SafeOrganic

Restrictive use of antibiotics in organic animal farming – a potential for safer, high quality products with less antibiotic resistant bacteria

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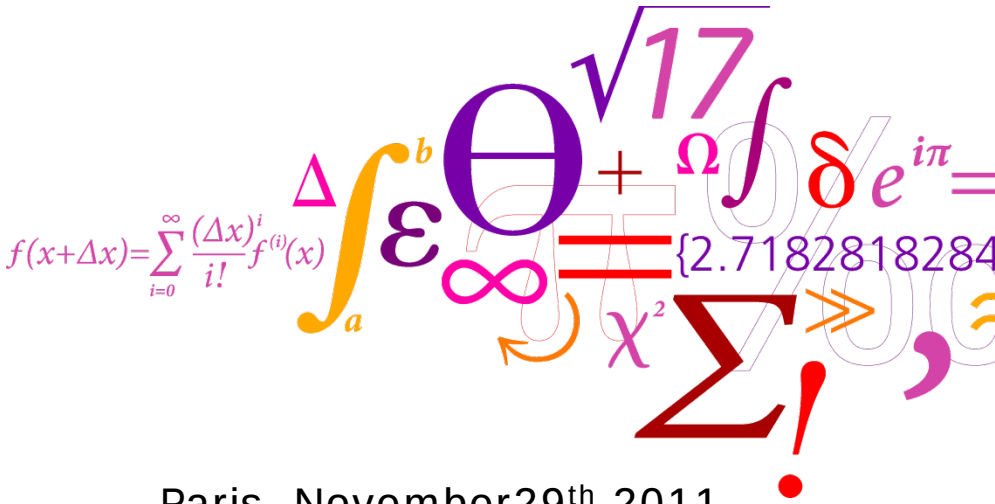
Partner countries:

- Denmark (DTU & UCPH)
- Sweden (SVA)
- France (ANSES)
- Italy (IZSVe)
- Czech Rep. (VRI)



DTU Food
National Food Institute

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Aim - SafeOrganic

To support organic farmers to market meat products of higher food safety quality

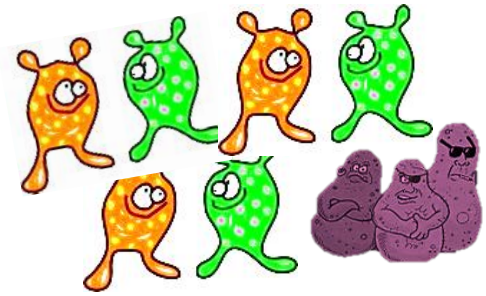
Objectives

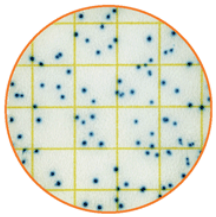
- To document potential lower AR levels in organic pigs
- To investigate the level of AR cross-contamination at slaughter
- To investigate for a correlation between observed AR and consumption of antibiotics
- To display factors in organic pig farming related to development of AR
- To test a method for determining AR herd status at the slaughterhouse.

Background - SafeOrganic

- Antibiotic resistance is a food safety concern
- Specific management procedures (EU reg. 1804-1999) - restricted use of antibiotics and outdoor housing of pigs
- Lower levels of AR in organic pigs have been suggested
- Possible contamination of organic meat from conventional pigs at slaughter
- Antibiotic consumption data is limited in animal production in EU
- Potential lack of credibility and lack of control options

Hypothesis: Occurrence of antibiotic resistance is lower in organic pigs than in conventional pigs



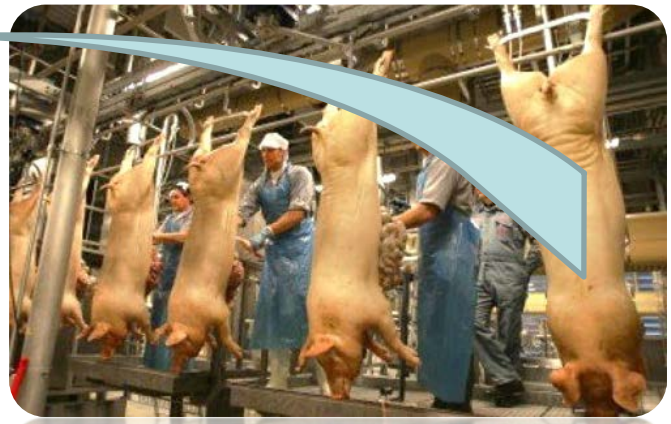


MIC

Hypothesis: Organic pork is contaminated with antibiotic resistance from conventional pork during slaughter.

Conventional pigs

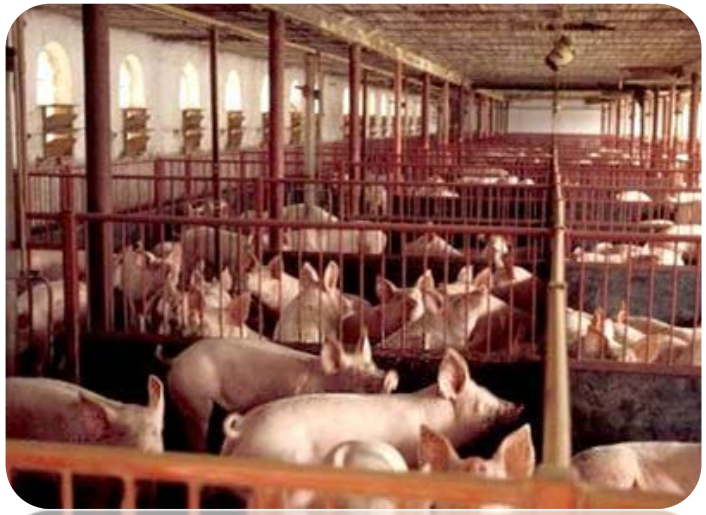
?



