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Welfare Issues in the Transportation of Horses

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This work examines three recently published papers which report on studies conducted on the commercial mass transportation of horses, and the associated animal welfare issues. The aims, methods of investigation, results, and conclusions of these studies are summarised briefly for each article. This is followed by a discussion of the implications of the various findings for the welfare of horses during transportation.

The aim of the first study (Grandin, McOce and Lanier, 1999) was to assess injuries and welfare problems that occur during the transport of horses, and to differentiate between injuries sustained during transport, and those resulting from neglect or abuse by owners. The study evaluated 1008 horses that arrived at slaughter plants. The welfare problems were rated on various criteria and comparisons were made between horses that developed injuries during transport, and those with existing conditions. The results showed that 7.7% had a serious welfare problem. Thirty percent of all horses, however, exhibited some kind of injury inflicted by other horses in transit. It was found that cuts and lacerations were significantly more prevalent in loads of horses from trucks which made multiple stops (15% injured) compared to no stops (9% injured). It was also found that there was greater injury in double deck and gooseneck semi-trailers than in single deck trailers. High rate of injury, however, was mainly attributed to fighting due to the mixing of unfamiliar horses. Abuse or neglect by owners prior to transportation was the cause of 77% of the serious welfare problems observed. The study concluded that steps need to be taken to promote safer modes of transport (e.g. single deck trailers); and recommended segregation of aggressive individuals to reduce injury caused by fighting.

Based on their belief that unregulated and unprotected transport of equines to slaughter was a significant welfare problem, Collins, Friend, Jousan, and Chen (2000) aimed to determine how load density effects orientation, balance, falls, and injuries during transportation of horses in a large commercial trailer. In an experiment designed to simulate conditions experienced in commercial transport, three groups of horses were subjected to one of two density conditions: a high-density treatment (1.28m²/horse) and a low-density treatment (2.23m²/horse). Using a compartment of a single deck trailer, each treatment group was transported a total distance of 7.28km consisting of two laps of a course with 60o, 90o, 160o, and 180o turns; rapid accelerations; and hard brakes. Behaviour, orientation and displacement of the horses were recorded with two video cameras. The horses were assessed and scored on a zero to five scale for injuries. Observations showed that more aggressive horses would start fights by repeatedly biting or kicking other horses in an attempt to gain more space. The results showed that the high-density treatment resulted in twice as many falls as the low-density treatment, and horses remained down for a longer period of time. The proportion of horses injured was also higher for the high-density treatment (64%) than for the low (29%). It was concluded that the ability of horses to stand up after a fall was hampered in higher load density situations and this was thought to contribute to the greater number and severity of injuries. The authors concluded that the use of moderate stocking densities would likely decrease injury and stress during transportation.

The objectives of a third study (Stull, 1999) were to examine the physiological responses of horses and number of injuries during commercial transport under summer conditions. Nine trailer loads of horses were used for the study. Two types of trailer were studied: single straight deck and two-tiered "pot belly" trailers. Distances travelled ranged from 596 to 2,496 km. Number of horses per load, area per horse, and distance and time travelled were recorded for each load. Physiological measurements were recorded prior to and after transport. Temperature, humidity,

ammonia and carbon monoxide concentrations were monitored throughout the trips. Injuries were assessed at destination. Although a higher proportion of horses were injured in the pot-belly trailers compared to the straight-deck trailers, the level of stress was shown to be higher in straight deck trailers (physiological measurements of cortisol levels and neutrophil/lymphocyte ratios). Muscle fatigue and dehydration were shown to increase with trip duration, especially with trips over 27 hours.

In terms of load density, a lesser percentage of horses were injured when given 1.14 to 1.31 m²/horse than those given 1.40 to 1.54 m²/horse. It was shown, however, that physiological responses in low-density situations are generally less. The authors suggest that the increase in dehydration, stress, and injury associated with single deck trailers could be attributable to poor ventilation (shown by increased noxious gas levels). It is suggested that trailer designs be improved. A floor area of 1.14 to 1.31 m²/horse (higher load density) is suggested to reduce injuries. Fatigue, dehydration, and stress were thought to contribute to the large increase in injuries in horses travelling 27-30 hours as compared to shorter distances.

The studies reported in the three papers discussed above were conducted to increase knowledge regarding the welfare status of horses during commercial transportation. Animal welfare in this situation appeared to be reasonably well researched for farm animals such as cattle and pigs, but had not been well documented for horses (Whiting, 1999). The results of the studies suggest a need to modify practices in the commercial transportation of horses to reduce injury, stress, and to improve their general welfare status. Areas for improvement include the design of transport vehicles, optimisation of stocking density, and the segregation of aggressive animals to prevent fighting.

A significant finding of Grandin et al (1999) was that a large proportion of horses arriving at their destination began their journey in poor condition as the result of abuse or neglect by owners. This group failed to consider the effect of load density on the propensity of the horses to exhibit aggressive behaviour. Studies with cattle (Whiting, 1999) have found that, up to a point, increased loading density is beneficial to animal welfare. However, in comparison to cattle, horses are more likely to show aggressive behaviour when in close contact. Injuries incurred during transport were the result of biting and kicking.

The economics of high-volume transportation of farm animals means the optimisation of loading density is very important. The findings of second and third studies conflict on the issue of loading density. This may simply be the result of the experimental design in the second study not realistically simulating "real-life" conditions. Because of this conflict, and the importance of the load density factor in the behaviour of the horses and their subsequent welfare in transport, it is essential that further studies be conducted in order to clarify the situation and determine an optimum stocking density.

References

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