

## **ANIMAL WELFARE ASPECTS OF TRANSPORTING ANIMALS**

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### **Introduction**

Every year several hundred million farm animals are transported across, from and to Europe. It is estimated that more than 325 million livestock animals are slaughtered (poultry not considered) in the EU per year: pig 219, cattle 22, calf 6, sheep 70, goat 8, horse 0.3 million (Nagel 2001). Nearly all of these animals are transported at least once in their life either in the country where they were bred or to another community state. A smaller part of animals is imported from non-EU countries or is transported to extra-EU countries. In 2003, the EU paid export refunds for 229,278 cattle which were transported live to different extra-EU countries in North Africa, East Europe including Russia and the Middle East. 123,431 (53.8 %) animals came from Germany, the other 46.2 % from France, Ireland and the Netherlands (Anonymus 2004). The figures above do not reflect the local sales and shorter transports between farms or to nearby markets or sampling points where they are unloaded and loaded again before they are going to their destinations. Since the introduction of the Council Directive 91/628/EEC on the protection of animals during transport (1991) there were regular complains from various sides that the existing legislation does not provide enough protection to transported animals especially over long distances largely because considerable parts of the regulations are not sufficiently based on scientific evidence such as journey length, travel times and unloading for resting periods. Therefore a new EU Transport Regulation on the protection of animals during transport and related operations (No. 1/2005) was issued.

This paper reports on concerns associated with animal transport, summarises the most important topics of the new Transport Regulation and gives examples of critical situations during long journeys of cattle which are not eliminated by the new regulation.

### **General concerns about animal transport**

Animal transport gives cause for concern for several reasons:

1. It can cause severe stress in animals entailing Poor Welfare.
2. Stressful transports can cause Death of transported animals.
3. Stressful transports can have a negative effect on Meat Quality.

4. Animal Health can be impaired by various pre-transport and transport conditions, mal-handling and injury. Reduced performance can promote development of diseases during and after transport.
5. There is the risk of Spread of Infectious Diseases among the animals on a transport vehicle, in an assembly centre or a place of rest or transfer.
6. There is the risk of Transmission of Infectious Diseases over large distances, e.g. FMD.
7. European wide animal traffic contributes also to the Pollution of the Environment by emissions from the stock (bacteria, dust) and the vehicle engines (fumes, PM10).

#### Stressful situations during transport

There is no doubt that transport is an unknown procedure for farm animals which can be irritating and aversive. The most aversive factors when transporting animals are seen in loading and unloading, bad handling, inappropriate driving performance, poor road conditions, too hot or too cold climate, insufficient ventilation, high stocking densities, mixing of unfamiliar animals in groups, low deck height, lack of water and food, vibration and vehicle motion. One of most controversially discussed topics is the effect of journey time on animals. Recent scientific results show that the physiological reactions of animals to transport situations depend to a high degree on gender and temperament (Marahrens et al. 2003). For typical transport associated risk factors for health see Hartung (2005).

#### The new EU Transport Regulation no. 1/2005

The new EU Transport Regulation No. 1/2005 of 22 December 2004 on the protection of animals during transport and related operations, which will apply as from 05 January 2007, has tried to take up some of the concerns mentioned above. It aims at “limiting the transport of animals over long journeys as far as possible” and “improving the protection and welfare of animals as well as preventing the occurrence and spread of infectious animal diseases” and “to safeguard the welfare and health of animals during and after transport”. The creation of the regulation was accompanied by intensive debates of all stakeholders trying to bring in their specific views and interests. Proposals such as a general restriction of the transport time to 9 h followed by a break of 12 h for rest and feeding on the lorry without unloading and without any limitation of the total transport time did not find acceptance neither by animal protection groups nor in industry. The former wanted to see a general limitation of the transport time to a maximum of 9 h the latter argued that the transport times for many long journeys will be unnecessarily extended without any benefit for the animals by the short trip

(9h) and the long (12h) break. At the end, the transport times of the transport directive of 1991 were more or less kept in place.

**What are the most important improvements (+) and drawbacks (-) of the new Transport Regulation?**

1. It is a Regulation and no longer a Directive. It is applicable directly in the Members States.  
(+)

2. The responsibility of owner, keeper and attendant for the fitness of the animals for travel has increased. The route book has to be signed by the sending and receiving person. The documents have to be kept for control purposes up to 3 years. (+)

3. Drivers and personnel on markets must hold certificates of training courses they attended.  
(+)

4. The markets and assembly centres have to work out written instructions and organise training courses for staff to reduce the risk of transmission of infectious diseases. (+)  
This is the responsibility of the organiser of such a centre. (+)

5. An assembly centre can serve as a place of departure, if the distance travelled between the first place of loading and the centre is less than 100 km, if the distance is larger than 100 km the animals have to be accommodated for at least 6 h with sufficient bedding, untied, if possible, and water supply before the next transport. (+)

