

WELFARE ASPECTS OF THE LONG DISTANCE TRANSPORTATION OF CATTLE

ASPECTE ALE BUNĂSTĂRII ÎN TRANSPORTUL TAURINELOR LA DISTANȚE MARI

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This paper sets out to examine the facts behind the trade of long distance transportation of cattle. In particular it looks at the various welfare implications during handling and transport with examples from research work on cattle. The role of the science is explained and the methodology for assessing the welfare of animals is then presented. Finally, public concerns and legal position are presented as they play an important role to promote farm animal welfare principles during transportation.

Keywords: cattle, transport, welfare

Introduction

The welfare of an individual is its state as regards its attempts to cope with its environment (Broom 1986) and includes both the extent of failure to cope and the ease or difficulty in coping. Health is an important part of welfare whilst feelings, such as pain, fear and various forms of pleasure, are components of the mechanisms for attempting to cope so should be evaluated where possible in welfare assessment (Broom 1998, 2001).

Long distance transportation of live animals is associated with a wide variety of stressors, including heat and cold, hunger, thirst, humidity, overcrowding, mixing with unfamiliar animals, fatigue, motion sickness, noise and vibration, and inadequate ventilation. Such stressors often result in poor welfare, a state in which the efficiency of the body defence including the immune system can be compromised.

Key factors which can result in stress during animal handling and transport are: attitudes to animals and the need for training of staff; laws and retailers' codes; genetics especially selection for high productivity; rearing conditions and experience; the mixing of animals from different social groups; handling procedures; driving methods; stocking density; increased susceptibility to disease and increased spread of disease (FVE, 2001; SCAHAW, 2002; EFSA, 2004).

Nowadays, animal welfare during transport is the subject of debate, often based on emotional approaches. However, it is important that the economic, scientific and practical dimensions should be taken into account by legislative and executive bodies and the animal welfare movement.

In this paper various welfare aspects of the long distance transportation of cattle are introduced. Scientific evidence is presented together with ethical and public concerns, as well as enforcement problems with examples from work on cattle long distance transportation.

Long distance transportation of cattle and welfare

It is estimated that at least 25 million cattle are transported per year nationally and internationally within Europe, some for slaughter, and others for further fattening. Many of these journeys, which involve extensive suffering, take over 30 hours. Animals might be packed into overcrowded trucks and might often be given no, or far too little, food, water or rest. Moreover, each year, almost one million young calves are transported on very long journeys across Europe, even though young calves can suffer greatly during lengthy journeys.

The long distance transport of animals is not only increasing significantly but is also changing in nature. What has made circumstances different in the 21st century is the nature of transport, the volume of traffic and a public awareness of welfare issues with demands that animals be treated humanely and in accordance with best contemporary practices. This increased volume of transport creates an unprecedented risk for disseminating infectious diseases, including those that may affect people (Adams and Thornber, 2008).

Almost all cattle transport operations are by road. A small minority of animals are transported by sea or rail, or combinations of these.

As examples of long distance routes of cattle transportation (Stevenson, 2008), Table 1 sets out Ireland's trade in young calves.

Ireland sends over 100 000 cattle a year to Spain and Italy for fattening; some of these are young calves, but most are weanlings (aged 6-12 months). The journeys to southern Europe take 42-50 hours and are around 2 200km in distance. Reports by the European Commission's Food and Veterinary Office (FVO) and by NGOs show that Irish transporters often fail to unload the animals and rest them in France as required by EU legislation (Animals' Angels, 2006). Road transportation of cattle has been extensively studied, however very little is known about cattle long distance transport by sea or by rail.

