

Places for corralling and slaughtering horses

Report on visits in the field in Argentina and in Uruguay



DIER&WELZIJN

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Preamble

This is a report of observations (visual observations and measurements of environmental parameters) made during visits of facilities. Each visit took several hours. The situations (animals, staff and infrastructure) were studied during these visits. Our observations were made in view of the standards and norms in force in the animal welfare field. Images (photographs and films) were taken during these visits for future analysis. Three slaughterhouses were visited, one of which, "Lamar" for a second time. In this case, the idea was to see to what extent the recommendations made in November 2015 were followed up.

The visits were made by Bert Driessen and Jos Van Thielen, both professors at KU Leuven (*Leuven Catholic University*) - Technologicampus in Geel. They are also both researchers in the Dier&Welzijn (*Animal&Welfare*) study group. They have had several years experience in the field of animal welfare and behaviour and specifically in monitoring animals during transport and in slaughterhouses.

Illustrations

Figure 1: Visual field of horses (McBane, 2012). 6

Figure 2: Comparison of perception of colours between people (on the left) and horses (on the right) (Carroll et al., 2001) 7

Programme

The 2015 itinerary was extended in 2016 by visits of facilities in Uruguay, specifically the Sarel and Clay slaughterhouses that slaughter 90% of horses in Uruguay.

Monday, 31 October 2016

Visit of the Lamar slaughterhouse (RUTA 5 (Km 94.5), 6600 Mercedes, province of Buenos Aires; about 120 km from Buenos Aires)

Tuesday, 1 November 2016

Visit of a place/facility for corralling horses

Wednesday, 2 November 2016

Transfer to Uruguay (delayed to Thursday morning due to bad weather)

Thursday, 3 November 2016

Visit of the Sarel slaughterhouse (Uruguay)

Friday, 4 November 2016

Visit of the Clay slaughterhouse (Uruguay)

Introduction

Behaviour and senses

The behaviour of a horse can only be understood and explained once it is known how the animal experiences its environment. This experience of the environment is dependent on the quality and specific characteristics of the senses. Like humans, horses have five senses: sight, hearing, smell, touch and taste. However, these senses differ from those of humans, so horses will experience their environment differently from humans. Horses have a different 'Umwelt'. This term describes the specific manner in which a species perceives and experiences. Each organism inhabits a different 'Umwelt'.

In order to understand the advice, comments and recommendations based on these observations, we have made a list of essential background information on horses' senses. This should enable a better understanding of the comments and recommendations.

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- The horse does not have the ability to see details but does have excellent night vision;
- The horse is very sensitive to light. Its relatively big eyes allow in a large amount of light. This means that the horse has some difficulty adjusting to sudden differences in light.
- The horse will be temporarily blind(ed) if it moves too quickly from light into dark or vice versa.
- The horse has a very wide field of peripheral vision, with a blind spot in front of the nose and behind the body.

