

## **Project title      Use of veterinary drugs in organic dairy herds - Potentials and consequences**

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### **Background**

The emergence and increase of antimicrobial resistance among different pathogenic bacteria has caused worldwide concern during the last decades. This has led to increased efforts aimed at reducing the usage of antimicrobial agents in food animal production, which also have influenced the types of production systems. In Denmark, organic farming is among other things characterized by restricted access to veterinary medicine compared to conventional farming. However, it is not known whether this restricted access has had any effect on the usage and the occurrence of antimicrobial resistance among the animals. The project describes the current situation in Danish organic dairy herds regarding herd health, use of veterinary medicine and antimicrobial resistance and to discuss methods to evaluate the use of veterinary medicine and improve the herd health.

### **Objective**

- To develop methods and tools for health surveillance and health planning in organic dairy herds
- To document the use of non-antibiotic and antibiotic disease treatment, including alternative treatment in organic dairy herds.
- To evaluate the consequences of reduced use of veterinary drugs in organic dairy herds for animal health and welfare in relation to specific diseases and development of antibiotic resistance.
- To examine the possibilities for changes in prevention and treatment strategies in organic dairy herds.

### **Progress - 2003**

The Ph. D. study was completed march 20<sup>th</sup> 2003. The results are published in the following publications

Bennedsgaard, T. W. 2003. Use of veterinary drugs in organic dairy herds – Potentials and consequences, Ph. D. dissertation, Royal Veterinary and Agricultural University, Frederiksberg, Denmark.

Bennedsgaard T. W., Enevoldsen C., Thamsborg S. M., Vaarst M., 2003. Effect of mastitis treatment and somatic cell counts on milk yield in Danish organic dairy cows. *Journal of Dairy Science*. 86, 3174-3183.

Bennedsgaard, T. and Thamsborg S. M. 2000. Comparison of welfare assessment in organic dairy herds by the TGI200-protocol and a factor model based on clinical examinations and production parameters, In: *Proceedings, The 2nd NAHWOA Workshop, Córdoba, Spain, 8-11 January, 2000*, p. 143-150

Bennedsgaard T.W., Thamsborg S.M., Vaarst M. 2000, Anvendelse af veterinære lægemidler, i ”sundhed, velfærd og medicinanvendelse ved omlægning til økologisk mælkeproduktion. FØJO-rapport nr. 6, 125-134.

Bennedsgaard T. W., Thamsborg S. M., Vaarst M., Enevoldsen C. 2003. Eleven years with organic dairy production in Denmark – herd health and production related to time of conversion and compared to conventional production. *Livestock Production Science*. 80, 1-2, 121-131.

Bennedsgaard, T. W., Thamsborg, S. M., Aarestrup, F. M., Enevoldsen, C., Vaarst, M., Larsen, P. B. Use of veterinary drugs in organic and conventional dairy herds in Denmark with emphasis on mastitis treatment. (Submitted)

Bennedsgaard, T. W., Thamsborg, S. M., Aarestrup, F. M., Enevoldsen, C., Vaarst, M., Christoffersen, A. B. Resistance of *Staphylococcus aureus* isolates from cows with high somatic cell counts in organic and conventional dairy herds in Denmark. (Submitted)

Bennedsgaard, T. W., Thamsborg, S. M., Aarestrup, F. M., Enevoldsen, C., Vaarst, M. Antibiotic resistance of *Escherichia coli* in conventional and organic dairy herds in Denmark. (Submitted)

Bennedsgaard T.W., Vaarst M., Thamsborg S.M., Enevoldsen C. Kristensen T., Noe E., Andersen H.J., Stjernholm T. 2000. An Action Research Approach to Development of Health Advisory Service in Organic Dairy Herds. In: Proceedings of the 9th symposium of the International Society of Veterinary Epidemiology and Economics, abstract ID 623.

Vaarst, M, Bennedsgaard, T.W. 2001. Reduced medication in organic farming with emphasis on organic dairy production. *Acta Veterinaria Scandinavica Suppl.* 95, 51-57

Vaarst, M., Thamsborg, S.M., Bennedsgaard T.W., Houe, H., Enevoldsen, C., Aarestrup, F.M. & Snoo, A. de. 2003. Organic dairy farmers decision making in the first 2 years after conversion in relation to mastitis treatment. *Livestock Production Science*. 80, 1-2, 109-120.

#### **Plans - 2004**

The last results are expected to be published.