

COREPIG

Prevention of selected diseases and parasites in
organic pig herds
- by means of a HACCP based management and
surveillance programme



CORE Organic

COREPIG

Overall objective:

To promote animal health and welfare in organic pig herds in Europe

Achieved by carrying out the following three activities, coordinated in 3 work packages:

- WP1** Conduction of an international knowledge synthesis
Status and needs for further research into disease and parasite prevention in organic European pig production

- WP2** Conduction of an epidemiological survey in European organic pig herds
as well as

- WP3** Development and evaluation of HACCP inspired management tools for the prevention of selected diseases, welfare problems and parasites

Partners

20 researchers from 10 Institutes in 8 countries

DK UKAS	Albert Sundrum, Amke Goebel	WP2M, P
AT BOKU	Christopher Winckler, Christine Leeb, Sabine Dippel	P's
FR IBB	Gerald Cartaud, Stanislas Lubac	P's
FR INRA	Armelle Prunier	P
SE SLU	Stefan Gunnarsson, Kristina Lindgreen, Sofia Wieberg	WP3.1.2M P
IT CRA-SUI	Giacinto Della Casa, Davide Bochicchio	P's
CH FIBL	Barabara Früh	WP3.1.3M
UK NEWC	Sandra Edwards	Acting WP1M
DK LIFE	Allan Roepstorff, Helena Meier	WP3.1.2M, P
DK AU-ANIS	Marianne Bonde, Tine Rousing Kristian Møllegaard Knage-Rasmussen	PC P

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Time schedule

2007

2008

2009

2010

WP1: Knowledge Synthesis

WP2:
Epidemiology
Survey

2 farm visits in
each of 104 farms

WP3:
HACCP inspired
management tools

2 farm visits in
each of 4x8 farms

Final data analysing, Dissemination

Main Results – Take home messages



Knowledge synthesis

Large differences in housing systems and management procedures in European pig production throughout the 8 countries

Animal group	Indoor	Indoor, concrete run	Pasture, huts	Landscape, huts
Pregnant sows	(FR)	AT, DE	DK, FR, SE, (IT)	IT
Farrowing sows, piglets	DE, (FR)	AT, (DE)	DK, FR, SE, IT, (DE)	IT
Weaned piglets	FR, (IT)	AT, DE, DK	IT, SE, (DK, FR)	IT
Slaughter pigs	FR, (DE)	AT, DE, DK	SE, (DE, IT)	IT

Knowledge Synthesis

Housing and management systems vary betw. countries as a result of diff. in:

National legislation

Certification body standards

Climatic conditions

...

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Scientific based information on health status and risk factors are very scarce!

Knowledge Synthesis

Advantages seem to be

Lower use of antibiotics

Fewer respiratory problems

Fewer skin lesions, fewer tail bites

Fewer white liver spots

Fewer joint lesions

Knowledge Synthesis

Challenges in organic pig production seem to be:

Piglet mortality

Weaning diarrhoea

Farrowing and reproduction problems

Parasites

Knowledge Synthesis

In general many different methods, parameters and data for the measuring and monitoring animal health and welfare in organic pig production do exist.

Knowledge Synthesis

In general many different methods, parameters and data for the measuring and monitoring animal health and welfare in organic pig production do exist.

The challenge seem to be to combine and link different information sources for improving disease, parasite prevention as well as animal welfare in organic pig production!

Epidemiological Survey

Aim

Characterisation of European organic pig production – and identification of risk factors for specific health and welfare problems...

104 organic pig herds

AT 19, DE 20, DK 16, FR 20, IT 16, SE 13

2 farm visits in each farm – One in spring and one in fall 2008

Data collection

- Farmer interview, Housing system description
- Collection of production data, treatment data, vaccination regimes, culling reasons
- Clinical health examination of animals
- **Mortality**
- **Faecal samples**

Epidemiological Survey

WP2 Project report

‘Epidemiological study concerning the characteristics of organic pig farming in selected European countries‘

Epidemiological Survey

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Large btw. and within country differences in housing and management systems, restriction in availability of resources, as well of feed back.

Epidemiological Survey

WP2 Project report

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Scientific papers – under preparation:

Epidemiological Survey

WP2 Project report

‘Epidemiological study concerning the characteristics of organic pig farming in selected European countries‘

Scientific papers – under preparation:

Inter calibration of parasitological laboratories in the partner country resulting in satisfactory performance of all laboratories!

‘Inter-calibration of a concentration McMaster technique betw. 8 European countries‘

Epidemiological Survey

WP2 Project report

‘Epidemiological study concerning the characteristics of organic pig farming in selected European countries‘

Scientific papers – under preparation:

Btw. observer calibration clinical health measures... resulting in general good btw. observer agreement!