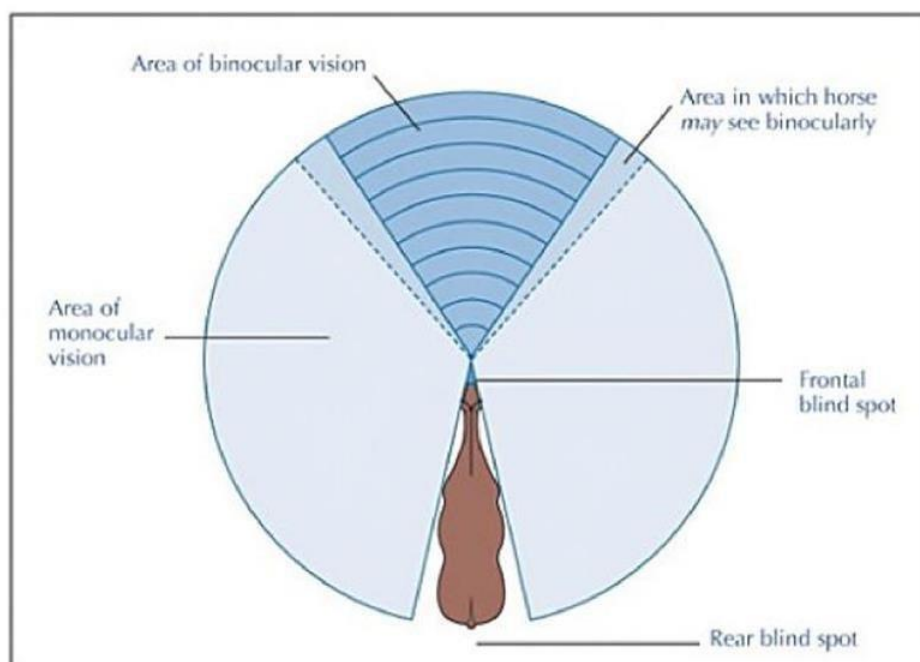


Figure 1: Fields of vision of a horse (McBane, 2012)

- The horse has a limited perception of depth, so it is difficult for a horse to see the difference, for example, between a puddle and a deep well.
- The horse has dichromatic vision, whereby it can only see two wavelengths. This means that the horse can only see a limited range of colours.

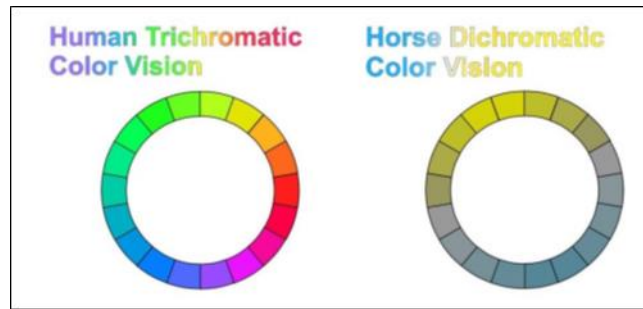


Figure 2: Comparison of the colour vision of human and horse (Carroll et al., 2001)

- The horse has a sensitive layer on the retina, the so-called 'tapetum lucidum'. This means sudden changes in colour or ground texture may make the horse nervous or induce a panic reaction.
- Horses are least comfortable with the colours black, white, blue or yellow. With these colours the animals move only reluctantly or stop moving altogether.
- Floors and walls coloured in grey, brown or green cause, on the other hand, few problems.
- The horse's hearing is much better developed than that of humans (human: from 20 Hz to 22 kHz ⇔ horse: 55 Hz to 33.5 kHz).
- Horses display a stronger reaction to noise with a higher frequency.

Transport

The various aspects of transport, such as loading, unloading, being taken out of a familiar environment, enclosure, vibrations and temperature differences may cause stress in horses. This stress results in physiological changes (e.g., increased cortisol concentration in the blood, racing heart rate, etc.) and behavioural changes.

The amount of stress that a horse experiences during transport will depend on the duration of the journey, the method of transport, the positioning of the horse and the skill of the driver. Training, age, sex, race and environmental circumstances will also determine the reactions of a horse during transport.

Loading is regarded as one of the most stressful moments of the transport. Horses are often afraid to enter an enclosed dark trailer. A horse's eye adapts only slowly to sudden differences in light. Before the eye has adapted the horse will find it very difficult to assess what is happening. Horses also avoid confined spaces by instinct because they are then unable to flee from possible danger. Problems during loading not only make the process more difficult but may also endanger the safety of the horse and rider/driver. The loading process should proceed more smoothly as the size of the trailer increases. The trailer could also be made to look less frightening by leaving the top half open or by hanging lights inside. Openings in the trailer give the horse the opportunity to view the environment around the trailer.

Horses are very sensitive to visual stimuli coming from ground level. The colour of the ground may influence the behaviour of the animals. Horses seem to be most uneasy around black, white, blues and yellows. The animals hesitate or stop before they cross ground or floors in these colours. Some horses simply cannot be persuaded to cross them at all. Grey, brown and green ground mats cause few problems. These are very common ground or floor colours, which may explain why there was so little reaction. Red is not a standard floor colour, yet the horses did not display any negative reactions to that colour. Horses do not experience the colour red as intensely as humans.

