

Nanda Ursinus presents *Oral paper 25*

In session 5: *Development and improvement of welfare assessment protocols*

Friday, 12 September 2008 from 11h30-11h45 in the Aula chaired by Linda Keeling

## **COWEL: A DECISION SUPPORT SYSTEM FOR WELFARE SCORING OF NEW HUSBANDRY SYSTEMS FOR DAIRY CATTLE**

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Animals have various behavioural and physiological needs that are important to meet their welfare. Fulfilment of needs in husbandry systems results from the quality of the housing (hardware), the management (stockman) and animal characteristics (genotype & phenotype). The objective of this study is to develop a model to assign welfare scores to potential husbandry systems based on scientific results, thereby supporting the design of new welfare-friendly systems.

A literature survey, including approximately 500 international sources, resulted in over 2500 statements on dairy cattle welfare. These statements form the basis of the COWEL model, a computer-based decision support system developed to provide welfare scores for husbandry systems.

COWEL contains attributes, that regard the main housing and management conditions and their various levels, ranging from best to worst concerning welfare. Each statement contains information about animal-based parameters (welfare aspects, e.g. lameness) that is linked to an attribute (e.g. floor type) and its level (e.g. concrete). Subsequently, statements are weighed depending on the impact they have on welfare, using weighting categories such as the occurrence of pain, illness and natural behaviour. A weighting factor is calculated that determines which attributes are most important for welfare. Finally, new husbandry systems are described in terms of attributes and levels, so that a general welfare score can be calculated.

Currently, the model is tested on several husbandry systems (two tie-stalls, two cubicles, one straw yard and one pasture-based system) while the management attributes are set at the same level. The welfare scores correspond with the expectations that a tie stall receives a very low and a pasture-based system a very high welfare score.

We conclude that the COWEL model can be used to rank new husbandry systems on a welfare scale, and is a useful tool to develop new sustainable and welfare-friendly systems for dairy cattle.

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