‘Health of organic pigs in Europe: Description of animal based parameters and inter-observer reliability‘

Epidemiological Survey

WP2 Project report

‘Epidemiological study concerning the characteristics of organic pig farming in selected European countries‘

Scientific papers – under preparation:

Risk factors for piglet mortality... The effect of a total of 30 housing, management and animal parameters was studied.

Farm type (indoor vs. outdoor) had no effect on piglet production!

‘Characteristics of organic pig farms in selected European countries and their possible influence on reproductive

performance’

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Epidemiological Survey

WP2 Project report

‘Epidemiological study concerning the characteristics of organic pig farming in selected European countries’

Scientific papers – under preparation:

Parasites...prevalence and risk factors.

Most common: Strongyles, 2nd most common: Ascaris suum...

Big variation, but most present in indoor systems!

Pastures, incl. the management off: major risk factor!

‘Prevalence of gastro-intestinal parasites in European pig Herds’

Epidemiological Survey

....Big within country differences in not only housing and management systems but also 'out come' of these indicating that there is a potential of improvement!

HACCP inspired management tools

Development

Based on 'Knowledge synthesis' information and expert opinion:

- Identification of risk factors
- Risk factor weightings

...for the four focus areas:

Piglet mortality,

Weaning diarrhoea,

Reproduction problems,

Parasites

HACCP inspired management tools

Development

Excel based management tools:

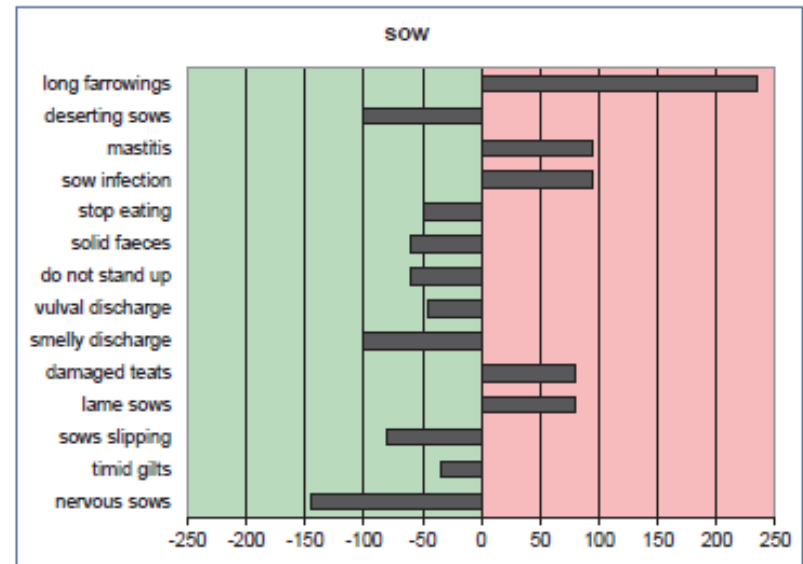
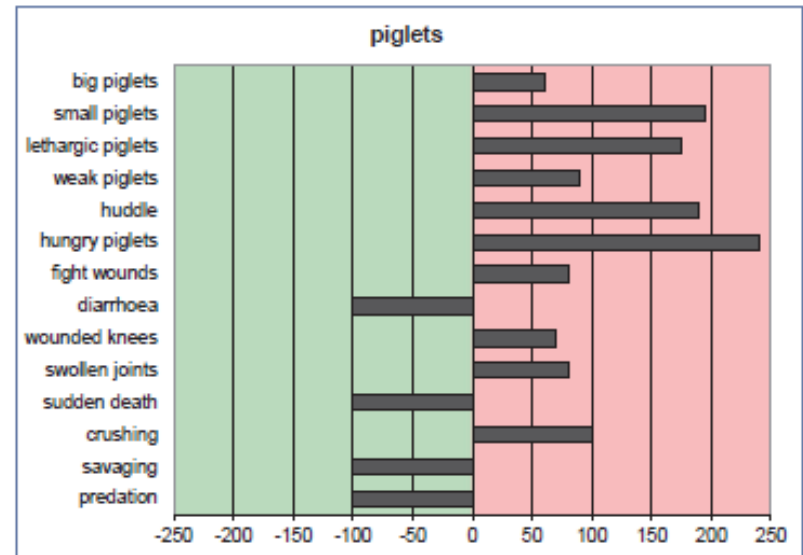
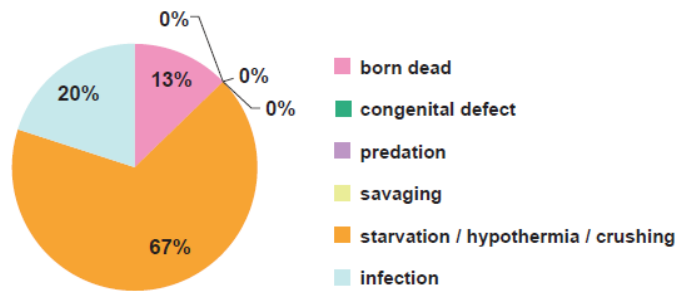
- Identification of risk factors based on farmer interview and check list info on housing, management and animal response
- Risk factor profiling for identification of herd specific focus areas
- Lists of suggestions for improvements