A horse is a herd animal. Separation from its kind (e.g., during transport) may lead to a number of psychological (e.g., sweating) and behavioural changes (e.g., stamping, vocalizations, etc.). It is

therefore recommended to transport horses in groups. If that is not possible, a mirror may be hung in the trailer so that it looks as if there is another animal in the trailer. The presence of one of the same kind, both in the flesh and in mirror image, reduces the incidence of stereotypical behaviour during transport.

During transport a horse is exposed to forces resulting from acceleration, the taking of corners and braking. Horses distribute 60% of their body weight over their forelegs. The hind legs are not as well adapted to constant redistribution of body weight. During transport horses will spread their forelegs and hind legs, stretching their foreleg slightly forwards in order to maintain their equilibrium. This position (usually) prevents the horse from falling over during the drive but it is tiring for the animal.

The orientation of a horse inside the trailer or truck also has an influence on the balance and posture of the animal. Horses with their heads facing in the direction of travel will lose their balance sooner because the greater part of their body weight rests on their hind legs. As mentioned earlier, the hind legs are not particularly well adapted for this purpose. In the forward-facing position many horses will hold the head abnormally high out of fear of banging the head or neck against the side of the trailer. If a horse is placed in the trailer with its hindquarters towards the direction of travel, any bump against the front wall can be absorbed by the animal's rump. The risk of injury to the head and neck are then much smaller. The horses will also be less startled by passing vehicles because they can see them coming from a distance.

Handling horses at the slaughterhouse

The procedures before slaughter cause fear and stress among horses. The animals are possibly separated from familiar members of their group and are kept in unknown surroundings with unknown animals and strange smells, images and sounds. The animals will also be hungry and thirsty after a long drive. With all these sounds, images and – above all – smells in the slaughterhouse, the horses know that danger threatens and they will become restless. The heart rate accelerates, the concentration of stress hormones in the blood increases, and behavioural changes manifest.

Most horses are usually already nervous in the waiting area. They run around bewildered with pricked-up ears, waving their tails, snorting and whinnying. The horses also display muscular stiffness and tremors, repeatedly shifting their weight from one leg to the other. It is logical that the horses will not enter the stunning area without a fight. On their way to the stunning box the horses' stress factor is often much higher. The animals will protest, stamp, leap up and/or box with each other. Horses are stunned using a captive-bolt pistol. The device is held against the animal's forehead so that the bolt can penetrate the skull and brain. The horses are killed immediately and breathing stops. Most animals continue kicking their legs immediately after being killed.

Besides being an animal welfare problem, reduced welfare for these animals during transport and in the slaughterhouse also represents economic losses through inferior meat quality and possible death. The carcass and meat quality deteriorates as a result of bruising and high levels of stress hormone. To prevent these problems the level of stress during transport and in the slaughterhouse must be kept as low as possible. Rubbing a horse's nostrils with menthol-scented ointment helps to make the animal easier to handle. The horse can no longer distinguish between the smell of fear and stress from the slaughterhouse and the menthol and therefore calms down. Other ways of reducing stress levels include the setting up of visual barriers, the removal of loose-hanging chains that may clink and rattle, and darkening the entrance to the stunning areas.

Visual barriers such as metal partition walls or curtains stop the horse seeing the movement of persons and equipment. Darkening the entrance, combined with local administration of the menthol salve, should facilitate entrance to the stunning area.