6. The requirements for the transporters are increased in respect to their transport licence. The licence can be withdrawn in case of offence against the Regulation. (+)

7. Journey log books, automatic speed registration and GPS systems will become compulsory. (+)

A link to the TRACES system will be established. (+)

8. Harmonised formats for all certificates will be an improvement. (+)

9. Transport lorries for long journeys must have air temperature sensors, water meters and data recorders. (+)

10. The establishment of contact points in all member states will improve the exchange of data between the veterinary offices and competent authorities. (+)

11. The specific regulations for horses (broken, unbroken horse, foal) are suitable to improve transport conditions for the animals. For registered horses special rules are in place recognising the role of the horse as a companion (and sport) animal. (+)

12. The transport of very young farm animals (except one day old chicks) is not allowed before they reach a certain age: Piglets are fit for travel from 3 weeks of age (for long

journeys from 4 weeks), lambs from 1 week, calves from 10 days (if distance is less than 100 km earlier possible, for long journeys from 14 days), foals from 4 months. (+)

13. The Transport Time schedule including off loading for a 24 h resting period in a place of rest remains as it was in the old directive. (-)

14. No solution for the harmonisation of the travel periods for the animals and the driving times of the lorry drivers was reached. (-)

15. The animal loading densities figures remain unchanged. (-)

16. Electronic data and paper work have to be managed in parallel. This will increase administration, and there is some doubt whether these large amounts of data really improve animal welfare. (-)

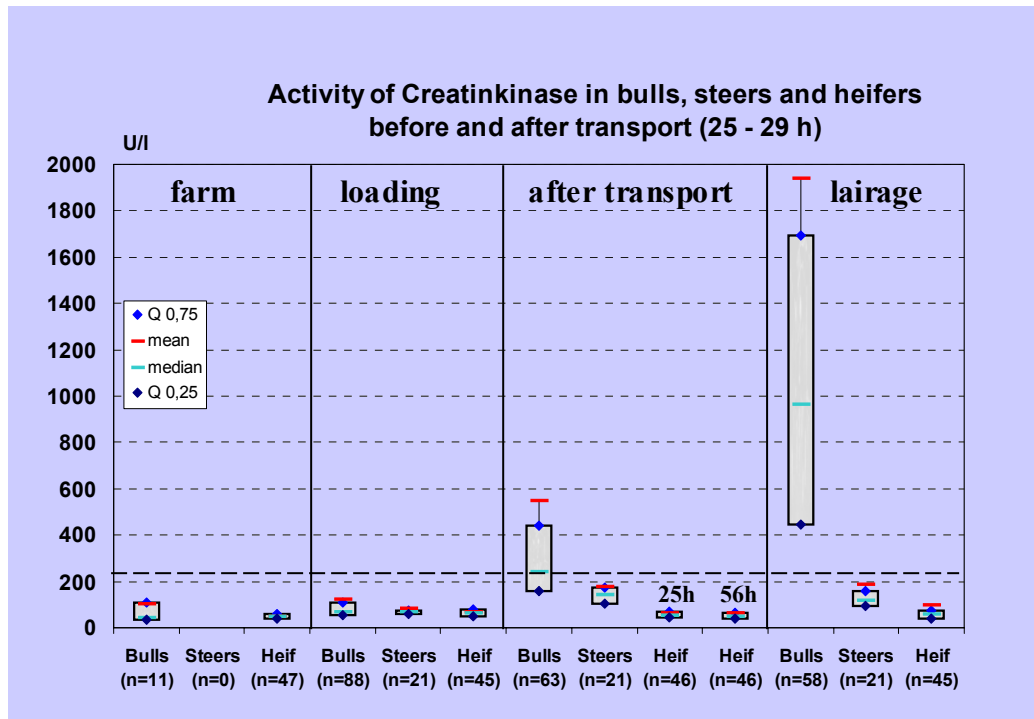
The New Transport Regulation has a high potential to improve welfare and health of animals in transit. However, there are still some drawbacks which are related to the frequent loading and unloading on long journeys which does not take into account the specific needs of the animals. Examples for cattle are given.

### **Loading and unloading of cattle during long journeys**

There are various methods available to determine the stress animals may suffer before, during and after transport by a selection of clinical, physiological (e.g. heart rate, body temperature), biochemical (e.g. cortisol, catecholamines, lactate, creatine kinase) and behavioural (e.g. video observations) indicators. The heart rates of cattle (bulls, steers, heifers), measured in beats per minute (bpm) are exceeding normal physiological values only during loading, unloading and in poorly managed resting pens, bulls in particular (Hartung et al. 2000). Similarly, the highest concentrations of cortisol are observed in cattle with some delay shortly after the loading procedure. During transport the concentrations decrease to comparable levels as observed in resting pens. However, there are also distinct differences between cattle genders when e.g. the enzyme creatine kinase or NEFA (non-esterified fatty acids) are considered. While creatine kinase, which is interpreted as an indicator of muscle fatigue, remains well below clinically relevant values in steers and heifers even after 56 h of transport, bulls are displaying concentrations more than 10 times higher after being kept for 24 h in resting pens, as demonstrated in Figure 1.