Ireland's trade in young calves

Importing Countries	Number of calves leaving Ireland
The Netherlands	53 591
Spain	17 640
Belgium	15 139
France	10 011
Italy	2 982

Source: Cattle Movement Monitoring System, Ireland & P. Westra, author of annual booklet produced by Product Boards for Livestock, Meat and Eggs, the Netherlands

The requirements for rail transport are essentially similar to those for road transport, focussing on standards for vehicles, rest periods, and times for feeding and watering. Rail transport has the disadvantage of repeated handling of livestock, usually the loading and unloading from road transport at the start and finish of the journey. In many parts of the world, conditions for the rail transport of animals, including the stockmanship involved, can be poorer than those for road transport. Rail transport for farm animals is therefore less favoured and has been completely abandoned in many countries.

Regarding sea transport, Norris (2003) outlines the programme of research undertaken into the causes of sheep and cattle deaths during sea transport from Australia – the world's largest exporter of sheep and cattle by sea. The main findings of these investigations are summarised as follows:

The death rate for all cattle during sea transport from Australia to all destinations during 2004 was 0.10%. Investigations on voyages to the Middle East showed that the main causes of cattle deaths were heat stroke, trauma and respiratory disease. All of the deaths from heat stroke were in Bos taurus breeds and occurred in the latter half of the voyage. The research also showed that the risk of death on voyages to the Middle East was three times greater among cattle exported from southern ports in Australia compared to northern ports. The likely reason is the higher content of tropically-adapted Bos indicus cattle in northern Australia and their ability to handle the heat and humidity encountered during the voyage, in contrast to the B. taurus breeds from southern Australia.

Scientific evidence

The suffering that is inherent in long distance transportation has been extensively documented. Scientific research shows that food and water deprivation for 14 hours results in vigorous attempts by cattle to obtain food and water (SCAHAW, 2002). Cattle prefer to remain standing during transport. However, they will lie down after 16 hours of transport, due to fatigue (Tarrant et al., 1992). Cattle avoid lying down (i) because, being heavy animals, they get bruised by banging against the hard floor

during transport and (ii) because of the danger of being trampled by the other animals. However, the effort of standing might be tiring and quite demanding and so after 16 hours they begin to lie down. Moreover, evidence from the scientific literature indicates that mortality of adult cattle during transport increases with the length of journey (Malena et al., 2007). The vast majority of cattle are bruised during loading and transport. Jarvis et al. (1995) reported bruises on 97% of the carcasses at two slaughterhouses. Bruising increases with distance travelled (McNally and Warriss, 1996), with high stocking densities (Tarrant et al., 1992) or when cattle are driven with a stick. Moreover, when male adult cattle are mixed during transport or in lairage, they may fight and this behaviour can be recorded directly (Kenny and Tarrant, 1987). In a recent study heat stress in slaughter cattle during long road transport has been measured (Hartung et al., 2007) and the results demonstrated that the animals can be submitted to significant thermal stresses during transports in the summer, especially during stops.

As regards calves, a review (Knowles, 1995) of the scientific literature stated that "*Evidence from the literature suggests that young calves are not well adapted to cope with transport and marketing, often suffering relatively high rates of morbidity and mortality, both during, and in the few weeks immediately following transportComparatively few normal calves actually die during transport but they succumb, usually within four weeks, to secondary disease as a consequence of their inability to respond appropriately to transport*".

There is quite a lot of research already done on the effects of transports of young calves on their welfare, including their health (e.g. Mormède et al., 1982; Trunkfield and Broom, 1990; Atkinson, 1992; Schrama et al., 1996; Knowles et al., 1997; Steinhardt and Thiescher, 1999; Todd et al., 2000; Van de Water et al., 2003). It has been shown that young calves respond to transport with an increase in body temperature; heart rate and plasma cortisol concentration (Steinhardt and Thielscher, 1999) and significantly increased levels of adrenaline (Thielscher and Steinhardt, 2004).

The results derived from the above research show that young calves are very poorly adapted to cope with transport, resulting in high mortality rates. Therefore, transport should be avoided where possible.

