

MODES OF TRANSPORT AND TRANSPORT LORRIES UPON LONG TRANSPORTS OF HORSES, CATTLE, CALVES, ADULT AND YOUNG OSTRICH

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SUMMARY

Transportation conditions in the time of animal transports, animal care, properly and technically well equipped transport vehicles are closely connected to administrative rules which can be occur like indicators of animal welfare. One of the most significant welfare deteriorations can be expressed by lack of necessary space (surface and altitude) due to the animal overcrowding and issued exaggerating live body weight to square meter of animal transporting vehicle loading place. In our study we deal with 16.954 animal transport vehicles, 8027 lorries and 8907 railway carriages where 426.079 animals, 248.008 cattle and 161.348 horses for slaughtering, 3088 cattle, 11.053 calf and 310 horses for further breeding and 662 adult ostrich in 12 animal transport lorries as well as 810 young ostrich for breeding in 8 lorries were transported.

Keywords: veterinary medicine, transport, transport lorries, horses, cattle, calves, ostrich

INTRODUCTION

Animal transport is tightly connected to animal production and its goods as well it represents very important economic factor in the national and international traffic (1). Legal rules which concern animal transports and respective ethical norms can be distinguish in the facts that ethical norms do not defeat legislative rules which are taken into consideration up to personal responsibility (2). Positive influences on animal welfare due to transport vehicle equipment can be exposed only if they are in harmonisation with animal breeding technology, animal loading manners and modes of transport of different species of animals, as well as suitable education of drivers and other who deal with animal transports. Due to necessary animal transports, transport organisers, performers and organisations who supervise animal transportation should closely care and consider about animal well being and welfare (2). Among the other investigation of human responsibility to animals is one of most important tasks of veterinary profession (3). It should be considered that animal transport is obligatory and essential part of way to slaughtering plant. Owing to intensive animal production as well as slaughter concentration and animal processing, transport distances in EU prolonged exceedingly. If we pay more attention to obligate measures and preserving animal welfare, animals will be less suffering and more protected against pain, suffering, fear, injuries and death (2, 4). Researching in the fields of animal transport is directed to animal burdening and immunity system weakness (5,3,6,7,8,9). In the present study we want to review different modes of animal transports in periods from 1980 to 1995 and 2003, 2004 by road and railway involving

road lorries and railway carriages as well as influences owing to transports especially due to necessary prescribed space in transport loading places – surfaces and altitudes in comparison to at that time valid national legislation and legislation in EU.

MATERIAL AND METHODS

In investigation the data about transport vehicles and animals transportation were evaluated. Research works were performed on the road and railway border stations in Sežana and Port of Koper, Slovenia. Animals we investigate were transported from third countries to EU and from EU to the third countries. To identify stressful or hazardous steps in transports the study involves:

- 8027 lorries and 8907 railway carriages in the period from year 1980 to 1995 where 248.008 cattle and 161.348 horses for slaughtering were transported,
- 3088 cattle, 11.053 calves and 310 horses for breeding,
- 20 vehicles in the period from year 2003 to 2004 where 662 adult ostrich and 810 young ostrich for breeding were transported.

Studies of transportation influences on animal species and modes of transports were performed. The effects of categories – purposes and modes of transports were observed on:

- horses and cattle for slaughtering horses, cattle, calves and ostrich for further breeding

Through evaluation of transport vehicles we consider:

- length, width, surface, barriers, covering, ventilation, bedding, excrement eliminating, drinking equipment and transport vehicles marking.

Road – animal transport lorries

Surfaces of loading platforms were: 15m², 25m², 35m², 45m² in 55 m².

Lengths: 6,52 m to 12,5 m.

Inside widths: 2,30 m to 2,35 m.

Outside widths: 2,35 m do 2,40 m.

