

Malcolm Mitchell presents *Oral paper 1*

In session 1: *Development, validation and automated measurements of indicators of animal welfare*  
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## CONTINUOUS RECORDING OF DEEP BODY TEMPERATURE TO ASSESS THERMAL STRESS IN LIVESTOCK DURING ROAD TRANSPORTATION

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During road transportation livestock are exposed to a range of potential stressors that may compromise severely their welfare and lead to increased mortality. European regulations, implemented through national law in European member states, have defined specific thermal envelopes for the “safe” transport of livestock. A major problem is the transport thermal micro-environment. The validity of the legislation during commercial transport and in the pertinent thermal conditions has not been determined. In order to assess the physiological consequences of thermal challenges in transit it is necessary to monitor the animal deep body temperature (DBT) continuously with minimal human intervention. Both radio-telemetry and physiological data logging represent potential methodologies to achieve these objectives.

In the present study both techniques have been employed to monitor and record deep body temperature responses of pigs and lambs (8 animals per journey) during transportation under hot weather conditions typical of those encountered in southern and central Europe in summer. The journeys employed were of 8 hours duration and are typical of those associated with the transportation of animals to slaughter. Four journeys were undertaken with pigs and two with lambs. On pig journeys the load consisted of 180 animals and for lambs 600 animals consistent with commercial practice.

The patterns of DBT observed indicate that despite elevated ambient temperatures (mean temperatures up to 32°C and maxima of 38°C) during the journeys the DBT values for both pigs and lambs did not increase and may decrease. Mean control and during-journey values for DBT(±SD) indicate no significant change or significant decreases ( $p < 0.05$  – ANOVA), typical values being 40.4±0.4°C and 39.9±0.6°C for pigs and 39.9±0.2°C and 39.3±0.4°C for lambs respectively. The results demonstrate that continuous monitoring of physiological variables in “real world” transport conditions is possible. The decrease in DBT during transport probably results from convective cooling in transit.

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