

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

<p><b>Project short name and title</b></p> <p>SafeOrganic - Restrictive use of antibiotics in organic animal farming – a potential for safer, high quality products with less antibiotic resistant bacteria</p>
<p><b>Project summary</b></p> <p>Spread of antibiotic resistance along the food-chain is a major food safety concern due to the risk of treatment failure of human foodborne infections. Recent reports suggest that the restrictions on use of antibiotics in organic animal farming promote lower levels of antibiotic resistance in organic animal products as compared to conventional products. This is, however, scarcely documented in the EU, particularly for swine. Thus, the organic pig production is probably characterized by significant lower levels of antibiotic resistance and providing the documentation of this very important quality parameter of organic pigs holds the opportunity of exploiting this essential advantage of organic pork in marketing. Therefore, in SafeOrganic it will be documented whether the organic pigs in different European countries does show lower levels of antibiotic resistant bacteria compared to the conventional pigs. Furthermore, there seems to be a widespread routine of slaughtering conventional and organic animals at the same slaughter lines without special hygiene barriers to avoid cross-contamination. An important part of the project is therefore to investigate to which degree antibiotic resistant bacteria from conventional raised animals is transferred to organic meat during processing. Accordingly, SafeOrganic will assess and suggest management options, which can minimize the contact and hence risk of cross-contamination between the organic and the conventional meat products during slaughter. Information on the antibiotic use at farm level is normally not available, which hampers the authority control of imprudent use of antibiotics. Therefore, SafeOrganic will investigate if bacterial antibiotic resistance patterns and genotypes can be used as markers for the consumption of antibiotics in organic animal production. The results obtained in the project will be communicated to end-users enabling the slaughter industry to reduce spread of antibiotic resistant bacteria, and organic animal farmers to market pork meat with very low levels of antibiotic resistant bacteria implying an improved food safety quality compared to pork from conventional farming systems.</p>
<p><b>Aim, objectives and hypotheses</b></p> <ul style="list-style-type: none"> <li>• To determine if the restricted use of antibiotics in organic animal production leads to lower levels of antibiotic resistant bacteria in animals before slaughter.</li> <li>• To investigate at which level antibiotic resistant bacteria from conventional raised animals is transferred to organic meat when animals are slaughtered at the same processing line.</li> <li>• To investigate if the occurrence of certain bacterial antibiotic resistance patterns or genotypes can be used as markers for drug use in organic animal production.</li> <li>• To communicate research findings to end-users enabling the slaughter industry to reduce spread of antibiotic resistant bacteria and organic animal farmers to market meat products of higher food safety to the consumers.</li> </ul>
<p><b>Expected results and their impact/application</b></p> <p>Due to the restrictions on antibiotic usage in organic animal farming, organic pigs are expected to carry significant lower levels of antibiotic resistance, but the documentation of this, very important quality parameter of organic pork, has until now been sparse. The field-survey planned in SafeOrganic is expected to provide this documentation of</p>

lower resistance levels in pork. Thus, organic pork holds a higher food safety compared to conventional products. This could be exploited in marketing and we will bring this to the attention of e.g. the industry and retailers.

The SafeOrganic project is expected to demonstrate that the slaughterhouse is a place for cross-contamination of organic pork with antibiotic resistant bacteria from conventional pigs. The lack of separation between organic and conventional meat threatens a major quality parameter of organic meat obtained by the restricted drug politic in organic farming. Project knowledge on cross-contamination with antibiotic resistant bacteria will be brought to the attention of organic producers and slaughter industry and will urge for optimised slaughter routines, which ensure adequate separation of organic and conventional meat at slaughter.

The project aims to identify a link between characteristic antibiotic resistance / genotype profiles and antibiotic consumption. Provision of estimates on antibiotic consumption could help control bodies to discover violations of the organic legislation concerning imprudent use of antibiotics. Such new control instruments for supervisory authorities and meat inspectors will improve the inspection and will benefit not only the quality of organic meat products but also enhance the reliability of the certification systems.

At the technical level, the project also aim to provide the documentation for a new an easier and cost effective method for determining the enteropathogen or antibiotic resistance status for slaughter pig herds by sampling at the slaughterhouse.

#### Coordinator, partners and countries involved

	Acronym	Organisation	Country	Contact person	
1	Coordinator	DTU-FOOD	Technical University of Denmark, National Food Institute	Denmark	PhD, Research Leader Søren Aabo
2	Partner	IZSve	Istituto Zooprofilattico Sperimentale delle Venezie, Department of Risk Analysis and Public Health	Italy	Dr., Head of Department. (Director OIE/NRL for Salmonella) Antonia Ricci
3	Partner	ANSES	French Agency for Food, Environment, and Occupational Health Safety, Unit of Hygiene and Quality of Avian and Pork Products	France	Dr., Head of Unit Martine Denis
4	Partner	SVA	National Veterinary Institute, Department of Animal Health and Antimicrobial Strategies	Sweden	DVM, PhD, Ass. Professor, Head of Section Björn Bengtsson
5	Partner	UCPH	University of Copenhagen, Faculty of Life Sciences, Department of Veterinary Disease Biology	Denmark	Professor with special responsibilities Anders Dalsgaard
6	Partner	VRI	Veterinary Research Institute, Department of Bacteriology	Czech	Assoc. Prof. / Head of Department of Bacteriology Ivan Rychlik