Summary and conclusions

During the first week of November 2015, two KU Leuven (Leuven Catholic University) professors, both members of the *Dier&Welzijn* (animal & welfare) study group, went to Argentina to visit various horse slaughterhouses, which handle about 80% of horses slaughtered in Argentina), as well as places for corralling horses and livestock markets. The two professors returned to Argentina in the first week of November 2016 and re-visited the Lamar slaughterhouse and a corral with an adjacent loading facility. This time, the visits extended to slaughterhouses in Uruguay, including Sarel and Clay (representing 90% of horses slaughtered in Uruguay). The professors are experts in animal welfare on farms, during transport and in slaughterhouses. For each visit, the researchers benefited from the collaboration of the management and staff of the companies involved and had access to all facilities. Insofar as possible, the KUL team systematically attempted to assess the existing expertise and infrastructures for processing, stunning and slaughtering the animals.

An animal welfare test (based on 5 freedoms) was systematically applied to the infrastructures in question. The conditions for unloading the animals, for their waiting in pens, the way they were driven to the stunning station were all systematically inspected. A critical visual control was applied to the infrastructures in an effort to answer a certain number of questions. For example, were all material conditions provided to allow for respectful processing of the animals? Staff members were observed in the field for a few hours to measure their levels of competence and skills in the way they treated the horses (under unusual circumstances for the animals) and to answer the following questions: Is the personnel present sufficiently skilled to accompany the horses easily and respectfully? Do staff members have the capacity and are they sufficiently alert and experienced to correctly take account of a problematic situation and to react adequately? On the premises inspected, parameters affecting animal welfare that could be objectively measured (such as the intensity of the lighting, temperature, wind, noise, disturbing sunlight and shadow) were systematically recorded at various stages.

The KU Leuven team observed that the Lamar company, which was visited for the second time, had taken account of the recommendations made a year earlier, and the improvements were noted.

During the visits, none of the three slaughterhouses or the corralling sites was found to enact an unacceptable violation of the welfare of the animals. Nevertheless, the KUL professors made proposals for improvements to reduce the time needed to carry out the operations (for example, moving the animals) and to implement them more easily so as to reduce the stress felt by the horses. The slaughterhouse management was open to suggestions on any points needing improvement. After the visits in November 2016, recommendations were made on how to deal with wounded animals. On arriving at the slaughterhouse, these animals should be isolated, inspected and where needed slaughtered without delay. In addition, it is up to the carrier to assess whether the animals are 'fit to travel' before loading and transporting them.

After the KUL team's visits in November 2015, suggestions were made to monitor a certain number of slaughterhouses and transport facilities in greater detail for a few seasons and to analyze the data collected in a more scientific way. The sector applied these recommendations. The visits in November 2016 constituted the beginning of this scientific monitoring that will study the relations of animal welfare, slaughtering of the animals, the quality of the meat and environmental parameters (such as duration of transport, temperatures in the pens ...). This is the reason why we monitored each slaughterhouse for a week per season in order to take account of seasonal and climatic influences. In this way, animal welfare indices can be developed and objective correlations made with measurements of meat quality; thus the stages implemented (that potentially can have a positive impact on animal welfare and meat quality) can be validated. In addition to monitoring done at the slaughterhouse, 2 or 3

horse carriers are being monitored for each slaughterhouse and each season. Cameras will record the behaviour of the horses and sensors will measure the impact of factors such as temperature, direct sunlight ... during transport. Our own studies done in Belgium have shown that incidents during transport to the slaughterhouse have a major impact on animal behaviour in slaughterhouses and the quality of the meat for the end consumer.

To give further weight to this kind of assessment, as well as in a self-monitoring context, a recommendation is made for the inspection team to have continual access to camera recordings at critical points and to be able to analyze these images at random. The disadvantage that could be associated with this kind of study is that the animal welfare assessment is limited to the period when the researchers are actually present on the premises of the slaughterhouses in question.

In depth use of the scientific data collected should result in an improvement of the HOMEFE specifications. Moreover, greater commitment should be fostered to improve awareness of how to treat the animals. It is important for the management and the personnel of the companies involved to take the existing culture of animal welfare for granted and to try to improve it constantly. For this reason, the transfer of the Western European animal welfare culture to local authorities such as universities and inspection services (SENASA) should be promoted and intensified.

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