

Short description of project funded by CORE Organic II partners in the first call of CORE Organic II

ProPIG - Farm specific strategies to reduce environmental impact by improving health, welfare and nutrition of organic pigs

Project summary

Robust and competitive organic pig production needs to encompass low environmental impacts and good animal health and welfare. In theory, improving animal health and welfare reduces environmental impacts through decreased medicine use, improved growth rates and feed conversion efficiency. However, as data on environmental impacts are scarce, the extent of such improvement has never been verified on working farms.

In organic pig production, health and welfare improvements must be implemented through preventive approaches, optimal disease management and innovative systems regarding outdoor areas. This poses a challenge to the farms. Together, organic regulations, different national welfare regulations and different building traditions have promoted the development of a variety of housing systems, outdoor rearing and management strategies across the EU. The relative environmental impacts of these have not been quantified. This diversity offers real potential to aid improvement, if the 'best' can act as role models for others, which might be more effective than adapting practice derived from experimental systems. This project includes data recording on organic pig farms, calculations of nutrient balances and Life Cycle Assessment for several contrasting scenarios and the development and evaluation of farm specific improvement strategies.

At the beginning of the project husbandry systems will be defined, (e.g. outdoor / partly outdoor / indoor with concrete outside run). After development of on-farm assessment protocols a cross-sectional survey and a prospective cohort study will be carried out on about 25 farms of each system across eight different European countries. Environmental impacts will be assessed using both Life Cycle Assessment and calculations of nutrient balances at farm and outdoor area level. Animal health and welfare will be evaluated from outcome measures of clinical scoring and selected behavioural parameters. Results will be fed back to farmers as benchmarking reports, based on which the farmer will decide farm specific goals and strategies to achieve these. As an outcome all farms create their individual health, welfare and environmental plan, which will be reviewed after one year to allow continuous development.

The relationship between health, welfare and environmental impacts will be examined using factor analysis and multiple correspondence analyses. Thereby, farms can be grouped based on common housing and management characteristics, and groups be compared regarding outcome parameters. Furthermore, the effect of farming system on health, welfare and environmental impact will be assessed with multivariate models, taking into account the climatic conditions. The farm specific strategies will be evaluated by assessing within-farm improvement in measured criteria over 12 months. Dissemination activities will include the development of a decision support tool for improvement of environmental impact and a summary of successful improvement strategies (codes of practice). These will be presented as a booklet and training material for organic pig farmers and advisors, which will be introduced during national courses.

The proposed project will take a holistic approach and combine several key objectives: management of outdoor areas, disease prevention, optimizing nutrition and innovative interacting strategies for improvement to support extension services.

Aim, objectives and hypotheses

The aim of this project is to investigate the interaction of animal health and welfare, with nutrition and environmental impact and to create and disseminate a tool to improve both aspects of organic pig production.

The working objectives are:

- To identify animal - environment interactions in the three different housing systems for organic pigs (outdoor / partly outdoor / indoor with concrete outside run) across the European climate zones
- To develop and implement farm specific strategies to reduce environmental impacts by improving health, welfare, nutrition and management of organic pigs
- To disseminate knowledge to national advisory bodies and farmers

Hypotheses

- Good animal health, welfare and proper nutrition is correlated with decreased environmental impacts at farm level
- When well managed, all three housing systems are similar in respect to environmental impacts and animal health and welfare
- Implementation of farm specific management strategies leads to an improvement of animal welfare and simultaneously to a reduction of environmental impacts within husbandry systems (indoor / outdoor) and improved profitability.
- Better feed management will simultaneously improve pig performance, welfare and environmental impacts

Expected results and their impact/application

The approach taken in this project will help to promote sustainable development of organic pig farms towards IFOAM principles (2005) by providing benchmarks for health & welfare and environmental impact for different production systems, and associated strategies for improvement. Furthermore it applies a holistic, trans- or interdisciplinary research approach which will advance organic research methods in general. The scientific knowledge gained will be suited to develop new and improved existing pig farming systems, from which animals, humans and the environment will benefit. Combined on-farm assessment protocols for animal welfare and environmental impacts, including automatic recording and benchmarking tools, will be delivered. These are, in this form, new and can be used by researchers, advisors and farmers. Very practical improvement tools (farm specific planning) for the use on farm or during advisory activities will be developed, implemented and evaluated. These tools provide specific knowledge to support farmers' decisions and encourage change. The existing networks and knowledge from the two previous CoreOrganic projects CorePIG and ANIPLAN can be used and expanded very efficiently.

Coordinator, partners and countries involved

Coordinator:

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