01 to 1993-06-30.

For further details please visit the Community Research and Development Information Service of the European Commission (*CORDIS*) at: http://cordis.europa.eu/home_en.html