After 6 hours of transport some heifers tend to develop an energy deficit which is indicated by high NEFA and 3-hydroxybutyrate levels in the blood plasma (Marahrens et al. 2003). The high energy demand is probably caused by the additional efforts of the pregnant animals to keep the balance when the lorry is driving. This example stresses on the necessity

of a careful preparation of the animals for transport including appropriate feeding (Hartung et al. 2003).



**Fig. 1: Plasma activity of creatine kinase (50% confidence interval, median, mean) in blood plasma of bulls, steers, and heifers before and after transport and after resting (Marahrens, et al. 2003)**

When high heart frequencies, catecholamine levels and creatine kinase concentrations indicate a status of reduced welfare during loading, unloading and even in the resting pens (bulls) it is to re-consider whether the uniform transport schemes which are presently in place are appropriate for all animals of the same species. Repeated unloading and loading during long journeys transports should be avoided to reduce stress and the risk of injuries. Resting, feeding and watering on the vehicle in properly equipped supply stations seem to be the better alternative and may help the animals to adapt more easily to the transport situation on long journeys (Schmeiduch 2002).

### Conclusions and Recommendations

1. Animal transport belongs to the most controversially discussed animal welfare topics today.
2. The New Regulation has a great potential to improve welfare and health of transported animals, however, it will also increase administration.
3. Better education and higher responsibilities for animal attendants, drivers, and transport organisers and the stricter controls (log book, training, etc) will help to make decisions for the sake of the animals easier and will enhance careful inspection on fitness for travel.

4. The introduction of GPS systems will further enhance the transparency of animal transports.
5. However, not all options were taken to improve the protection of those animals which have to be transported over long distances.
6. Loading and unloading is one of the most stressful situations for untrained animals, can cause injuries, bruises and transmission of infectious diseases in staging posts on long journeys and should be reduced to a minimum.
7. Transport times on long journeys should be adapted more closely to the needs of the animals. The welfare of the animals during transport is limited by their needs not by a fixed maximum transport time, if vehicle and transport conditions are appropriate. This requires careful preparation of the animals for the transport. Animals should be familiar with feed and drinking water systems on the lorry. 24 h resting periods in staging points can be detrimental for bulls.
8. The loading densities seem to be sufficient for the animals when driving. On long journeys larger space allowance in pens may be desirable for the resting periods when animals are not unloaded.

## References

1. *Anonymus (2004): EU Bericht über die Wiedereinziehung von Ausfuhrerstattungen für lebende Tiere im EAGFL-Haushaltsjahr 2003, 31. August 2004.*
2. *Hartung, J., Marahrens, M., Holleben, K. v. (2003): Recommendations for future development in cattle transport in Europe. Dtsch. tierärztl. Wschr. 110, 128-130*
3. *Hartung, J., Marahrens, M., Parvizi, N., Schmeiduch, S., Hiegemann, H., Aussel, M., Zerbe, F., Ulbrich, H. (2000): Investigations on stress response of heifers during long distance road transport (Zur Belastung von Rindern beim Straßentransport auf Langstrecken).. In: Proceedings Congress Bundesverband der beamteten Tierärzte (BbT), Staffelstein, 03.-04.05.2000, 33-41.*
4. *Marahrens, M., Richthofen, von I., Schmeiduch, S., Hartung, J. (2003): Special problems of long-distance road transports of cattle. Dtsch. tierärztl. Wschr. 110, 120-125.*
5. *Nagel, R. (2001): Tiertransporte in Europa – Umfang und Tendenzen. (Animal transports in Europe – scope and trends). Dtsch. tierärztl. Wschr. 108, 324- 325.*
6. *Schmeiduch, S. (2002): Belastungsreaktionen von Zucht- und Schlachtrindern im Straßenfernttransport. Diss., Tierärztliche Hochschule Hannover*
7. **Legal Regulations**
8. *EU Transport Regulation No. 1/2005 of 22.12.2004 on the protection of animals during transport and related operations (Official Journal L 3, 05/01/2005 P.1-43)*
9. *Council Directive 91/628/EEC of 19 November 1991 on the protection of animals during transport (Official Journal L 340, 11/12/1991 P. 0017 – 0027), amended by Council Directive 95/29 of 29 June 1995 (Official Journal L 148, 30/06/1995 P. 0052 – 0063).*