Surface area of most lorry loading places wasn't known that is why we have to measure. Some of lorries were used for cattle and horse transports. Constructions of chassis were different especially on lorries with surfaces from 15m² to 25m² and suitable for transportation of different species of animals, mostly for cattle, horses and in some cases for small cattle and pigs as well. Loading platforms on those lorries can be mechanically lifted by steel wires round the winches. More than 90% of platforms were wooden and consecutive slippery meanwhile in other cases they were made from rip sheet metal, rarely covered with rubber. Lorry sides, so as loading and unloading platforms were made of wood. Platforms were covered with transverse wooden or metal profiles. Ramp slopes vary from 30 to 40°, with no lateral sides and no firm roofs as well as no animal separating barriers. In the winter they were covered by tilts. Transport platforms were covered with hay, sawdust, corn chops, in some cases with hay straw and sand. Lorries were not equipped by drinking equipment and excrement containers. Lorries of larger surfaces 35m², 45m² and 55m² were constructed in two floors for cattle, calves, horses and ostrich transportation. Lorries with transport platforms of 35m² and 45m² were constructed like trailers, and equipped with hydraulic lift devices (transport platforms). Loading platforms were made of rip sheet metal, covered by cca. 2% of hard rubber covering. Both loading places sides were stabile and rigid, combined with doors in every floor, made from metal, with hard metal roofs. Animals were suitable protected to outdoor weather influences. Slots in sides of lorries were attended for adequate ventilation, so as constructed with loading platforms with 30° slopes and horizontal profiles of aluminium. Horses

were not transporting in floors since the may of 1999. We can notice that in the harbour of Koper in years of 1994 and 1995 some lorries for cattle transportation were equipped by barriers. The same can be noticed on lorries for ostrich transportation in years 2004/05.

Railway wagons

Space areas of examined railway wagons were 27m², 33m², 40m², 41m² and 52m². Regular and special two and four axle railway wagons were used for international animal transports. Several construction solutions due to length, load capacity, door position, number and position of ventilation openings were used. Regular wagons were well sheltered against outdoor weather influences. At that time those vehicles can be exceptionally used also for human transports, what we can read in guides and catalogues published from railway wagon transporters. We measure and summarise some measurements of loading loading places:

- length 10,45 m to 20,40 m
- width 2,59 m do 2,66 m.

Doors and four ventilation openings with opening and closing systems on each side of two axis railway wagons were noticed. Four axis wagons have double two folds, or single one fold doors, and four ventilation openings as well. Two double two folds and single one fold doors were constructed to biggest Italian wagons with area of 52m². Rings for animal binding were placed in 95% of two and four axis railway wagons. Barriers for animal separation and 200 litre water barrels were found on 52 German wagons which their total loading place surfaces of 33m². Some French railway wagons with surface of 42m² have two fold doors and eight ventilation openings with both sides opening and closing system, animal separating barriers, hay and fodder as well as drinking systems, some of wagons intended for suckling calves transportation have special equipment for animal watering and fodder prepare. Wagons were marked for transportation of 16 horses, 24 cows or fattened bulls, 80 calves and pigs, or 133 sheep. Floors were generally covered with metal, meanwhile rest parts were from the wood. Floors were well bedded, better than others. Ventilation openings on Yugoslav railway wagons can not opened regularly. Doors were partially or completely closed in summer, door openings were closed by wooden boards or wooden barriers preventing falling of animals and litter droppings (Photo 1).

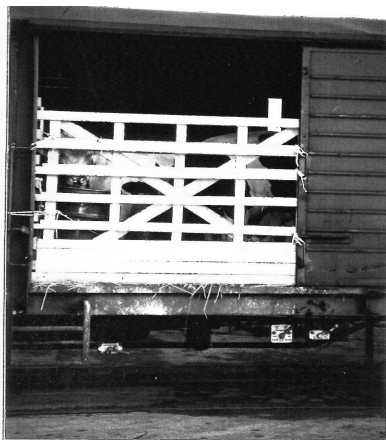


Photo 1. Wooden barrier on doors opening enable ventilation and prevent against animals falling and litter dissemination

Basic data which were taking into the statistical evaluation were conditions on animal transports. For evaluation we use statistical package SPSSX (Statistical package for social sciences). Consignments that were taken into the analysis vary from 4 to 98 animals, observation data for ostrich consignments were not statistically evaluated.