In March 2002, the European Commission's Scientific Committee on Animal Health and Animal Welfare (SCAHAW) published a detailed report on the welfare of animals during transport. The report concludes that the welfare of animals unaccustomed to loading and transport is significantly poorer than normal during the first few hours after loading. There is then some degree of adaptation, but after a few hours of transport welfare tends to become poorer as journey length increases. The report stresses that "*Hence such animals should not be transported if this can be avoided and journeys should be as short as possible*".

The assessment of cattle welfare during transport

The welfare of animals during handling and transport can be assessed using a range of measures of behavioural, physiological, biochemical, pathological and carcass condition changes. The frequency of injury, morbidity and mortality at the end of transport can also be measured and the magnitude of effects on previous welfare deduced. A variety of welfare indicators which can be used to assess the welfare of animals are listed in Table 2 (Broom, 1998; Fraser and Broom, 1990; Broom and Johnson, 1993, Broom and Fraser, 2007).

Table 2

Generally used measures of welfare	
	Physiological indicators of pleasure
	Behavioural indicators of pleasure
	Extent to which strongly preferred behaviours can be shown
	Variety of normal behaviours shown or suppressed
	Extent to which normal physiological processes and anatomical development are possible.
	Extent of behavioural aversion shown
	Physiological attempts to cope
	Immunosuppression
	Disease prevalence
	Behavioural attempts to cope
	Behaviour pathology
	Brain changes
	Body damage prevalence
	Reduced ability to grow or breed
	Reduced life expectancy

An example of physiological measurements used to assess animal welfare status during transportation is the enzyme creatine kinase that is released into the blood stream when there is muscle damage (e.g. bruising) and during vigorous exercise; high levels of this enzyme in the blood plasma indicate physical fatigue. Not only do plasma levels of creatine kinase increase proportionately with the duration of the journey, but they also remain high for several days after transport (Warriss et al., 1995, Knowles et al., 1999a). Additionally, transport stress triggers an increase in activity of thyroid and adrenal function in cattle that is evident after even short journeys and continues to increase after long-distance transport (Fazio et al., 2005).

Public concerns

There is a widespread support for the protection of animals during transportation, mainly these ones of long distance.

during transport and (ii) because of the danger of being trampled by the other animals. However, the effort of standing might be tiring and quite demanding and so after 16 hours they begin to lie down. Moreover, evidence from the scientific literature indicates that mortality of adult cattle during transport increases with the length of journey (Malena et al., 2007). The vast majority of cattle are bruised during loading and transport. Jarvis et al. (1995) reported bruises on 97% of the carcasses at two slaughterhouses. Bruising increases with distance travelled (McNally and Warriss, 1996), with high stocking densities (Tarrant et al., 1992) or when cattle are driven with a stick. Moreover, when male adult cattle are mixed during transport or in lairage, they may fight and this behaviour can be recorded directly (Kenny and Tarrant, 1987). In a recent study heat stress in slaughter cattle during long road transport has been measured (Hartung et al., 2007) and the results demonstrated that the animals can be submitted to significant thermal stresses during transports in the summer, especially during stops.

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upgrading of vehicle standards. Codes of practice, such as retailer codes, can also have significant effects on animal welfare during transport.

Due to lack of inadequate inspections and enforcement, there is little available data about accidents, infractions and imposed penalties. Despite lack of data, violations of animal transport standards evidently occur regularly, as shown by surveillance of animal transport vehicles by NGOs working for farm animal welfare during transportation. Their findings provide evidence of violations of allowable driving times, dirty vehicles and rough handling of animals during loading, unloading and upon arrival at slaughter plants.

The following breaches of the legislation have been common for many years: deficient checks of journey logs; failure to give animals the rest, food and water; exceeding the permitted loading density; insufficient headroom; failure to provide water on the vehicle; the use of vehicles that fail to meet the legislative standards for journeys exceeding eight hours; the transport of unfit animals, and lack of certification for the drivers (Sossidou et al., 2009).

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