**Application**

This research investigated the information available from Animal Welfare Incident Reports to determine the prevalence of conditions reported at export abattoirs, the timing of reporting and the actions taken, to reduce the suffering of animals who are unfit to transport and sell.

**Introduction**

Maintaining high welfare standards for farmed animals is essential at all life stages, including pre-transport, during transport, and post-transport periods. During these stages, animals face multiple stressors such as hunger, thirst, exhaustion, and inadequate space and rest during transit (EPRS, 2021). In Australia, the transportation of farmed animals faces considerable challenges stemming from long distances, the remoteness of many farming operations, and their distance from markets and abattoirs. Thus, animal welfare issues are increasingly apparent within the food chain, highlighting the need for effective regulation and operational guidance.

According to the Australian Standard (AS) 4696:2023, farmed animals suspected of disease, illness, or injury affecting their slaughter suitability must be assessed by the on-plant veterinarian (OPV) to ascertain their progression through the slaughter process (Australian Standards, 2023). The determination of an animal's entry into the food chain depends on its ability to ensure the integrity of meat and meat products. Consequently, if the animal condition fails to meet the AS for a welfare concern, an Animal Welfare Incident Report (AWIR) is initiated by staff at the export abattoir or by the OPV. It is a tool for recording incidents involving animals sent to meat export abattoirs and markets and includes measures to reduce suffering and evaluate if State or Territory agencies were informed of the incident.

This research examined data from AWIRs, evaluating the prevalence of conditions, timing, and actions undertaken. The study also explored the relationships among these aspects. Consequently, the findings of this research are expected to offer insights into the welfare of farmed animals and their transportation not only in Australia but also in a broader context.

**Materials and Methods**

A synthesis was performed on 571 of 631 incident reports from 2020/2021, obtained from the Australian government following a Parliamentary Inquiry prompted by media allegations of non-compliance with animal welfare standards in the Australian meat processing sector. Additionally, National Vendor Declarations (NVD) linked to the AWIRs were analysed, providing insights into the food safety status and traceability of animals within the food chain.

The following information was extracted from the AWIR and the accompanying NVDs, where available: total and affected number of animals in incidents in the current transport, number of incidents to date for that abattoir that year (termed number of previous incidents), species (cattle, pigs, sheep, and horses), gender (female, entire male, and castrated male), age (the average age in months for each gender), departure and arrival locations, body condition score (BCS; poor, acceptable or good), behaviour (normal/calm, mildly stressed or severely stressed/distressed), timestamps for transport and action-related events, Corrective Action decisions (emergency killing, EK, Priority slaughter PS, no corrective action NCA, or dead on detection/arrival, DoD/A), and identification of the responsible party for declaration.

Spearman’s correlation coefficient was utilised to evaluate the relationships between these variables based on the raw and untransformed data. A Principal Component Analysis (PCA) was performed to assess relationships among variables, identify redundant descriptors, and facilitate interpretation.

**Results**

Among the 571 AWIRs examined, 367 pertained to cattle, 162 to sheep, 35 to pigs, and seven to horses. In terms of transported animals in affected consignments, sheep were the most numerous at 63,883, followed by cattle at 25,486. Sheep were the most impacted animals, followed by cattle and pigs. Most incidents related to pigs involved handling issues that did not require EK. The primary reported issue for cattle was lameness and injuries sustained during transport. The BCS in cattle was reported as poor relative to sheep, which had an acceptable BCS, while pigs and horses exhibited good BCS. Cattle exhibited mild distress, whereas sheep remained predominantly calm. Pigs and horses exhibited the highest levels of distress. The predominant outcome after detection was EK, especially following extended journeys. The detection time upon arrival at the abattoir was consistent across all species, at 12 hours, indicating a notable effect on welfare. Action was promptly taken following detection. A notable percentage of individuals identified with welfare conditions were referred for PS in the kill queue. Animals DoD/A were predominant among cattle.

The correlation analysis revealed a higher number of affected animals in larger consignments. A positive correlation exists between extended transportation time and the number of affected animals with an EK decision. Older animals and females exhibited a higher number of EKs. Animals subjected to handling issues were more prone to being designated as NCA. Extended detection-action intervals were associated with heightened PS and reduced EK. Older males exhibited a higher prevalence of genitourinary issues. Older females exhibited a higher likelihood of having cancer and being EK.

The PCA analysis revealed the relationship between voyage characteristics and corrective actions. The first principal component explained 23.83% of the data variation and also demonstrated a significant correlation with the total number of affected animals and the assignment of an animal to an EK. Extended action times exhibited an inverse correlation with the execution of PS. Finally, voyages involving substantial animal populations correlated with extended delivery-detection times and a reduced incidence of animals exhibiting normal or calm behaviour.

**Conclusions**

The recorded incidence of animal welfare conditions of concern was highest for pigs, which were also most likely to be stressed and suffer from handling-problems. Cattle had the second highest incidence of welfare conditions of concern and the most incident reports. Sheep were most likely to be lame. The most common outcome following detection was EK, particularly in long journey. The time to detection following arrival at the abattoir was 8-12 h, which represents a significant impact on welfare.

The findings indicate the necessity of implementing measures to enhance the enforcement of standards concerning the suitability of animals for loading and sale, thereby preventing the transport of unfit animals.

**References**

Australian Standards, (2023). Hygienic production and transportation of meat and meat products for human consumption. AS 4696:2023. Standards Australia Ltd.

EPRS, (2021). European Parliamentary Research Service. Protection of animals during transport, data on live animal transport.