RESULTS

Table 1. Number of animals due to mode of transports and vehicle transport surfaces (m²) regarding animal species

Floor area (m ²)	Cattle		Horses		Sum		Sum/Total
	road	railway	road	railway	cattle	horses	
15	7.966	0	11.200	0	7.966	11.200	19.166
25	1.866	0	17.460	0	1.866	17.460	19.326
27	0	0	0	0	0	0	0
33	0	6.012	0	1.428	6.012	1.428	7.440
35	69.443	0	2.310	0	69.443	2.310	71.753
40	0	60.234	0	127.516	60.234	127.516	187.750
41	0	21.395	0	8	21.395	8	21.403
45	538	0	417	0	538	417	955
52	0	532	0	0	532	0	532
55	91.738	0	1.135	0	91.738	1.135	92.873
Sum	171.551	88.173	32.522	128.952	259.724	161.474	421.198

Legend:

Lorries (m²) 15, 25, 35, 45, 55

R. car. (m²) 27, 33, 40, 41, 52

Animal number due to categories

In the time of experiment 409.356 animals, what mean 96,4%, were going to slaughter (248.008 of cattle and 161.348 horses). Animals transported for further breeding have just 1% in share (4198 animals) what means 3888 cattle and 310 horses, calves for breeding have 2,6% in share (11.053 animals) of total number of transported animals. We follow 972 ostrich in transports as well.

Mode of transport and live weight

Most of horses have body weights from 250 to 400 kg, cattle weights were higher from 600 to 800 kg. Transport analyse proportions were almost equal when we analyse transports by the road where very heavy cattle were not transported. If we compare road and railway transport no significant differences can be noticed on horse transports.

Animal weight on m² of transport vehicle

Cattle consignments by road rich the highest point of stocking density when they weigh 250 to 400 kg. On railway they rich the highest point when they weigh 150–200 kg, and the lowest one when rich > 400 kg to m² of surface of transport lorry platforms. Most horses in road consignments rich the highest point when they weigh 250–300 kg, the lowest one when they were < 150 kg, meanwhile horses has to be 350–400 kg to rich the highest, and 200–250 kg to rich the lowest point of stocking density on the railway wagons.

Animal over plus in consignments regarding rule normatives (10)

When cattle were transported by road, relatively small numbers of consignments were according to rule normatives (10). Animal over plus was mainly up to 1 to 6 animals in vehicle. On the other hand most of cattle consignments by rail were within bounds of rule. If the rules were over crossed than it happens equally in all categories.

Table 2. Animal over plus in consignments regarding rule normatives (10), modes of transports and animal species (1980–1995)

Surplus	Cattle		Horses		Sum		Sum/Total
	road	railway	road	railway	cattle	horses	
0	621	2.584	77	1.162	3.205	1.239	4.444
1 - 3	1.801	233	519	1.617	2.034	2.136	4.170
4 - 6	1.740	248	737	2.128	1.988	2.865	4.853
7 - 9	1.236	120	443	507	1.356	950	2.306
more of 10	569	204	284	104	773	388	1.161
Sum	5.967	3.389	2.060	5.518	9.356	7.578	16.934

Lack of platform space in transport vehicles due to rules (10)

Cattle – 0,3 to 0,4 m² of space was insufficient for each animal at the most. Among cattle transports the lack of space was approximately equally distributed. On the road and in lorries the lack of space vary from 0,3 m² to 0,4 m² while on the railway wagons negative space lacks for cattle were relatively small.

Horses – Among horse transports lack of space was distributed approximately equally under all categories, highest point was in lacking surface of 0,6 m² to 0,7 m² for individual animal. Oh railway most of lacks of space vary up to 0,5 m² to each animal. Bigger lacks of space for more than 0,5 m² happened just in few cases no matter for cattle or horses.

