Looking at the Causes of Stress in Cattle Transported by Road

By Martin Batty

Introduction

Transport of the farm animal is a necessary apart of its life. Whether being moved from farm to farm, or going to slaughter, transport by road, rail or ship is the easiest way to move a large number of animals at the same time (Swanson & Morrow-Tesch, 2001). Although cattle transportation has been occurring for hundreds of years, the same problems still occur these days as occurred when animals were first being moved. Chiefly these are the problems of pre-transport handling and overcrowding leading to the animals becoming over stressed and thus affecting the quality of the carcass (Agra Europe, 2001). Many of the stressors involved in a long journey include heat, cold, dehydration, pain/trauma, motion sickness and fear (Villarroel et al., 2001). In order to improve transport conditions for cattle, these issues have to be addressed. The following three studies highlight various problems that can arise when transporting cattle.

Discussion

The first study was from Spain (Villarroel et al., 2001). Data were collected on the methods and facilities used for loading and unloading, transport times and the types of vehicles used. Surveys were completed by the farmers about the specifics of their loading and handling facilities. Truck drivers were asked about their truck specifications and transport handling practices, and the slaughterhouses were asked about their unloading facilities and how the animals were handled at the time of unloading and in lairage.

The second study was from the U.S.A. (Swanson &Morrow-Tesch, 2001). It looked at the physiological and behavioural responses to transport and also the effect of transport on pre-slaughter food safety and carcass quality. It gathered results from many experiments performed in these different fields on both calves (animals under six months old, between 40-400kg) and cattle.

The third study was carried out in England (Grigor, et al. 2001) and examined the effects on the welfare of calves transported on two journeys of equal total duration (nine hours), but with different lengths of lairage stops in the middle. Of the two groups, one group had a lairage time of one hour and the other twelve hours. This was to look at the effects of an increased lairage time on how much rest the animals received between journeys. The issue of space allocation was also considered with one group having the minimum allowance - 0.375m2 - and the other having the maximum - 0.475m2. This was aimed at looking at how much space is available for lying down and looking at the posture of the cows. Another control group was not transported.

There are several common themes in all of these studies but probably the most important is the stress response of the cattle in the initial stages of transport and in the pre-transport handling. The first study showed that stockmen know about the importance of the animals economically and so tend to treat the animals with some care (Villarroel et al., 2001). This was also evident in the second study as it was found that the welfare of the animals increased as their value increased (Swanson and Morrow-Tesch, 2001), suggesting that the stockmen do not think about the welfare of the animals as much as they do about their profits. However, animals that are economically unimportant were treated poorly with incidences of stockmen using electric goads to move cattle being reported by Villarroel et al. (2001). Cortisol levels were measured in the second and third studies and these were found to be elevated at the start of the journey, but then decreased after about the first hour. However, levels were still higher than normal at the end of the journey - an indicator that the animals were under stress (Swanson and Morrow-Tesch, 2001; Grigor et al. 2001). This may have been due to the effects of the transport, but then it may also have been a delayed reaction to the handling prior to departure (Grigor et al. 2001).

Another point highlighted less in both the first and second studies was the conditions under which the cattle were loaded. The tended to be loaded in areas that were not under cover and so there was potential for heat stress and dehydration in hotter climates (Swanson and Morrow-Tesch, 2001). This was especially noted in the first study where all but two of the farms had no cover for loading facilities (Villarroel et al., 2001). This can be a major problem in cases where cattle are loaded in the middle of the day when diurnal temperatures peak.

The animals' natural behaviours were also affected during the transport period. Study Three looked at the standing patterns and found that the transported animals tended to spend more time standing up than lying down (Grigor et al. 2001). This finding is supported by Study Two which came to the same conclusion. Study Two went further by examining the creatinine kinase levels in the cows and finding that they increased as the journey progressed - an indication of increased muscle fatigue (Swanson and Morrow-Tesch, 2001). Study Three showed there were no significant results from the effects of the space allowance, and for the differences in lairage time mid-journey. The study found that the two different lairage periods "did not appear to be detrimental to the welfare of the calves during the subsequent nine-hour journey or post-transport" (Grigor et al. 2001).

One of the main problems for farmers with the transportation of cattle is that they lose between 3-11% of their body weight through stress (Swanson and Morrow-Tesch, 2001). This can come from pre-handling stress brought on by poorly trained handlers, but also from the act of being transported (Villarroel et al., 2001). The young should not be transported (EU report, 2002) due to the naivety of their immune system and subsequent susceptibility to disease, especially pneumonia and diarrhoea. Contact between animals and other farm animals should be kept to a minimum to prevent the transmission of disease (EU report, 2002; Agra Europe, 2001).

Conclusion

Transport stressors reflect a number of factors, all of which should be improved to ensure the welfare of the cattle. Thus all personnel handling cattle should have the proper training and certification and all equipment should be used appropriately. Minimum allocations of space should be implemented, especially for the longer journeys, as cattle tend to stand up more. Providing more space allows cattle to lie down and express their natural behaviours.

References

Villarroel, M., Maria, G. A., Sierra, I., Sanudo, C., Garcia-Belenguer, S., Gebresenbet, G (2001). Critical points in the transport of cattle to slaughter in Spain that may compromise the animals' welfare. Veterinary Record149, 173-176.

Swanson, J. C. & Morrow-Tesch, J. (2001) Cattle transport: Historical, research and future perspectives. Journal of Animal Science 79:E102-E109.

Grigor, P. N., Cockram, M. S., Steele, W. B., Le Sueur, C. J., Forsyth, R. E., Guthrie J. A., Johnson, A. K., Sandilands, V., Reid, H. W., Sinclair, C., Brown, H. K. (2001), Effects of space allowance during transport and duration of mid-journey lairage period on the physiological, behavioural and immunological responses of young calves during and after transport. Animal Science 73:341-360.

Animal welfare: EU scientists assess impact of long journeys on livestock. European Report, March 23, 2002 p489

EU problems persist on animals transport welfare. Agra Europe, October 5, 2001 pEP/6.

Ministers agree animal transportation standards (European Union farm ministers). Agra Europe, December 19, 1997 n1778 p6 (2).