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TECHNOLOGY PRESENTATION

Automatic recognition and treatment of sick animals

Aarhus University, Faculty of Agricultural Sciences

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Technical Field
Agriculture,
IT, Electronic

Business opportunity
Research collaboration
Licensing opportunity

Current state of technology
A prototype has been built and a system for disease recognition in pigs is currently under evaluation. The system for medication needs development.

Applications
The system allows automatic monitoring and treatment of individual animals housed in groups.

Commercial Value
The new technology allows:
A) Reduced use of medication as only diseased animals will be medicated
B) Improved animal welfare
C) Possibilities for reduced spreading of infectious diseases.

Latest statistics show that the level of antibiotic treatment in Danish production of slaughter pigs were increased by 6.3% from 91 tons to 97 tons in 2007. This equals a 3.9 % increase per kilo produced meet. The use of tetracycline and Macrolide was increased with 26% and 6.5% respectively, while the use of amino glycoside wae decreased with 46%. The general increase were related to sow and weaned pigs between 7.5-30 kg. The use of the broad-spectrum cephalosporin is gradually increased from 24 kg in 2001 to 129 kg in 2007. The increased threat of antibiotics resistances raises focus on reducing prescription pattern and increasing illness traceability among diseased animals and calls the need for innovative technological solutions.

The Technology
Available antibiotic treatment becomes more and more insufficient and multi resistant bacteria seem to increasingly threaten human health and survival. One of the main reasons for development of multi resistant bacteria is the extended use of antibiotics in the treatment of humans and animals for consumption. This has lea to an increasing mandatory demand for minimizing the use of antibiotics. As a consequence, new methods able to handle monitoring and treatment at individual levels for instance in pigsties, become extremely important.
We here present a new method for individual monitoring and treatment of diseased animals using automatic registration of their drinking pattern. The system logs the individual identity and water uptake by every visit to the water intake facility and will alert relevant persons if the drinking pattern of the animal changes as compared to the normal pattern.
The technology includes:

- individual recognition
- a method for monitoring drinking pattern
- detection of sick animals
- automatic treatment of the animal

(Automatic treatment is only initiated after approval by the farmer/keeper).

Intellectual Property Rights
Priority date is December 15, 2008. A Danish patent application has been filed.

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Inventors

Anders Fønss, Civil engineer, biotechnology.
Currently employed in a private company as a development engineer. Works with industrial filtration systems.
Has previous been involved in the development of a automatic blood sampling system at AArhus of University.

Erik Luc Decker, University of Aarhus. Industrial engineer (Mechanical).
Years of experience with observing and getting data from animals.

Lise Dybkjær, Senior scientist, AArhus of University.
Research in applied animal behaviour science. Has specialized in behaviour-health associations, including identification and application of behavioural indicators of disease in practical pig production. Works with automatic recording of eating and drinking behaviour.

References:
DANMAP 2007 - Use of antimicrobial agents and occurrence of antimicrobial resistance in bacteria from food animals, foods and humans in Denmark. http://www.danmap.org/pdfFiles/Danmap_2007.pdf

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