Stats-kontrolleret økologisk

Need for improved hygiene barrier??

Hypothesis: The antibiotic resistance at herd level can be defined at slaughter.



Herd

(rectal samples)

Slaughterhouse

(colon content)

Hypothesis:
Atypical resistance patterns can be used as markers for imprudent use of antibiotics

- Cluster analysis can display herds with atypical antimicrobial resistance patterns, and potentially be a tool to pinpoint problematic herds (control option).

- High level of antibiotic consumption lead to clonal selection and lower genotype diversity in E. coli and in the whole intestinal microbiota.

Work Packages and leadership

WP1 Management

Søren Aabo (PL) DTU, Denmark

Annette Nygaard DTU, Denmark

WP2 Occurrence of AR in organic and conventional pigs

Björn Bengtsson SVA, Sweden

WP3 Cross-contamination at slaughter

Martine Denis ANSES, France

WP4 Markers of antibiotic use

Antonia Ricci IZSVe, Italy

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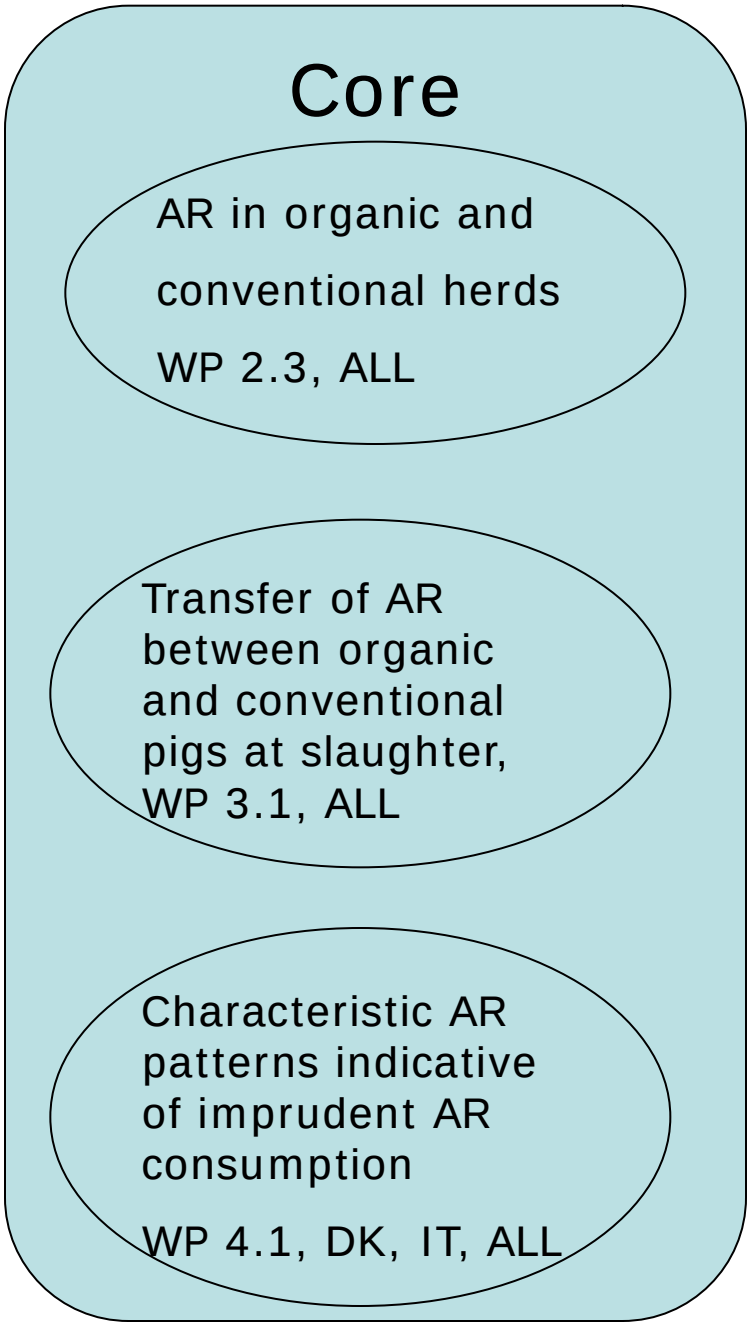

Herd factors related to AR

WP 2.1 SE, IT

Convinient testing of herd status

WP 2.2, DK

Difference in genotype diversity between organic and conv. herds, WP 4.2 FR,DK

Microbiota and R-gene analysis

WP 4.3 Cz/ ALL

Expected results from SafeOrganic

- Documentation of AR meat quality

- Recommendations for slaughter

- Control options for imprudent use of antibiotics

Thank you for your attention