

## **How technologies can improve the welfare of transported livestock**

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With the global growth in livestock numbers, liberalisation of international trade and centralisation of slaughter facilities, increasing numbers of livestock are travelling long distances. There is also an increasing involvement of developing countries with limited animal welfare legislation and standards of animal care that focus on human, not animal welfare. Even the best transportation facilities utilised for long distance travel have an increased mortality risk for the animals compared to when the animals are on farms, and the worst can have mortalities that indicate serious welfare problems. Key issues to be improved include appropriate stocking densities, sufficient ventilation to control the accumulation of heat from the livestock and ammonia from their excreta, suitable floors and bedding, provision of food and water during the journey and better loading and unloading facilities. Livestock should only be transported in vessels and vehicles designed for the purpose, which have pens for their containment that are adequately ventilated. Improved technologies exist for the long term monitoring of conditions for the animals, including videorecording them and their keepers, noxious gas measurements and weather stations. Thermal imaging and in-dwelling body temperature and heart rate recorders can provide accurate information about the animals' welfare responses. Despite considerable research on the welfare issues involved in travel by truck, there remain many uncertainties surrounding long distance travel by ship and aeroplane, which is increasingly common. Scientific research sponsored by impartial authorities has been rare. Careful preparation of the livestock for travel, including keeping them in an environment which prepares them for both the journey and the thermal conditions at their destination, is important to reduce mortality. The supply chain has numerous stakeholders and good communication channels and a shared responsibility for the welfare of the livestock is essential. Appropriate legislative controls for the welfare of animals during, before and after international transport are difficult to achieve, due to the limitations of national boundaries. The OIE offers one of the only means of ensuring good animal welfare internationally, and the well-established standards for the transport of animals by sea, land and air need to be both enforced effectively at a national level and regularly updated to take account of new scientific developments and changing public expectations. The opportunity exists for the welfare of animals transported long distances to be improved worldwide, led by rigorous and measurable standards developed by the OIE.

Key words: air – animal welfare – livestock – ship – transport – truck.