Risk factor identification - Input

insulated floors	Are farrowing pen floors insulated (construction or bedding)?	x	yes
			no
draughty pen	Is the pen draughty?		yes
		x	no
creep area	Is here a heated piglet creep area (unless farrowing outdoors)?	x	yes
			no
nest	Does the farrowing nest have effective fenders?	x	yes

Risk factor identification – output

Suckling piglet death causes



Output 2: Suggestions for improvement strategies

- 2) List of preventive measures already implemented on the farm
(with explanation of their causal relationship)

Current situation	Is related to dying from	Reasoning/causation
Do you confine the sows during farrowing? – no	born dead	Restriction of movement can impair nest building in the pre-farrowing period. This stresses the sow and can prolong farrowing because stress hormones antagonise the effects of oxytocin (> contractions).

- 3) List of high impact hazards which should be changed
(plus recommendations for improvement)

Current situation	Key-word	Contributes to dying from	Reasoning/causation	Solutions
Are piglets small at birth (many <1 kg)? – yes	small piglets	crushing hypothermia	Piglets of low birthweight lose heat rapidly because of their high surface area to volume ratio. They also suckle less well because of competition with bigger littermates. This makes them lethargic and prone to remain in high risk areas close to the sow.	<ul style="list-style-type: none"> › Ensure that sows have adequate body condition at farrowing. › Consult a nutritionist to check that the gestation diet is correctly formulated. › If possible provide supplementary heat at the site of birth until piglets are dry.

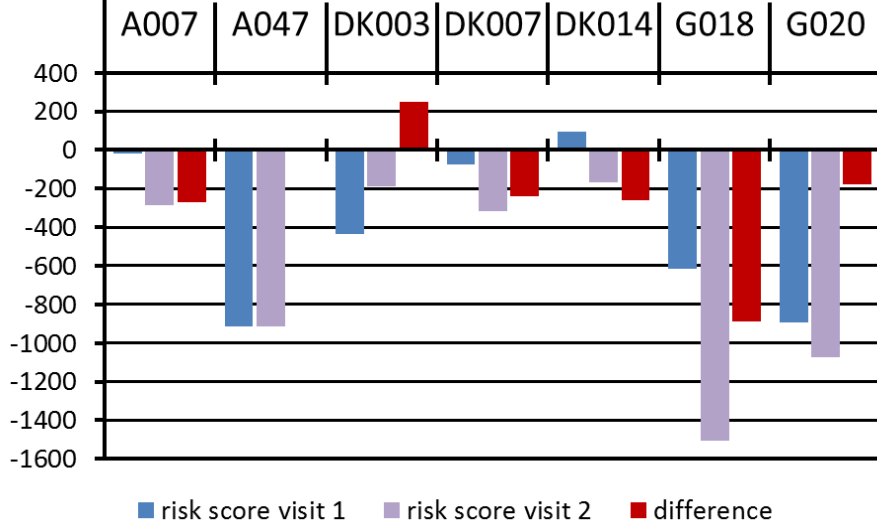
HACCP inspired management tools

Evaluation

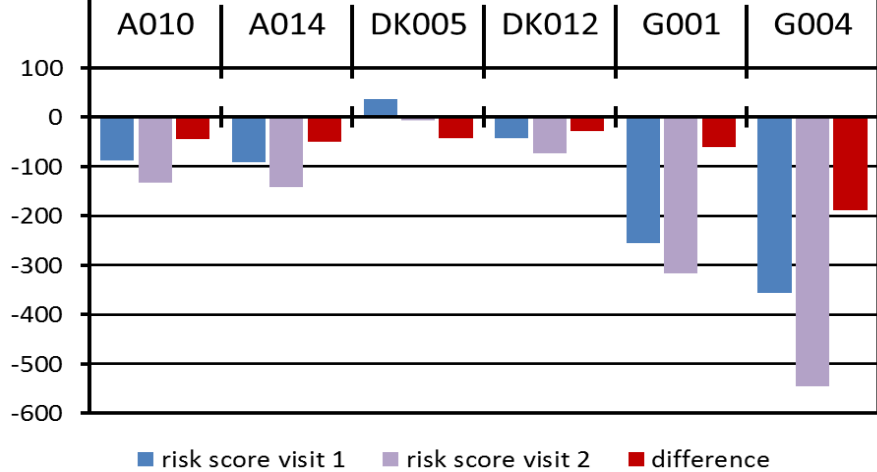
Implementation in 32 farms – 8 in each of 4 partner countries (AT, DE, DK, FR), 8 for each of the 4 focus areas