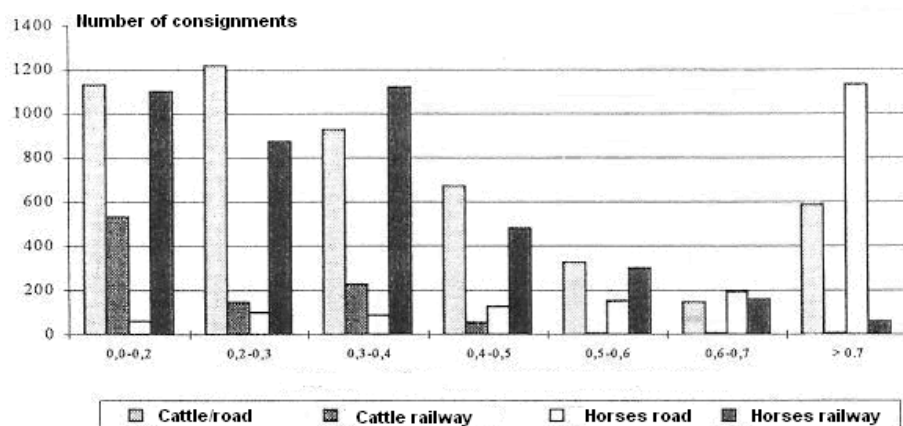


Figure 1. Number of consignments where animals has lack of space (m²) regarding rule normatives (10)

Cattle-road – most of consignments were 110 to 120% overcrowded. A bit less than 150% overcrowding can be noticed in 977 consignments.

Cattle-railway – most of consignments were transported in the normal range < 100%, just in 39 consignments where 1898 animals were transported it can be noticed < 150% overcrowding.

Horses-road – most of consignments were < 150% overcrowded where 19.086 animals were transported in 39 consignments. Just in 93 cases overcrowding did not exceed < 100%.

Horses-railway – most of consignments were 110–120% overcrowded, > 150% in 67 consignments – 2279 horses.

Ostrich

Ostrich were EU origin and designated for export in third countries.

Adult ostrich – were transported in vehicles intended for cattle or horse transportation. The average of animal altitudes was cca. 200 to 220 cm. Up to 12 consignments just in four of them, animals were regularly fed and watered. Three of ostrich consignments of live weight of 100 kg were transported in two floors, which altitudes were not more than 1,6 m, so animals were not in condition to stand in natural position. 10% of animals were obviously exhausted and in lying position due to the force. Animals in standing position beat the heads into the roof. Scrapes and bleeding were noticed on heads and animal bodies. Among 12 consignments just 1 was transported due to the prescribe rules in R Slovenia and EU.

Young ostrich – among 8 consignments (810 young ostrich) just 3 (113 animals) were in proportion with rules. We can notice just old wounds and lesions probably from the time of breed.

CONCLUSIONS

We can surely evaluate received results owing to data which were collected several years on large number of animals and several consignments. In the analyse of 16.954 transport vehicles, 8027 lorries and 8907 railway wagons there were 426.079 animals which were transported. From those analysed 248.008 cattle and 161.348 horses for slaughtering, 3088 cattle, 11.053 calves and 310 horses for further breeding, so as 662 adult ostrich in 12 lorries and 810 young ostrich in 8 lorries for further breeding, transported in periods from 1980 to 1995 and 2003 to 2004. Those transports were strongly connected by animal distress, pain, fear and other problems connected to bad transport conditions. We assume several mediate harms due to non suitable transports as well.

We should generally conclude that rules (10) which were comparable with EU directives (11) were not taken into the consideration in vehicles arrangement, stocking density and modes of transports notwithstanding rules and laws (12, 13) where long international transport conditions were clearly prescribed.

Our opinion is that for improvement of transport circumstances can be rational:

- to limit animal transports what mean slaughtering close to breeding place as possible
- to transport meat and meat products instead of live animals
- to stimulate animal suitable vehicle construction
- to educate organisers, drivers and long transports companions permanently
- to proceed research work on animal transports as well as contribution of improvement suggestions

- to establishing permanent evidence about direct and indirect harms on animals, generated in internal and international transports to strict considerate valid legislation on long international animal transport

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