- Farm visit 1: Risk profiling
- Farm individual action plans
- 6-9 months 'implementation'
- Farm visit 2: Re risk profiling, Interview of farmer opinion

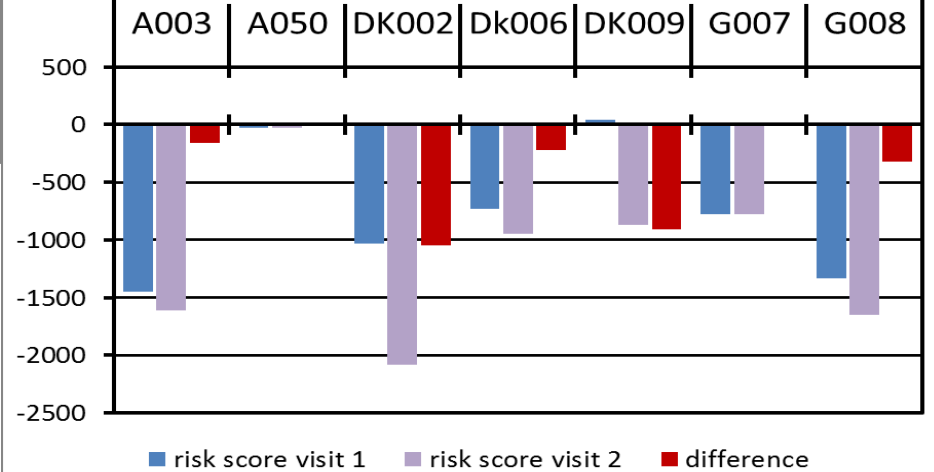
reproduction and farrowing problems



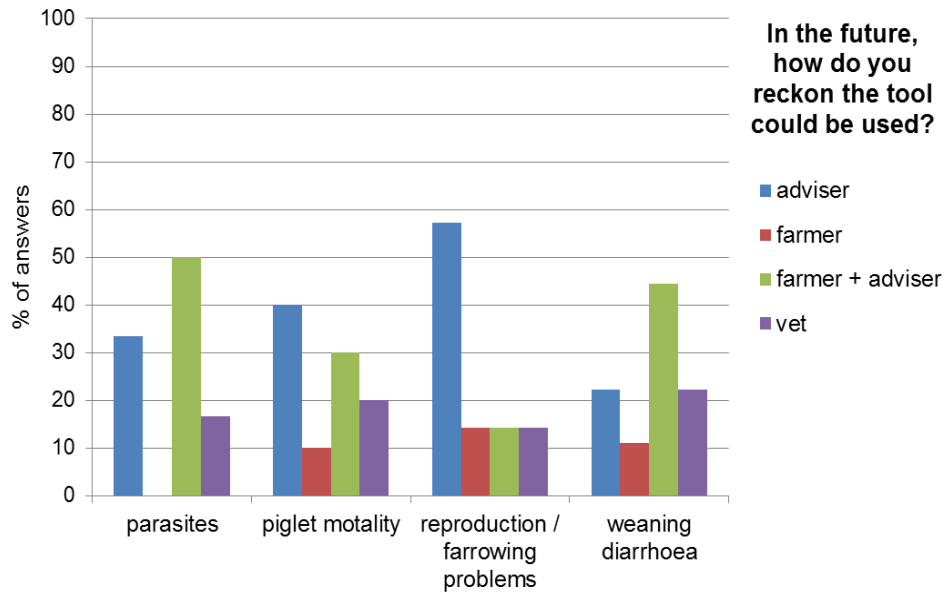
piglet mortality



weaning diarrhoea



**In the future,
how do you
reckon the tool
could be used?**



Conclusion

Main end users

European Organic and/or free range pig producers

Usage of results

Gained knowledge on how housing and management affect animal health and welfare can be used to focus future research on this and can be used to develop better organic pig production systems

HACCP inspired management tools available for interested farmers and advisors

Gaps in knowledge – generated research questions

Will animal welfare and health improvement go ‘hand in hand’ with environmental improvement?